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## **CURBING THE CRIME RATE IN NIGERIAN BANKING SECTOR: THE NEED FOR ARTIFICIAL INTELLIGENCE**

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### **Abstract**

*In every economy, the banking sector has been part of the administration and organization of financial resources to various sector which allow the economy to grow and expand. Despite its involvement in nation building, the failure of banks to adequately fulfil their role arises from the several risks that they are exposed to many of which are not properly managed. One of such risks which is increasingly becoming a source of worry is, the banking risk associated with incessant frauds and accounting scandals. This study looked at how to curb the crime rate in the Nigerian banking sector by proposing the need for Artificial Intelligence (AI) architecture. This study employed the descriptive approach where online survey was sent to 23 staff of Baze University Abuja branch of Zenith Bank. Frequency Distribution and the Chi-Square test of goodness fit were employed for the analysis with the aid of Statistical Package for Social Sciences (SPSS) version 23.0. The study found that Artificial Intelligence (AI) deployment has significant effect on the internal control system of the Nigerian Banking Industry. It was also observed that Artificial Intelligence (AI) adoption has significant impact on fraud detection in the Nigerian Banking Industry. The study recommends that the internal control systems of the Nigerian banking industry should be strengthened using the AI system in order to be able to detect and prevent fraud and fraudulent activities and to protect its assets.*

**Keywords:** *Crime rate, Artificial Intelligence, Nigerian banking sector*

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### **Introduction**

As one of the pillars of every economy, the banking sector is involved in the administration and organisation of financial resources to various sectors which allow the economy to grow and expand. This sector at times venture into project

financing in the real estate of the economy, which therefore, support the process of economic growth and development of the nation. Thus, any tension in this sector in form of crime will cause serious distortion in the nation's economy. Financial crimes remain a major ongoing cost to businesses. Whether perpetrating credit card fraud or money laundering in the banking industry, fraud, wastages, and abuse in the healthcare field, financial criminals relentlessly devise new attacks that batter against old defences that too often slip past undetected. With cross-border communications soaring and digital transactions becoming more rampant, Enofe, Abilogun and Omolorum (2017) noted that fighting money laundering has become more complicated than it previously was. Funmi, Omotayo, Isaac and Olukayode (2018) noted that from fraud to asset theft, organisations across industry lines are constantly under threat of financial crime. Biallas and O'Neill (2020) opined that financial crimes has potentially devastating economic, security, and social consequences. It provides the fuel for drug dealers, terrorists, illegal arms dealers, corrupt public officials, and others to operate and expand their criminal enterprises. Muhunyo and Jagongo (2018) informed that financial crime has become increasingly international in scope, and the financial aspects of crime have become more complex due to rapid advances in technology and the globalisation of the financial services industry. To Akinyomi (2014), fraud within the banking sector has been acknowledged as one of the principal threat to the development of the banking industry worldwide.

In the Nigerian context, the problem is definitely serious as such fraudulent practices had led to the collapse of some banks before the consolidation of the banking system and is still crippling the expected growth of many banks in the area of profitability (Umar & Dikko, 2018). Because of the continued frauds and accounting scandals experiences, Badejo, Okuneye and Taiwo (2017) noted that the integrity and laudable functions of Nigerian banks have been called into question. This is because, it has gotten to a point at which many stakeholders in the banking industry have started losing their trust and confidence in the industry because of this persistent fraudulent crimes (Offiong, Udoka, & Ibor, 2016). Funmi, Omotayo, Isaac and Olukayode (2018) added that the tendency of fraud in the Nigerian banking sector has lately become a source of embarrassment to the nation as noticeable in the seeming attempts of the law enforcement agencies to successfully track down culprits have in most cases failed.

### **Why is crime an issue now?**

Banking business has become more complex with the advancement of Information and Communication Technology (ICT), which has drastically changed the nature and mode of operational procedures of banks in Nigeria. This in turn has changed the nature of fraud and fraudulent practices (Uchenna & Agbo, 2013). Nowadays, most customers rely on the internet for major banking business and transactions that has led to a number of online transactions, which also has afforded fraudsters the opportunity to attack customers who are not physically in attendance on the web to substantiate their transactions (Jung & Lee, 2017). Moreover, there are cases of various criminal activities ranging from cheque fraud, cheque kitting, counterfeit cheques to counterfeit negotiable instruments. These fraudulent activities have bedevilled the Nigerian banking sector. Till date, no effective and efficient measure has been put in place to curb these fraudulent activities in the sector.

**With fraud and financial crime on the rise, the Nigerian banking sector needs to be equipped with the best emerging technologies to resist such attacks.** Daricili (2020) informed that as a result of these crimes, financial institutions are experimenting with all kinds of technology to safeguard their customers and block out bad actors. Biallas and O'Neill (2020) added that the application of these technologies in emerging markets allows financial service providers to further automate their business processes and to leverage on new and big data sources to overcome the obstacles of financial fraud and crimes, hence, the need for Artificial Intelligence architecture within the banking system.

### **Research Objectives**

This study aims at appraising the impact of artificial intelligence adoption on curbing the crime rate in the Nigerian banking industry. This study specifically aims at:

- a. Examining the effect of AI deployment in the internal control system of the Nigerian Banking Industry.
- b. Appraising the impact of the AI adoption on fraud detection in the Nigerian Banking Industry.

### **Research Questions**

To ensure that the stated objectives are actualised, the following research questions were put forward:

- i. Does AI deployment have significant impact on the internal control system of the Nigerian Banking Industry?
- ii. Does AI adoption have significant impact on fraud detection in the Nigerian Banking Industry?

### **Research Hypothesis**

In order to correctly answer the research questions, the following research hypothesis in null form is hereby formulated:

**H<sub>0</sub>:** AI deployment has no significant effect on the internal control system of the Nigerian Banking Industry.

**H<sub>1</sub>:** AI adoption has no significant impact on fraud detection in the Nigerian Banking Industry.

### **Research Scope**

In the fight against money laundering and financial crime, the deployment of artificial intelligence is increasingly seen to be providing a strong defence. This study focuses on how the adoption and deployment of artificial intelligence would help to drastically reduce crime rate within the Nigerian banking industry. This study will cover the deployment of AI within Zenith bank (Nigeria) plc only. The reason for the choice of this bank is due to the closeness of the bank to the researcher thus providing the opportunity for accurate and adequate data collection.

### **Literature Review**

This study sets to review literature related with major issues pertaining to fraud, fraud detection and other irregularities in the Nigerian banking sector.

### **Internal Control System**

Mahadeen, Al-Dmour, Obeidat and Tarhini (2016) defined internal control system as the coordination of the actions, strategies, behaviours, policies and efforts of the employees of the organisation working together to provide fair confidence that the organisation can accomplish its goals. Owusu-Boateng, Amofa and Owusu (2017) conceptualised internal control system as a procedure

of accounting plan aimed at ensuring efficient safeguard of assets or implementing a policy that will avoid fraud and error in the management of organisational processes and values. These scholars continued by adding that internal control system is a critical part of administrating an organisations plans, methods, and procedures which is used to meet an organisation's vision, mission, goals and objectives thus producing performance-based executives. Internal control assists managers to achieve required results through effective management of resources (Muhunyo & Jagongo, 2018). Adagye (2015) posited that management of an organisation create and implements internal control for the development and survival of the organisation. In the same vein, (Jiang & Liu, 2015) argued that internal control include rules, processes, management cultures, staff management, structural and information security and the division of duties. These types of controls are the essential factors for an internal control system.

The Nigerian banking industry has its challenges perceptible to weak internal controls and ineffective external audit which have caused challenges in bank performance, increase fraud, lack of transparency and capital inadequacy. Weak internal control system has a very significant role in the crisis that enveloped the Nigerian banking sector, especially from early 1990's up till 2004 (Adeyemi & Adenugba, 2011). Furthermore, bank failures can be attributed to the weak internal control system (ICS) that are not sufficient and which are mostly part of the factors that promote or create opportunities for committing fraud (Pradhan & Bai, 2018). Bank failures are mostly attributed to fraud and these could have been avoided if the banks initiated and maintain strong internal control system (Karagiorgos, Droalas, & Dimou, 2013). Umar and Dikko (2018) maintained that despite the 2005 Nigerian banking sector reforms, a breakdown has occurred in the Nigerian banking systems internal control, resulting from regulatory failures and poor corporate governance. Mahadeen, Al-Dmour, Obeidat and Tarhini (2016) maintained that by establishing a sound and solid internal control system, an organization can promote efficient and effective business processes that are able to produce quality products/services expedient with the organisation's mission.

### ***Fraud Detection***

According to *Black's Law Dictionary (2004)*, *fraud* is defined as a *knowing misrepresentation of the truth or concealment of a material fact to induce*

another to act to his or her detriment. It involves any deliberate or intentional act to deprive another of property or money by guile, deception, or other unfair means. Also, Badejo, Okuneye and Taiwo (2017) defined fraud as the deliberate act of deception aimed at causing a person or organisation to give up property or some lawful right. Also, the writers opined that fraud is an act of trickery which is intentionally practiced in order to gain illegitimate advantage. Badejo, Okuneye and Taiwo (2017) reported that criminologists have reached a general consensus that there are three elements that brings about fraud called “**W**ill, **O**ppportunity and **E**xit or escape route. A fraud will only occur if the perpetrators have the will to commit the fraud, if the opportunity to commit the fraud is available and if there is an exit or escape route from relevant sections or institutions that are against fraud. Technological advancement has helped to facilitate banking fraud. Fraudulent employees will always have opportunities to commit fraud due to ability to access confidential information and better understanding of the organisations systems. The banking fraud includes, cheque kiting, forgery and falsification of loan and financial documents (Mpaata, Lubogoyi & Okiria, 2017).

*The Nigerian banking industry has adopted several measures to detect and control the incidence of fraud. Mahdi and Zhila (2008) cited in Badejo, Okuneye & Taiwo (2017) argued that measures aimed at fraud detection include checking of cashiers, ledger callover, and reconciliation and balancing of accounts at all the branches, interbank reconciliation at head office levels, periodic submission of statement of accounts, stock-taking of security items and cash in the vaults and routine inspection at all branches. In addition, dual control mechanisms, reporting systems, installation of close circuit television/cameras, verification of signatures, control of dormant accounts, tele guiding staff lifestyle, as well as coding and decoding of telex messages are veritable tools of fraud detection.*

### **Artificial Intelligence: Adoption and Impact on Fraud Detection**

*According to the High-Level Expert Group (2019), artificial intelligence (AI) is a software and possibly hardware developed by humans that act in the physical or digital dimension when given a difficult goal. It recognised the environment through data acquisition, interprets the structured or unstructured data collected and decides the best action(s) to take to achieve the given goal. This*

*is done by knowledge reasoning or by processing the information derived from the collected data. Artificial intelligence technologies today permeates the financial services sectors around the world. This study therefore propose that the Nigerian banking industry should leverage on this new technology of Artificial Intelligence in the fight against fraud as done in advanced climes. Technology, especially in the form of Artificial Intelligence and machine learning is found to be of immense advantage in combating frauds and cybercrimes. Nandi (2020) in his write up iterated that the learning methodology or algorithms of Artificial Intelligence are majorly useful to predict attacks by looking out for patterns that raise suspicion. Moreover, these algorithms help to watch out for illicit transfers and alert the system to a wide category of cyberattacks. These algorithms can analyse varied patterns and predict all combinations of attacks, thus, helping financial organisations to be prepared with a risk mitigation and management strategy.*

*AI algorithms are used to map applications to credit cards and detect illicit purchases or shady transfers of money. The algorithm can track fraudsters with the help of their bank details and records the money trail exposing the criminals. Artificial Intelligence is used to monitor credit and debit activities on accounts and alert in case of an unnatural account balance or spending records (Nandi, 2020). Furthermore, a multitude of reality and flavour is maintained through Artificial Intelligence techniques. According to Soni (2020), used cases of artificial intelligence are classified into three categories, these categories can provide information about potential areas of opportunities for the banking sector. This include:*

- a. Enhancing customer interaction and experience: Examples are customer service improvement, voice banking, Robo-advice, biometric authentication, targeted customer offers, customer segmentation, and chatbots.
- b. Improving efficiency of banking processes: Examples are, predictive maintenance in IT, complaints management, automated data extraction, know your customers (KYC), credit scoring, process automation/optimisation, document classification and many more.
- c. Developing security and risk control: Examples are, AML (Anti-Money Laundering) detection and monitoring, enhanced risk control, support of data quality assurances, cyber risk prevention, compliance monitoring,

payment transaction monitoring, fraud prevention, system capacity limit prediction and many others (Soni, 2020).

Hasham, Joshi and Mikkelsen (2019) stated that Artificial Intelligence is involved in the identification of fraud and other negative activities that are directly linked to financial crime generally. The scholars also stated that fraud is classified into two categories which are external fraud and internal fraud. Attack on banks or clients for money transfer, online payment, identification fraud, etc. are considered as an external fraud while malevolent action from employees is considered an internal fraud. On the other hand, Kaya, Schildbach and Schneider (2019) stated that feature engineering, adaptive learning, supervised, and unsupervised is helpful in implementing Fraud Detection System. Collecting, analysing, and learning from traditional data are involved in the Fraud Detection System. Along with this, interacting with FDS maintainers is an important aspect. Suspicious events are easily identified by the Fraud Detection System, similarly, FDS can control fraudulent activities by suspending or blocking mentioned activities (Siddiqui, Yadav & Husain, 2018). In short, Fraud Detection System works authentically during the time of the profile creation of customers. Financial institutions can save money with the surveillance of Artificial Intelligence applications. Fight of money-laundering and terrorism-financing is considered a crucial factor and other types of financial crime. Anomaly Detection is an important aspect of artificial intelligence which is involved in the prevention of fraud and cyber-attack (Agarwal, 2019).

### Theoretical Framework: The Fraud Triangle Theory

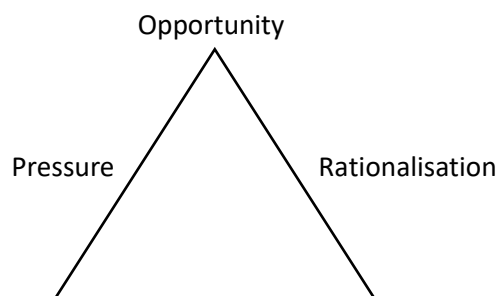


Figure 1: Fraud Triangle

This theory was propounded by Donald Cressey in 1953 and the theory states that the tendencies for fraud is a triangle of perceived non-sharable financial



need (pressure), perceived opportunity to secretly resolve the financial pressure and perceived rationalisation (ability to rationalise and justify the illegal conduct/crime in their mind (Offiong, Udoka, & Ibor, 2016). Pressure is the incentive that could motivate an individual to be involved in fraud. The pressure could result from personal problems, such as financial pressures or addiction pressures, or from the work environment. Management or other employees may find themselves offered incentives or placed under pressure to commit fraud. Pressure creates the motive for the crime to be committed, but the employee must also perceive that he has an opportunity to commit the crime without being caught (Sujeewa, Yajid, Khatibi, Azam & Dharmaratne, 2018). This perceived opportunity constitutes the second element. In Cressy's view, there are two components of the perceived opportunity to commit a trust violation; general information and technical skill. General information is simply the knowledge that the employee's position of trust could be violated. Technical skills refer to the abilities needed to commit the violation. These are usually the same abilities that the employees need to have in order to obtain and keep his position in the first place. The third and final factor in the fraud triangle is the rationalization. Cressy pointed out that rationalisation is not an ex-post facto means of justifying a theft that has already occurred. Significantly, rationalisation is a necessary component of the crime before it takes place. In fact, it is part of the motivation for committing the crime. Because an embezzler does not view himself as criminal, he must justify his misdeeds before he ever commits them. The rationalisation is necessary so that the perpetrator can make his illegal behaviour intelligible to himself and maintain the concept of himself as a trusted person (Sujeewa, et. al, 2018). Figure 1 above represents the fraud triangle diagram.

### **Fraud Diamond Theory**

The Fraud Diamond Theory was formulated by Wolfe and Hermonson in 2004. The authors argued that perceived pressure or incentive might exist along with an opportunity and a rationalisation to commit fraud. Fraud is unlikely to take place unless the fourth element is present that is capability. In other words, potential perpetrators must have the skills and ability to actually commit a fraud. Abdullahi, Mansor and Nuhu (2015) found Wolfe and Hermonson in 2004 in their study to have added an additional variable; Capability to the conventional fraud triangle developed by Cressy in 1973. Abdullahi, Mansor and Nuhu

(2015) added that the authors believed that the fraud triangle could be enhanced to improve both fraud prevention and detection by considering these fourth element. Hence, in addition to addressing pressure, opportunity and rationalisation, the researchers four sided “fraud diamond” also considers as an individual’s capability; personal traits and abilities that play a major role in whether fraud may actually occur even with the presence of the other three elements. Capability is seen as a person’s position or function within a company may give him or her the ability to create or exploit an opportunity for fraud not available to the others. According to Wolfe and Hermonson (2004) fraudster also has the necessary traits and abilities to be the right person to pull it off and that this person has recognised this particular fraud opportunity and can turn it into reality (Abdullahi, Mansor & Nuhu, 2015). Wolfe and Hermonson identified important observable traits related to individuals’ capacity to commit fraud. Those threats include: authoritative position or function within the organisation, intelligence to exploit the accounting and internal control system, ego and confidence and capability to effectively deal with stress (Sujeewa, et. al, 2018). Figure 2, below presents the complete set of elements of fraud diamond theory.

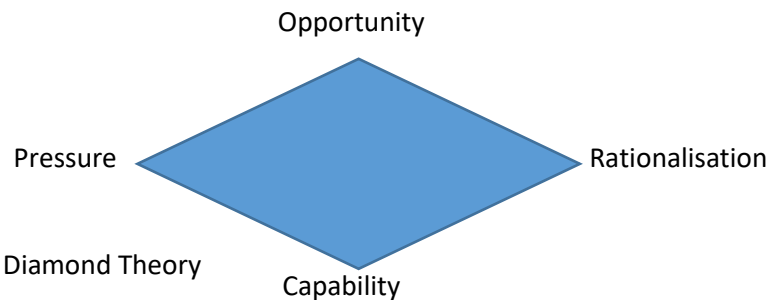


Figure 2. Fraud Diamond Theory

### Empirical Review

Notable studies have been carried out in the area of fraud and artificial intelligence. Some of these works include that of Nyakarimi, Kariuki & Kariuki (2020) on risk assessment and fraud prevention in banking sector employing descriptive research design and correlation analysis. The authors found that, banks have strong risk assessment mechanisms to that are put in place to safeguard investors’ deposits and assets, these mechanisms can be effective to prevent fraud if not to completely eliminate fraud and recommended that the organisations should engage risk analysts on regular bases. Funmi, Omotayo,

Isaac and Olukayode (2018) studied Bank Fraud and its Effect on Nigerian Economy- a Study of Selected Quoted Banks employing Quantitative research and correlation analytical tool for their analysis. Their finding show great level of interaction between bank fraud and economic development of Nigeria. The scholars recommend that banks need to strengthen their internal control systems to be able to detect and prevent fraud and fraudulent activities and to protect its assets. Elegunde, and Shotunde, (2020) studied the effects of Artificial Intelligence on Business Performance in the Banking Industry (A Study of Access Bank Plc and United Bank for Africa-Uba) using survey research design and regression analysis. Their findings reveal customer satisfaction, service quality, competitive advantage and employees' efficiency; as non-financial business measures were all discovered and proven to be aided by artificial intelligence. The authors recommends adoption of Artificial intelligence in business operations to enhance performance and help in the attainment of business objectives. Abdulrahman (2019) studied the impact of Artificial Intelligence (AI) in detecting fraud in the UAE. His findings using descriptive research design is that machine learning tools of the artificial intelligence has critical implications in the detection of fraudulent activities in the banking sector through the instrumentation of the technology across the multiple data. Alzaidi and Qamar (2018) studied the impact of Artificial Intelligence on the Performance of Banking Industry in Middle East employing descriptive and explanatory research methods. Their findings documents that the performance of local banks in Middle East can be significantly boosted with application of Artificial Intelligence.

### **Methodology**

To ensure that the employed research questions were properly addressed, this study adopts the quantitative survey approach. As descriptive, it will help in providing responses to several research questions that were connected to the itemized research problems. To achieve this, an online survey was sent to 23 staff of Baze University Abuja branch of Zenith Bank. In this, frequency distribution and the Chi-Square test of goodness fit were employed for the analysis and the test of hypotheses with the aid of Statistical Package for Social Sciences (SPSS) version 23.0.

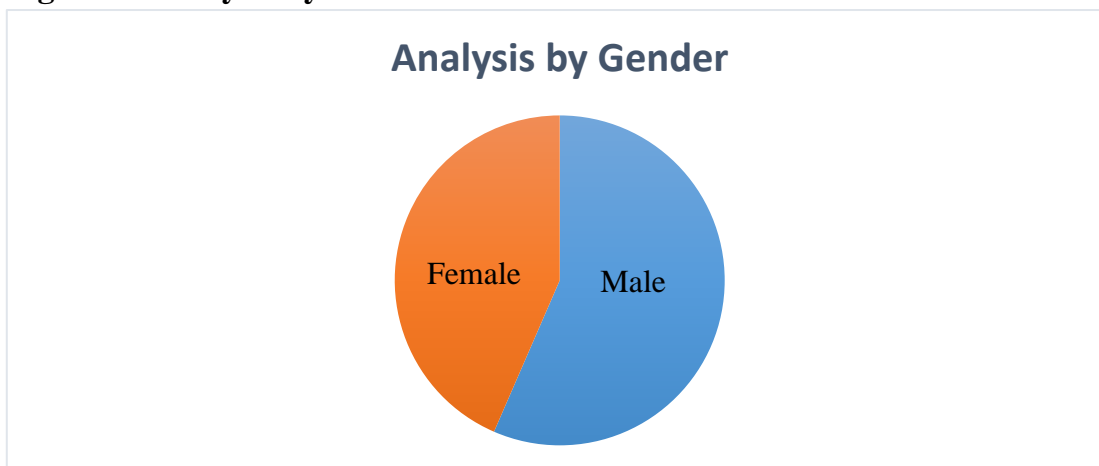
**Table 3.1: Result Presentation and Interpretation**

Category	Frequency	Percentage
<b>Demographic Information of the 383 Respondents</b>		
<b>Gender</b>	<b>(Total 23)</b>	<b>(Total 100%)</b>
Male	13	56.5%
Female	10	43.5%
<b>How long have you worked with Zenith Bank?</b>	<b>(Total 23)</b>	<b>(Total 100%)</b>
Less than 5 years	2	8.7%
5-10 years	6	26.1%
Above 10 years	15	65.2%
<b>Respondents' View on Topic under Study</b>		
<b>Since you started working with Zenith Bank, have there been incidence of fraud or crime in the bank?</b>		<b>(Total 100%)</b>
Yes	22	95.7%
No	1	4.3%
<b>Will you say that human factor in the internal control system of Nigerian banking industry is strong enough to handle the incidence of fraud occurring in our banks?</b>		<b>(Total 100%)</b>
Yes	4	17.4%
No	19	82.6%
<b>If No? Do you think AI deployment in the internal control system of Nigerian Banks will be of great help in curbing the incidence of fraud?</b>	<b>(Total 23)</b>	<b>(Total 100%)</b>
Yes	21	91.3%
No	2	8.7%
<b>Effects of AI adoption in Zenith Bank in order to curb fraud or crime</b>		
<b>Do you think human factor is efficient and effective in fraud detection in Nigerian Banking industry?</b>	<b>(Total 23)</b>	<b>(Total 100%)</b>
Yes	3	

No	20	13% 87%
<b>Do you think that AI adoption in Nigerian Banking industry can help detect fraud better than the human factor?</b>	<b>(Total 23)</b>	<b>(Total 100%)</b>
Yes	22	95.7%
No	1	4.3%
<b>Is AI adoption the only solution to help curb fraud in Nigerian Banking industry?</b>	<b>(Total 23)</b>	<b>(Total 100%)</b>
Yes	20	87%
No	3	13%

Table 3.1 above shows the frequency distribution of the 23 respondents that were employed in this study. The study found that out of the 23 respondents engaged, all of them responded to the online survey. This shows that 23 respondents were taken and adjudged suitably, thereby forming the foundation of the analysis in this study. From the first two rows of the table (that is, the demographic information of the respondents), the study shows that more of the male gender participated than their female counterparts as the statistics above indicates 13:10 ratio in favour of the male gender. This fact is further depicted in Figure 1 below.

**Figure 1: Analysis by Gender**



**Source:** Extracted from the Statistical Output

On the fraud incidence in the banking sector however, 95% of the respondents attested that they have seen the incidence of fraud occurrences since their years of service in the Nigerian banking industry while only 4.3% of the respondents attested that there has not been incidence of fraud in the banking industry since they were employed. On human capability of handling fraud detection in the Nigerian banking industry, the study found that over 80% of the respondents indicated that human factor currently being employed in fraud detection in Nigerian banking industry is grossly inadequate in curbing the crime rate of fraud in the banking sector.

On the issue of deployment of AI in the Internal Control System of Nigerian Banking Industry however, this study found that 21 respondents believe that, AI deployment into the Internal Control System of Nigerian Banking Industry will help curb the incidence of fraud in the industry while only two respondents indicated that AI deployment into the Internal Control System of Nigerian Banking Industry will not help curb the incidence of fraud in the industry. This implies that AI deployment into the banking system will help curb the incidence of fraud since it has been an established fact that one of the contributing factors to fraud or crime incidence in an organisation is due to the weakness of its internal control system. On the adoption of AI in curbing fraud in the Nigerian Banking industry, the study shows that 87% of the respondents reported that AI adoption into the system is the only solution to help curb fraud in the banking industry while 13% of the respondents informed that AI adoption is not the only solution to help curb fraud in the banking industry.

### **Test of Hypotheses**

To ensure a better assessment of this study, the following hypotheses were postulated in their null forms:

**H<sub>0</sub>:** AI deployment has no significant effect on the internal control system of the Nigerian Banking Industry.

**H<sub>1</sub>:** AI adoption has no significant impact on fraud detection in the Nigerian Banking Industry.

### **First Hypothesis**

**H<sub>01</sub>:** AI deployment has no significant impact on the internal control system of the Nigerian Banking Industry.

**H<sub>11</sub>:** AI deployment has significant impact on the internal control system of the Nigerian Banking Industry.

**Table 3.2: Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
<b>Pearson Chi-Square</b>	17.343 <sup>a</sup>	2	.000
<b>Likelihood Ratio</b>	14.912	2	.000
<b>Linear-by-Linear Association</b>	11.528	1	.001
<b>N of Valid Cases</b>	23		
<b>a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .80.</b>			

From the Chi-square results in Table 3.2 above, probability value of 0.000 was found to be less than the 5% level of significance as such, the alternative hypothesis (H<sub>1</sub>) was accepted that the analysis is statistically significant. Therefore, the study concludes that AI deployment has significant effect on the internal control system of the Nigerian Banking Industry.

**Second Hypothesis**

**H<sub>02</sub>:** AI adoption has no significant impact on fraud detection in the Nigerian Banking Industry.

**H<sub>12</sub>:** AI adoption has significant impact on fraud detection in the Nigerian Banking Industry.

**Table 3.3: Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
<b>Pearson Chi-Square</b>	13.213 <sup>a</sup>	3	.001
<b>Likelihood Ratio</b>	19.887	3	.000
<b>Linear-by-Linear Association</b>	11.835	1	.001
<b>N of Valid Cases</b>	23		
<b>a. 8 cells (100.0%) have expected count less than 5. The minimum expected count is .90.</b>			

From the Chi-square results in Table 3.2 above, probability value of 0.001 was found to be less than the 5% level of significance as such, the alternative hypothesis ( $H_1$ ) was accepted that the analysis is statistically significant. Hence, the study concludes that, AI adoption has significant impact on fraud detection in the Nigerian Banking Industry.

### **Conclusions and Recommendations**

As this study focuses on curbing the crime rate in the Nigerian banking sector with the proposal for the adoption and deployment of Artificial Intelligence architecture within the industry, the result shows the need for AI as the proposed system could be used to protect the interest of the various stakeholders in the Nigerian banking sector against fraud and other financial crime. More so, the deployment of artificial intelligence will assist in developing the overall understanding of the customers and their behaviour which will help reshape the entire Nigerian banking sector in identifying any kind of fraud. It also assist detecting most types of money laundering patterns and send alerts to both prospective and current customers of the banks.

If the artificial intelligence system is implemented in the Nigerian banking industry, it will greatly assist bank branches where it has been observed that online financial transactions are in boom and so are fraud. AI system application will help to prevent fraudulent activities through the machine learning tools that have the capability to track suspicious behaviour against on any transactions. The role of the artificial intelligence on fraud detection in banking industry cannot be over emphasized as the artificial technology has emerged as a forefront cutting edge revolution in the global context and also in the 21st century. This is true because of the fact that, AI has been found relevance in multiple dimensions of life, developing unprecedented pace through the greater acceptance as new technology innovation. Using the machine learning tools of the artificial intelligence carries critical implications in the detection of fraudulent activities. Having carefully addressed the need for AI in the Nigerian Banking Industry, this study therefore, concludes that AI adoption and deployment has significant impact on the internal control system of the Nigerian Banking Industry and can as well help to detect fraud and financial crime in the industry.



In line with the above conclusion, this study recommends that:

- a. The internal control systems of the Nigerian banking industry need to be strengthened using modern technological innovations such as AI systems in order to be able to detect and prevent fraud and fraudulent activities and to protect banks assets.
- b. Government in every society plays a key role in financial and other crime prevention. In this regard, the relevant institutions established to fight fraud including the Central Bank of Nigeria (CBN), Nigeria Deposit and Insurance Corporation (NDIC), Securities and Exchange Commission (SEC), National Insurance Commission (NAICOM), Economic and Financial Crimes Commission (EFCC), Independent Corrupt Practices Commission (ICPC), the Police, Judiciary, Standard Organization of Nigeria (SON), among others, should adopt and deploy Artificial Intelligence systems (AI) in order to ensure the fight against fraud in Nigeria.
- c. Banks should organise management and entire staff training on the use of Artificial Intelligence system soft wares so as to be able to know when a fraud is being attempted to happen and to forestall its occurrence.
- d. The CBN, through the Bankers' Committee should deploy Artificial Intelligence into the recently encrypted BVNs as additional security requirement on all ATM and/or internet banking channels.

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