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# ARTIFICIAL INTELLIGENCE AND FRAUD DETECTION OF DEPOSIT MONEY BANKS IN AWKA-SOUTH ANAMBRA STATE, NIGERIA

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## ABSTRACT

*This study ascertained the effect of artificial intelligence on fraud detection of deposit money banks in Awka-South Local Government Area, Anambra State, Nigeria. Notwithstanding the tangible and monetary benefits, artificial intelligence has various shortfall and problems which inhibits its large scale adoption. With automation, nefarious acts such as phishing, delivery of viruses to software might be difficult to uncover. Although technology has helped make it possible to detect fraud, numerous challenges still face businesses. Ironically, advances in technology also enable fraudsters to craft new ways to dodge detection. This study adopted field survey research design. The population was six hundred and fifty one (651) staff of the sampled fourteen deposit money banks. Taro Yamane formula was employed to determine the sample size of 248. Of the 248 copies of administered questionnaire, 174 copies were collected. Validity and reliability of the instrument were tested and achieved. Descriptive statistics was employed, while inferential statistics using Cronbach Alpha, Spearman's Correlation and Paired Sample T-Test were employed to test the hypotheses with the aid of SPSS version 23. The specific findings revealed that Facial recognition artificial intelligence has a significant and positive effect on transaction monitoring ( $t$ -statistic = 6.9622;  $p$ -value = 0.000); Chatbot artificial intelligence has a significant and positive effect on transaction monitoring ( $t$ -statistic = 4.909;  $p$ -value = 0.000); Digital assistant artificial intelligence has a significant and positive effect on transaction monitoring ( $t$ -statistic = 6.5659;  $p$ -value = 0.000) of deposit money banks in Awka-South Anambra State, Nigeria at 5% level of significance respectively. This study recommended inter alia that firms should employ the artificial intelligence tools to provide better security and surveillance opportunities, which would also let human identification be fully automated hence enhancing productivity while also raising the rate of accuracy and the detection of fraud.*

**Keywords:** Transaction Monitoring, Facial Recognition Artificial Intelligence, Chatbot Artificial Intelligence.

## Introduction

Artificial intelligence (AI) is rapidly changing how financial institutions are operated and it is expected to increasingly take over core functions because of cost savings and operational efficiencies. In recent time, significant improvement has been made in artificial intelligence (AI) especially as it relates to accounting profession which has changed its focus from paper and pencil entry to computer and software entry. The field of accounting has a long history of artificial intelligence (AI) applications dating back more than 25 years mainly in the areas of financial reporting and auditing. Today, artificial intelligence (AI) is applicable in virtually all aspects of accounting operations which has generated fear and concern among professionals on the possible continual relevance of human accountants in organization's scheme of affairs in the nearest future (Amahalu, Okoye & Nnadi, 2023). Artificial Intelligence means technological devices' employment to reproduce humans' cognitive abilities to achieve objectives autonomously. The basic strategy of artificial intelligence has always been to seek complex human tasks and show how computers can do them in humanoid ways or by brute force. The technological power of the computer lies in its versatility, intelligence, connectivity and complexity rather than in its energy trust, as the computer and artificial intelligent are infusing into all other technologies and has changed the method of doing business (Okudo, Amahalu, Obi & Okafor, 2022). Most entities from large corporations down to small and medium scale enterprises (SMEs) are aided by technology. Both public and private sector institutions use artificial intelligence technologies for regulatory compliance, surveillance, data quality assessment, and fraud detection.

The performance of businesses is very crucial in predicting, ascertaining and evaluating the level or extent of growth and outcomes in business organizations. The performance of a business, whether financial or non-financial, provides a yardstick upon which business stakeholders can gauge and measure the degree of effectiveness, efficiency, overall productivity, as well as profitability of such organization or business enterprise (Amahalu & Moedu, 2023). To stimulate and augment the performance of a firm, business-minded stakeholders have seen and witnessed the influx of sophisticated technologies, mechanisms and inventions, all targeted at improving business performance, supplementing business operations with respect to human deficiencies and introducing new ways of doing things, which is embedded in contemporary issues within Artificial Intelligence. The emerging technologies are said to have a great potential to transform the ways of living of human lives and the business operating models of companies all over the world. Notwithstanding the tangible and monetary benefits, AI has various shortfall and problems which inhibits its large scale adoption. The problems include safety, trust, computation power, job loss concern. One of the biggest artificial intelligence problems is that the sophisticated and expensive processing resources needed are unavailable to the majority of businesses. Additionally, some businesses lack access to the expensive and scarce AI expertise required to utilize the needed resources effectively. With automation, nefarious acts such as phishing, delivery of viruses to software might be difficult to uncover. Although technology has helped make it possible to detect fraud, numerous challenges still face businesses. Ironically, advances in technology also enable fraudsters to craft new ways to dodge detection. Most of the studies on the relationship between artificial intelligence and performance were majorly done abroad only very few studies of this were done here in Nigeria, yet there has been no consensus on the factors that affect performance. For instance, a positive relationship was found between artificial intelligence and performance (Perifanis & Kitsios, 2023; Amahalu & Okudo, 2023). Omar, Abdelbakib, Shresthac, Elbasib, Mohammad and Dwivedi (2023) documented a negative relationship, while on the other hand no significant relationship between artificial

intelligence and performance was reported by Onyeka & Amahalu (2022). It is against this backdrop that this study sought to examine the effect of artificial intelligence on fraud detection of deposit money banks in Nigeria.

### **Objectives of Study**

The main objective of this study is to ascertain the effect of artificial intelligence on fraud detection of deposit money banks in Awka-South Local Government Area, Anambra State, Nigeria. The specific objectives of this study are to:

1. Ascertain the effect of facial recognition artificial intelligence on transaction monitoring of deposit money banks in Awka-South Local Government Area, Anambra State, Nigeria
2. Determine the effect of chatbot artificial intelligence on transaction monitoring of deposit money banks in Awka-South Local Government Area, Anambra State, Nigeria
3. Examine the effect of digital assistant artificial intelligence on transaction monitoring of deposit money banks in Awka-South Local Government Area, Anambra State, Nigeria.

### **Research Hypotheses**

In line with the above research questions, the following were hypothesized in null form:

**H<sub>01</sub>:** Facial recognition artificial intelligence has no significant effect on transaction monitoring.

**H<sub>02</sub>:** Chatbot artificial intelligence has no significant effect on transaction monitoring.

**H<sub>03</sub>:** Digital assistant artificial intelligence has no significant effect on transaction monitoring.

### **Conceptual Review**

#### **Artificial Intelligence**

AI is a technology that simulates human intelligence processes using machines to make cognitive decisions. From recognizing faces on your mobile lock screen to self-driving cars, AI has unleashed a new realm of leveraging technology. Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include expert systems, natural language processing, speech recognition and machine vision (Copeland, 2023). Artificial intelligence (AI) makes it possible for machines to learn from experience, adjust to new inputs and perform human-like tasks. Most AI examples from chess-playing computers to self-driving cars rely heavily on deep learning and natural language processing. Artificial intelligence (AI), the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience (Okafor, Egbunike & Amahalu, 2022).

#### **Facial Recognition Artificial Intelligence**

A facial recognition system is a technology capable of matching a human face from a digital image or a video frame against a database of faces. Such a system is typically employed to authenticate users through ID verification services, and works by pinpointing and measuring facial features from a given image. Facial recognition is one of the front-runner applications

of AI. It is one of the advanced forms of biometric authentication capable of identifying and verifying a person using facial features in an image or video from a database (Loshin, 2023).

### **Chatbot Artificial Intelligence**

A chatbot is a computer program that simulates and processes human conversation (either written or spoken), allowing humans to interact with digital devices as if they were communicating with a real person. Chatbots can be as simple as rudimentary programs that answer a simple query with a single-line response, or as sophisticated as digital assistants that learn and evolve to deliver increasing levels of personalization as they gather and process information (Ian, 2023; Otti, Udeh, Amahalu, Obi, 2022).

### **Digital Assistant Artificial Intelligence**

Digital assistants artificial intelligence are AI-powered agents capable of generating personalized responses, pulling from contexts such as customer metadata, prior conversations, knowledge bases, geolocation, and other modular databases and plug-ins (Vasilchenko, 2023). A digital assistant, also known as a predictive chatbot, is an advanced computer program that simulates a conversation with the people who use it, typically over the internet (Onyeozili, Okoye, Amahalu & Obi, 2022). Digital assistants use advanced artificial intelligence (AI), natural language processing, natural language understanding, and machine learning to learn as they go and provide a personalized, conversational experience.

### **Fraud Detection**

Fraud detection is a set of processes and analyses that allow businesses to identify and prevent unauthorized financial activity. This can include fraudulent credit card transactions, identify theft, cyber hacking, insurance scams, and more (Strelcenia, Prakoonwit, 2023). Fraud detection, also known as scam detection, refers to a structured approach to recognising, tracking, and preventing fraud. Fraud detection is a set of activities undertaken to prevent money or property from being obtained through false pretenses (Nwafor & Amahalu, 2021). Fraud detection is defined as a process that detects scams and prevents fraudsters from obtaining money or property through false means. It is a set of activities undertaken to detect and block the attempt of fraudsters from obtaining money or property fraudulently (Kanade, 2023).

### **Transaction Monitoring**

Transaction monitoring is a key control used by financial institutions to identify suspicious transactions and mitigate the risk of financial crime. Transaction monitoring refers to the monitoring of customer transactions, including assessing historical/current customer information and interactions to provide a complete picture of customer activity. This can include transfers, deposits, and withdrawals (Bristow, 2023). Transaction monitoring is the process of monitoring customer transactions such as their transfers, deposit, and withdrawals to obtain a complete picture of the customer activity. Transaction monitoring also includes accessing previous and current customer interactions and information to identify suspicious behaviour that could indicate money laundering or the existence of other financial crimes.

### **Artificial Intelligence and Fraud Detection**

Today, there are several smart digital assistant applications that make work easier, such as Amazon Alexa, Samsung Bixby, Microsoft Cortana, Google Assistant, Apple Siri, and other digital assistants. Digital assistants are artificial intelligence technology (AI) capable of thinking as though they are humans and interacting with their users. Digital assistants offer a variety of benefits to consumers, as demanded by the customers. They are contextually and

personally relevant, work in real-time, and offer high quality results and are further reliable and comfortable (Zhou, 2020). This technology can also dynamically help study consumer behavior in detail, making companies capable of creating more efficient business processes by completely automating customer service delivery (Ejembi, Ijeoma, Amahalu & Obi, J2022). Therefore, businesspeople are currently innovating by integrating this technology into their operations in the hope of increasing productivity significantly (Rong, Mendez, Assi, Zhao & Sawan, 2020).

## **Theoretical Review**

### **Theory of Fraud Triangle**

Cressey (1953) postulated the theory of fraud triangle. He observed that fraud is likely to occur given a combination of three factors; namely- Pressure (Motivation), Opportunity and Rationalization. Pressure here refers to needs or desires that have to be satisfied. It could be divided into financial pressure, vices, work-related pressure and other pressures. Opportunity to commit fraud, conceal the fraud or avoid being punished forms the second element of the fraud triangle. The third element is rationalization which entails giving unnecessary explanation(s) to justify one's involvement in fraud. There exists pressure, motivation or compulsion on the fraudster who identifies opportunity which he utilizes and tries to justify his actions by unnecessary rationalization. This model is built on the premise that fraud is likely to result from a combination of three factors: motivation, opportunity and rationalisation. The fraud Triangle is the concept that explains why workers commit fraud at a workplace. It consists of three elements responsible for fraud – pressure, rationalization, and opportunity. It is an intentional deception that causes the personal gain of an employee or an entity. According to the concept, fraud occurs when conditions for fraud are favorable to the fraud committer, and it is not random (Amahalu, & Obi, 2020b). It generates illegal gain or incentive or releases the individual or entity from unwanted pressure. This aggravates the temptation to take such a step and gives a feeling of better control without caring about the consequence.

### **Empirical Review**

Afamefuna (2023) ascertained the relationship between artificial intelligence internet banking services expenditure and banks profitability level in Nigeria; with a focus on United Bank for Africa Plc. Information for the study is gathered from the annual reports of the UBA Plc from the year 2016-2018. The design for the study is the ex-post-factor research design. Multiple regression analysis was prepared and data obtained. The result revealed that there exists a positive and significant relationship between the log of artificial intelligence internet banking services expenses and the return on assets. The empirical results of the study have revealed a significant relationship between the log of artificial intelligence internet banking services expenses (AIIBSE) and return on asset (ROA).

Omar, Abdelbakib, Shresthac, Elbasib, Mohammad and Dwivedi (2023) presented a systematic review of academic articles on the application of artificial intelligence (AI) in the healthcare sector in United Kingdom. The review initially considered 1,988 academic articles from major scholarly databases. After a careful review, the list was filtered down to 180 articles for full analysis to present a classification framework based on four dimensions: AI-enabled health-care benefits, challenges, methodologies, and functionalities. It was identified that AI continues to significantly outperform humans in terms of accuracy, efficiency and timely execution of medical and related administrative processes.

Perifanis and Kitsios (2023) investigated the influence of artificial intelligence on business value of Greece firms. 139 peer-reviewed articles were discussed. The results of the review revealed artificial intelligence capabilities enhance various business value streams. The study found that organizations will only succeed in the digital transformation alignment of the present era by precisely adopting and implementing new, cutting-edge technologies.

## METHODOLOGY

### Research Design

This study adopted a descriptive survey research design. The population of the study refers to the totality of the elements or variables under study. The population of this study consisted of six hundred and fifty one (651) staff of the fourteen deposit money banks in Awka-South Anambra Local Government Area, State, Nigeria. They are: Access Bank Plc; Eco Bank Plc; FCMB Bank Plc; Fidelity Bank Plc; First Bank Plc; Guaranty Trust Bank Plc; Heritage Bank; Polaris Bank; Stanbic IBTC Plc; Union Bank Plc; United Bank of Africa Plc; Wema Bank Plc; Zenith International Plc and Unity Bank Plc

The sample size for this study is statistically determined using Taro Yamane formula for a finite population. The formula is given as:

$$n = \frac{N}{1 + N(e)^2}$$

Where: n= the sample size

N = the finite population size

e = level of significance (at 0.05 or 5% level of significance)

N = , e = 0.05

$$n = \frac{651}{1 + 651(0.05)^2}$$

$$n = \frac{651}{1 + 1.6275} = 247.76$$

n = 248. Therefore, the sample size is 248

The study basically made use of primary data. The primary data were obtained from the respondents through the administration of questionnaire. The copies of questionnaire were divided into two parts. Part A focused on the socio-demographic characteristics of the respondents. The part B was designed into 5 (five) point Likert scale related to the objectives of the study. Random sampling technique was employed in selecting a branch of the sampled firms in Awka South while stratified random sampling technique was used to administer the 248 copies of the questionnaire the respondents across the sampled 14 deposit money banks. Furthermore, based on the 248 copies of questionnaire that were administered to the respondents, 174 copies of questionnaire were retrieved. Copies of the questionnaire were rated on a 5-point Likert scale ranging from 5 (strongly agree) to 1 (strongly disagree).

The face and content validity of the questionnaire was determined. To ensure reliability, this research used Cronbach alpha coefficient to test reliability.

### Model Specification

In order to test the relationship between artificial intelligence and fraud detection, the model used in this study is as follows:

Fraud Detection =  $f(\text{Artificial Intelligence}) + \mu$

Thus,

$$\text{TM} = \beta_0 + \beta_1\text{FRAI} + \mu \quad - \quad - \quad - \quad - \quad - \quad \mathbf{H_{01}}$$

$$\text{TM} = \beta_0 + \beta_1\text{CBAI} + \mu \quad - \quad - \quad - \quad - \quad - \quad \mathbf{H_{02}}$$

$$\text{TM} = \beta_0 + \beta_1\text{DAAI} + \mu \quad - \quad - \quad - \quad - \quad - \quad \mathbf{H_{03}}$$

**Where:**

$\beta_0$  = Constant (Intercept)

$\beta_i$  = Coefficients of the independent variable

Y = Dependent variable (Fraud Detection)

X = Independent Variable (Artificial Intelligence)

TM = Transaction Monitoring

FRAI = Facial Recognition Artificial Intelligence

CBAI = Chatbot Artificial Intelligence

DAAI = Digital Assistant Artificial Intelligence

$\mu$  = Error term

### DATA PRESENTATION AND ANALYSIS

**Table 1: Analysis of Questionnaire**

Description	Numbers	Percentage (%)
No. of questionnaire administered	248	100
No. of questionnaires retrieved	174	70
No. of questionnaires not retrieved	74	30

Source : Field Survey, 2023

$$\text{Response Rate} = \frac{\text{Number of research tools retrieved}}{\text{Number of research tools distributed}} \times 100$$

$$= \frac{174}{248} \times \frac{100}{1} = 70\%$$

#### Analysis of Data

##### Reliability Test of Research Instrument

This was done using Cronbach Alpha at 5% level of significance.

##### Reliability Test of Research Tool using Cronbach's Alpha

**Table 2 Reliability Statistics**

Cronbach's Alpha	No of Items
.955	9

Source: Researcher's computation using SPSS version 23, 2023

Cronbach's alpha is 0.955, which indicates a high level of internal consistency for the scale.

**Table 3** Correlations

			FRAI	CBAI	DAAI
Spearman's rho	FRAI	Correlation Coefficient	1.000	.813**	.827**
		Sig. (2-tailed)	.	.000	.000
		N	174	174	174
	CBAI	Correlation Coefficient	.813**	1.000	.965**
		Sig. (2-tailed)	.000	.	.000
		N	174	174	174
	DAAI	Correlation Coefficient	.827**	.965**	1.000
		Sig. (2-tailed)	.000	.000	.
		N	174	174	174

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Researcher's computation using SPSS 23, 2023

The Spearman's correlation result in table 3 reveal a high correlation coefficient. FRAI relate with CBAI and DAAI at 0.813 and 0.827 respectively; the relationship is significant. Same for CBAI relating with FRAI and DAAI at 0.813 and 0.965 respectively; this relationship is also significant. The scenario is same for DAAI in relation to FRAI and CBAI at 0.827 and 0.965 respectively. The relationship is also significant. Therefore we can conclude at this point that the there is a significant relationship between active artificial intelligence and fraud detection.

### Test of Hypotheses

#### Test of Hypothesis I

**H<sub>0</sub>**: Facial recognition artificial intelligence has no significant effect on transaction monitoring

**H<sub>1</sub>**: Facial recognition artificial intelligence has significant effect on transaction monitoring

**Table 4** Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Facial recognition artificial intelligence has no significant effect on transaction monitoring	.48475	.00363	.01795	-.19566	.60101	6.9622	205	0.000

Source: Researcher's computation using SPSS version 23, 2023

### Interpretation

The paired sample test seals up the relationship between facial recognition artificial intelligence and transaction monitoring as indicated by the t-value = 6.9622 and probability value = 0.000 as shown in table 4. This implies that facial recognition artificial intelligence has a significant effect on transaction monitoring.



### Test of Hypothesis II

**H<sub>02</sub>:** Chatbot artificial intelligence has no significant effect on transaction monitoring

**H<sub>2</sub>:** Chatbot artificial intelligence has significant effect on transaction monitoring

**Table 5 Paired Samples Test**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 2	Chatbot artificial intelligence has no significant effect on transaction monitoring	.5583	.0047	.0201	-.1816	.6492	4.909	205	0.000

Source: Researcher's computation using SPSS version 23, 2023

### Interpretation

Paired T-test which is appropriate for testing the mean difference between paired observations revealed that there is a significant influence of Chatbot artificial intelligence on transaction monitoring as revealed in the t-value = 4.909 and associated p-value of 0.000 in table 5, therefore, the null hypothesis is rejected.

### Test of Hypothesis III

**H<sub>03</sub>:** Digital assistant artificial intelligence has no significant effect on transaction monitoring

**H<sub>3</sub>:** Digital assistant artificial intelligence has significant effect on transaction monitoring

**Table 6 Paired Samples Test**

		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 3	Digital assistant artificial intelligence has no significant effect on transaction monitoring	.3555	.0097	.0862	-.1395	.4929	6.5659	205	0.000

Source: Researcher's computation using SPSS version 23, 2023

### Interpretation

The result of the paired sample test showed that digital assistant artificial intelligence has a significant relationship with transaction monitoring. Table 6 indicates that the t-value is 6.5659 and the p-value = 0.000. This implies that digital assistant artificial intelligence positively affects transaction monitoring, therefore the alternative hypothesis is accepted and the null hypothesis rejected.

### Findings and Conclusion

Based on the analysis of this study, the following findings were deduced:

- i. Facial recognition artificial intelligence has a significant and positive effect on transaction monitoring of deposit money banks in Awka-South Local Government Area, Anambra State, Nigeria at 5% level of significance (t-statistic = 6.9622; p-value = 0.000).
- ii. Chatbot artificial intelligence has a significant and positive effect on transaction monitoring of deposit money banks in Awka-South Local Government Area, Anambra State, Nigeria at 5% level of significance (t-statistic = 4.909; p-value = 0.000).
- iii. Digital assistant artificial intelligence has a significant and positive effect on transaction monitoring of deposit money banks in Awka-South Local Government Area, Anambra State, Nigeria at 5% level of significance (t-statistic = 6.5659; p-value = 0.000).

Conclusively, the result of this study upholds that artificial intelligence has a significant and positive effect on fraud detection at 5% level of significance.

### **Recommendations**

In view of the findings of the study, it is recommended that:

- i. Considering the positive relationship between facial recognition artificial intelligence, firms should employ the face detection technology to provide better security and surveillance opportunities, which will also let facial identification be fully automated hence enhancing productivity while also raising the rate of accuracy and the detection of fraud.
- ii. Since chatbots lead to greater satisfaction and trust among customers, firms are encouraged to sustain the use of chatbot which in turn can lead to customer loyalty and significantly assist in fraud detection.
- iii. Considering the fact that firms can benefit from using digital assistant tools to increase revenue by assisting organizations to find their weak points and make precise forecasts about competitors, market trends, and prospects, thus the deployment of digital assistant tools to firm is encouraged.

### **References**

- Afamefuna, P.O. (2023). Artificial intelligence internet banking services expenditure and banks profitability level in Nigeria. *Research of Finance and Accounting*, 5(8), 1-10
- Amahalu, N.N., & Moedu, V.O. (2023). Triple bottom line reporting and financial performance of quoted oil and gas firms in Nigeria. *International Journal of Research Publication and Reviews*, 4(4), 1172-1180.
- Amahalu, N.N., & Obi, J.C. (2020). Effect of audit quality on financial performance of quoted conglomerates in Nigeria. *International Journal of Management Studies and Social Science Research*, 2(4), 87-98.
- Amahalu, N.N., & Okudo, C.C. (2023). Firm characteristics and cash holdings of quoted conglomerates in Nigeria. *Scholarly Journal of Management Sciences*, 2(3), 111-126
- Amahalu, N.N., Okoye, P.V.C., & Nnadi, C.P. (2023). Effect of Board Diversity on Financial Performance of Quoted Hospitality Firms in Nigeria. *International Journal of Research in Commerce and Management Studies (IJRCMS)* 5(1), 28-38.

- Bristow, C. (2023). What is transaction monitoring? [https://www.sas.com/en\\_ie/insights/articles/risk-fraud/what-is-transaction-monitoring-in-aml.html](https://www.sas.com/en_ie/insights/articles/risk-fraud/what-is-transaction-monitoring-in-aml.html). Accessed 12/03/2023.
- Copeland, B.J. (2023). Artificial intelligence. <https://www.britannica.com/technology/artificial-intelligence>. Accessed 10/03/2023
- Ejembi, O.A., Ijeoma, N.B., Amahalu, N.N., & Obi, J.C. (2022). Corporate governance and fraud management of quoted commercial banks in Nigeria. *International Journal of Management Studies and Social Science Research*, 4(1), 182-190
- Loshin, P.S. (2023). Biometrics. <https://www.techtarget.com/searchsecurity/definition/biometrics>. Accessed 11/03/2023
- Nwafor, P.U., & Amahalu, N.N. (2021). Auditors independence and audit quality of quoted deposit money banks in Nigeria. *American Research Journal of Humanities Social Science (ARJHSS)*, 04(09), 77-85
- Okafor, O.O., Egbunike, P.A., & Amahalu, N.N. (2022). Determinants of environmental disclosure of quoted oil and gas firms in Nigeria. *International Journal of Management Studies and Social Science Research*, 4(1), 77-88.
- Okudo, CL., Amahalu, N.N., Obi, J.C., & Okafor, O.O. (2022). Relevance of accounting ethics in preparing a reliable accounting report of manufacturing firms in Anambra State, Nigeria. *International Journal of Education, Business and Economics Research (IJEER)* 2(5), 136-149.
- Omar, A., Abdelbakib, W., Shresthac, A., Elbasib, E., Mohammad, A.A., & Dwivedi, Y.K. (2023). A systematic literature review of artificial intelligence in the healthcare sector: Benefits, challenges, methodologies, and functionalities. *Journal of Innovation & Knowledge*, 8(1), 1-19.
- Onyeka, C.M., & Amahalu, N.N. (2022). Board diversity and market value added of quoted conglomerates in Nigeria. *International Journal of Management Studies and Social Science Research*, 4(1), 102-112.
- Onyeozili, C.Z., Okoye, E.I., Amahalu, N.N., & Obi, J.C. (2022). Effect of firm characteristics on capital structure of deposit money banks listed on Nigeria stock exchange. *International Journal of Advances in Engineering and Management (IJAEM)*, 4(1), 815-827.
- Otti, O.S; Udeh, F.N., Amahalu, N.N., Obi, J.C. (2022). Effect of value engineering on profitability of quoted manufacturing firms in Nigeria. *International Journal of Management Studies and Social Science Research*, 4(1), 60-76.
- Perifanis, N.A., & Kitsios, F. (2023). Investigating the influence of artificial intelligence on business value in the digital era of strategy: A Literature Review. *Information*, 14, 85.
- Rong, G., Mendez, A., Assi, E. B., Zhao, B., & Sawan, M. (2020). Artificial intelligence in healthcare: Review and prediction case studies. *Engineering*, 6(3), 291–301.
- Strelcenia, E., Prakoonwit, S. (2023). Improving classification performance in credit card fraud detection by using new data augmentation. *AI*, 4(1), 172–198.
- Zhou, L. (2020). A rapid, accurate and machine-agnostic segmentation and quantification method for CT-Based COVID-19 diagnosis. *IEEE Transactions on Medical Imaging*, 39(8), 2638–2652.

**Appendix A**

**QUESTIONNAIRE**

**SECTION A:**

**Personal Information of Respondents**

Please tick (✓) appropriately in the spaces provided section A:

- i. Gender: Female ( ) Male ( )
- ii. Age group: 21-25 ( ), 26-30 ( ), 31-40 ( ), Above 41 ( )
- iii. Level of education: Under-Graduate ( ), Graduate ( ), Post-Graduate ( )
- iv. Years of Experience \_\_\_\_\_
- v. Job designation \_\_\_\_\_
- vi.. Professional Qualification (s) \_\_\_\_\_

**SECTION B:**

**Instruction:** The questions in this section of the questionnaire are designed to elicit information on the perception of the respondents the effect of artificial intelligence on fraud detection.

Please supply your answer by ticking (✓) on the number (option) below:

**The response scale for the questions is as below:  
 5= Strongly Agree, 4= Agree, 3= Undecided, 2= Disagree, 1 = Strongly Disagree**

S/N	Items/ Variables	SA	A	U	D	SD
	<b>Facial Recognition Artificial Intelligence and Transaction Monitoring</b>	5	4	3	2	1
1.	Fraud detection and risk mitigation relied heavily on algorithms and facial recognition artificial intelligence.					
2.	Lawbreakers can use facial recognition technology to collect individuals' personal information, including imagery and video collected from facial scans and stored in databases, to commit identity fraud					
3.	Facial recognition prevents fraud by increasing the assurance that a given person trying to access a system, transfer funds, or make a purchase is actually who they claim to be					
	<b>Chatbot Artificial Intelligence and Transaction Monitoring</b>	5	4	3	2	1
4.	AI-based chatbots in the banking industry offers Quick and seamless conversation					
5.	The chatbots for fraud prevention provide services to the customer based on their transaction history, creating a secure and personalised experience.					
6.	AI chatbot can analyse the details and pattern of transactions in an account. While doing so, it can					

	confirm any similarity to the factors that point out towards the fraud.					
	<b>Digital Assistant Artificial Intelligence and Transaction Monitoring</b>	5	4	3	2	1
7.	Digital Assistants assist in identifying consumers' preferences and offering targeted products and services, which has helped to decrease costs and increase productivity.					
8.	Banks use real-time digital assistants technologies to determine customer behaviours and transaction patterns to combat terrorist financing and money laundering. It closely monitors high-risk accounts by matching a customer's expected monthly turnover with their actual monthly transactions to raise red flags					
9.	Digital Assistants assist banks in implementing controls to safeguard against losses, fraud and in turn enhances return on investment for their consumers.					