

Original Article

Prevalence of Electronic Fraud in Nigeria Banking System

Amaefule I.A¹, Onu F.U²

¹ Department of Computer Science Imo State University, Imo State, Nigeria

² Department of Computer Science Ebonyi State University, Ebonyi State, Nigeria

Abstract - The involution and dependence on technology by present time enterprise as well as the increasing ease of access to the internet by all and sundry, have given rise for more opportunities for electronic fraud and other form of exploitations. The paper has presented the prevalence of Electronic Fraud in Nigeria Banking System. The study aimed to investigate the electronic fraud rates in Nigeria Banking System. Data were obtained through structured questionnaires and various secondary sources. The responses obtained from majority of respondents, were of the opinion that electronic banking is a convenient way to carry out financial transaction and manage finances. Also significant majority expressed their concerned in rapid increasing trend of electronic banking fraud and payment system, which has become a potent threat to the Nigeria banking industry. Also various secondary sources have provided substantial report on e-fraud cases in banking industry. However, there is need to focus on effective ways to reduce the incidence of e-fraud by reviewing, strengthening existing and enacting appropriate security laws that guarantee safe online transaction for users and stakeholders.

Keywords - E-fraud, Internal Control, E-Payment, Banking System.

I. INTRODUCTION

The accomplishment of financial transaction online was made possible through the emergence of electronic banking. Its abuse is inevitable; however, e-fraud is the visible abuse of e- banking in Nigeria. The rapid advancement of the electronic channel ecosystem increased the incidence of electronic fraud through the adoption of e-payment channels. [1].

As e-payment is gaining a widespread acceptance, fraudsters are rapidly devising a means to commit cybercrimes, owner of credit and debit card are like millions of other people around the world who are not left out and may be subject to fraud. The CBN [2]

reported a N2.19 billion loss by the country's commercial bank to e-fraud in the 2016 fiscal year. There were 19,531 recorded cases in 2016 compared with 10743 in 2015. This is an 82 percent increase in e-fraud cases between 2015 and 2016. The figure has rapidly increased in subsequent years.

A breakdown revealed that across counter transactions accounted for, the highest with a total value of N511.07 million. Followed by Automated Teller Machine (ATM) transactions with N464.5m; Internet banking N320.66m and mobile banking transactions, N235.17m. Other losses came from e-commerce transactions, N132.25m; web transactions, N83.77m; cheques, N4.55m; kiosks, N10.19m; and others, N190.97m.

The report distinguished that, based on trend and human perception; it is believed that fraud rates increase towards the end of the year due to festivities and the need for people to get more money. Nonetheless, the report stated that fraud can happen at any time, and therefore, called for preventive and detective strategies.

However, protection of information infrastructure in the delivery of financial services is critical all over the world. Persons, who attempt to compromise it, should be visited with stiff and sufficiently sanctions to discourage other like-minded persons from such criminal acts

II. CONCEPTUAL FRAMEWORK / LITERATURE REVIEW

Different scholars have defined fraud, forgeries and errors in various ways. Fraud is described as an act of deliberate deception with the intention of gaining some benefit, in other words it is the act of dishonestly pretending to be something that one is not. (Chamber English Dictionary, 2002). [3], defines bank fraud as whenever a person knowingly executes, or attempts to execute, a scheme or artifice (1) to defraud a financial



institution; or (2) to obtain any of the moneys, funds, credits, assets, securities, or other property owned by or under the custody or control of, a financial institution, by means of false or fraudulent pretenses', representations, or promises.

Fraud occurs when a person in a position of trust and responsibility, in defiance of norms, breaks rule to advance his personal interests at the expense of the public interest, which he has been entrusted to guide and promote. [4], it occurs when a person through deceit, trickery or highly intelligent cunning ways, gains an advantage he could not otherwise have gained through lawful, just or normal process. Fraud causes tremendous losses to the business world and creates morale problems in the workplace. These losses are serious problems to organizations that need to be managed, controlled and monitored. Technology, the criminal and law enforcement are continuously leapfrogging each other, as the race continues to build better tools, commit bigger crimes and develop more effective law enforcement [5].

According to Nigeria Electronic Fraud Forum [6], the adoption of e-payment channels as preferred channel of payment increase the incidence of electronic fraud. Almost in the same direction KPMG Forensic Services Nigeria [7] finding between 2013 and 2015 show a sharp increase of cybercrime / e-fraud which can also be attributed to the increasing adoption of technology and alternative electronic delivery channels.[8], shows a value of transaction processed via mobile, platform are on daily increase according to CBN source mobile payment recorded significant transaction growth value between 2010 and 2015 rising from N335 billion in 2012 to 3.3 trillion in 2014. Fraud in mobile payment space is not expected to decline in subsequent years as more consumers and operators subscribe to the platform; e-fraudsters had deployed a number of fake mobile application on the website of the banks to extract customer personal information with sole objective of defrauding the customers. [9], shows social engineering which involves emails, 419 scams phishing, abuse of social media was the second most form of cyber-attack. It is obvious that social engineering attacks; which lure users into revealing sensitive and confidential information will continue to increase in subsequent years as social media platform will continue to be a veritable means of achieving this ugly trend.

Nigerian Interbank Settlements System (NIBSS) [10], report shows over ₦4 billion was lost to cases of e-fraud in 2015. Similarly, data released recently by Nigeria Information Technology Development Agency (NITDA) suggests that there were 3,500 cyber-attacks

with 70% success rate and a loss of \$450 million in 2015.

However, there is still a perception that the unreported cases surpass the reported cases of e-fraud perpetrated in the system. Over ₦30 trillion in transactions is reportedly carried out on different e-payment channels by businesses and individuals in the country, yet worries over cases of e-fraud remain on the increase [11].

Types of Electronic Fraud

These are some of electronic fraud, which has direct or indirect risk associated to online transactions

- a) **Theft fraud / Counterfeit fraud:** theft fraud; using a credit card without the owner's consent, once the owner report to his financial institution it can be checkmated as soon as possible. While counterfeit fraud poses highest threat in credit card fraud, only details of the credit card are required. [12].
- b) **Computer Intrusion:** act of forcing in; without right or welcome, gaining unauthorized access to information willfully to subvert protection and detection system.
- c) **Application Fraud:** when fraudster applies with someone names and information to obtain a credit card.
- d) **Bankruptcy Fraud:** using credit card while being absent; to secrete him or does certain other acts tending to defraud his creditors. This type of fraud is difficult to predict because of its complexity. [13].
- e) **Credit Card fraud:** Credit cards are used for purchasing goods and services with the help of virtual and physical card. Virtual card are used online to commit fraud mainly through internet or phone by knowing the credit card details through illegal way. Physical card are used offline to commit fraud; the attacker has to steal the credit card.
- f) **Telecommunication:** using telecommunication services to commit other types of fraud, it is so evolving; business, communication service provider and consumers are all victims of this fraud. [12].

III. RESEARCH METHOD / DATA GATHERING

The study was conducted in Owerri, the Imo State capital. Owerri is located at the heart of the South-eastern Nigeria. A descriptive research method was used for data collection. Structured questionnaires were

used to obtain data. A total of 200 respondents of electronic platform users were randomly chosen to obtain data on convenience, ease of access and security concern from the five local government and its environs that make up of Owerri. Data were also obtained from various secondary sources, CBN publications of Annual and statement of account reports, Nigeria Electronic Fraud Forum (Neff), Nigeria Deposit Insurance Corporation (NDIC) and KPMG Nigeria among others.

IV. ANALYSIS OF FINDINGS AND DISCUSSIONS

A. Gender and Age of Respondents

The pie chart in Fig. 1 and Fig. 2, shows that the gender and age of respondents. 61% of the respondents are males while 39% are females. Also age respondents are within age group 16-20 years (18%) between 21-25 years (27%), 26-30 years (34%) while the remaining (21%) falls between the ages of 31 and above.

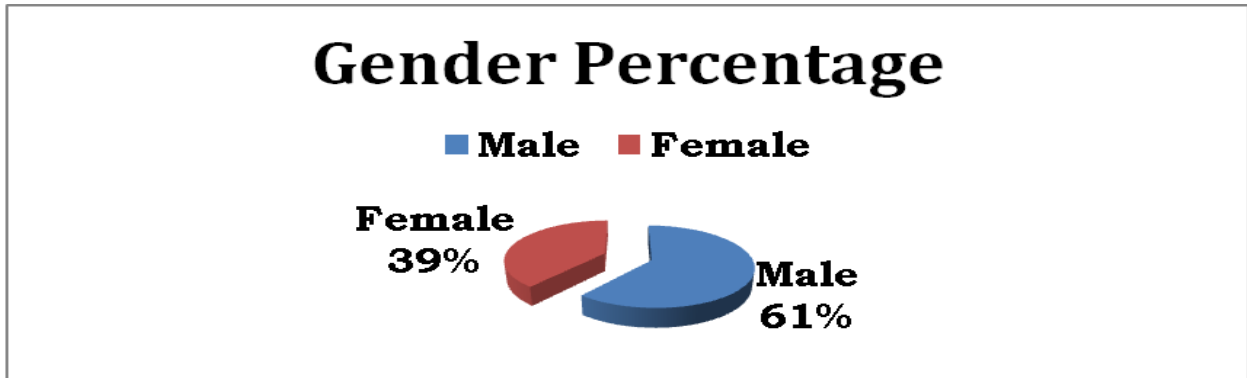


Fig. 1 Gender percentage of the respondents

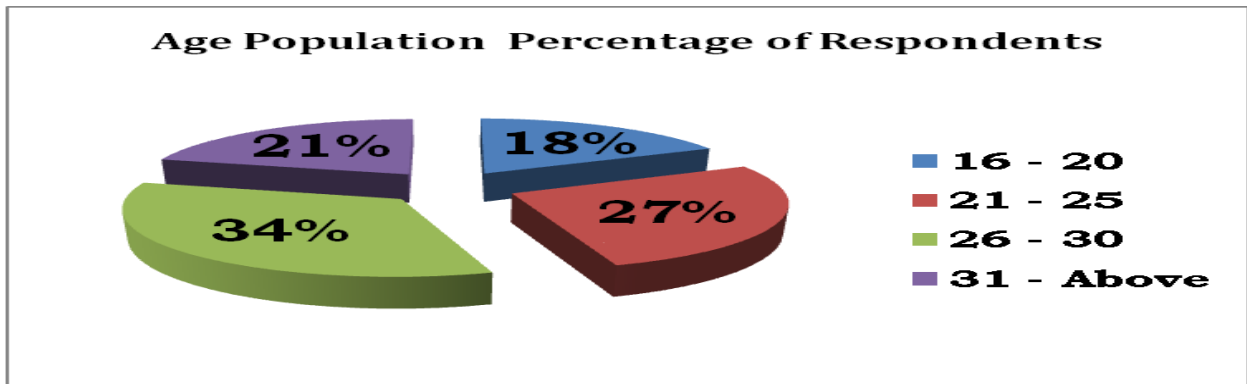


Fig. 2 Age of Respondents

B. Impact of Electronic Payment Channel and Danger of e-fraud

To effectively analyze the impact of electronic payment channel and danger of electronic fraud on the respondents, the responses were based on Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D) and Strongly Disagree (SD) shown in Fig. 3. 84 respondents representing (42%) strongly agreed, 74 respondents representing (38%) agreed, 26 respondents representing (13%) were neutral, 10 respondents representing (5%) disagreed and 4 respondents representing (2%) strongly disagreed that electronic payment channel is easy to use. On convenient of electronic transaction and

payment channel 44% strongly agreed, 37% agreed and 15% were neutral in their responses while the remaining 4% disagreed; who articulated their reaction on the fact of poor network/ network failure, which can result to multiple debit. On the danger of electronic fraud, significant majority expressed their displeasure over rapid increase of e-fraud as 49.5% strongly agreed, 45.5% agreed on the incidence of e-fraud; these respondents alluded their security concern on the vulnerability of the electronic environment due to absence of appropriate laws to guarantee safe electronic transaction. While 4% were neutral, 0.5% disagreed and 0.5% strongly disagreed.

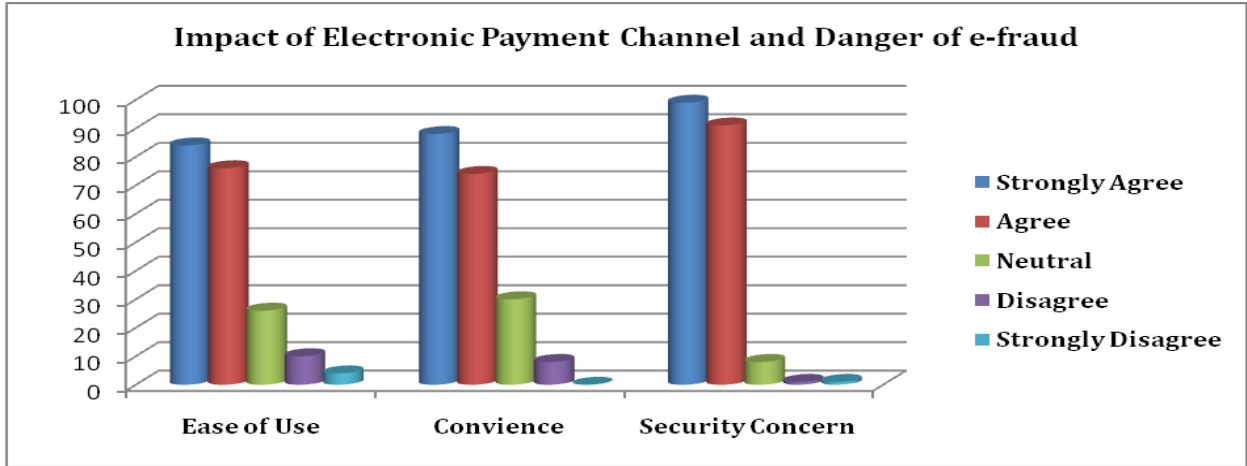


Fig. 3 Impact of Electronic Transactions and Danger of e-fraud

C. Fraud Summary

The Fig.4 shows that 19,531 fraud cases were reported for Deposit Money Banks in 2016 as against 10,743 in the Year 2015. Although, there was 82% increase in reported fraud cases as compared with 2015, there is marginal reduction in attempted fraud value and

actual loss is 4,368,437,371.64 and 2, 196,509,038.78 respectively. Also, there was a decrease of 2.65% in actual loss due to fraud in 2016 when compared with 2015. Table 1 shows the summary of fraud report, the fraud volume in 2016 recorded higher than 2015.

Table 1. Summary of Fraud Report [6].

Year	Fraud Volume	Attempted Fraud Value	Actual Loss Value
2015	10,743	4,374,512,776.64	2,256,312,660.00
2016	19,531	4,368,437,371.64	2,196,509,038.78

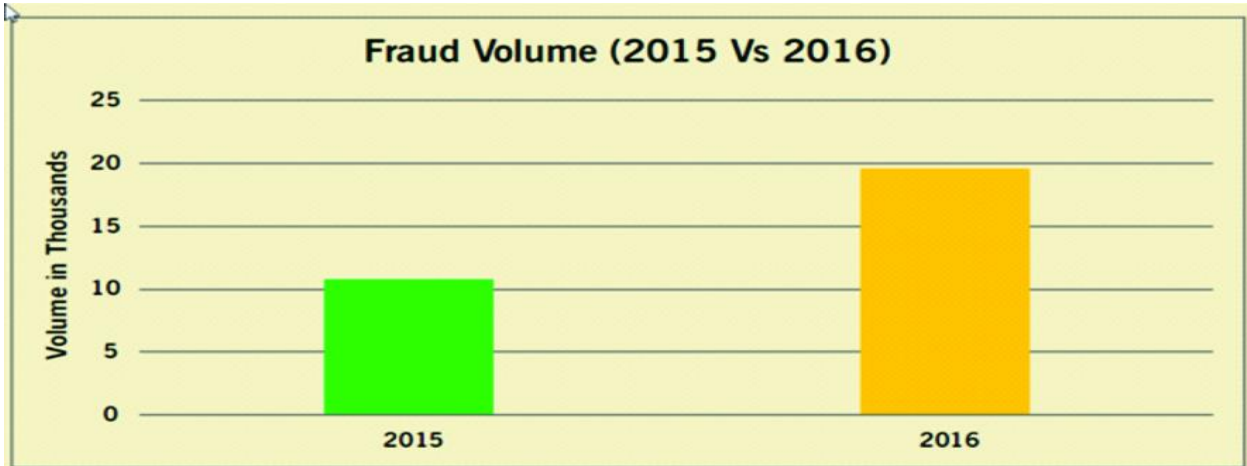


Fig. 4 Comparing Fraud Volume for the years 2015 and 2016 [6].

D. Fraud per Channels

Exploring reported fraud events in the year 2016 and categorizing them according to channels, fraud perpetrated through the Automated Teller Machine (ATM) recorded the highest volume of fraud followed by Mobile. This is analogous to several emerging products and services riding on these channels which fraudsters are taking advantage of,

especially mobile channel. The third most used channel to perpetrate fraud is Web as shown in Table 2. According to [6], report, ATM has been the most used channel for fraudulent transactions for the last two consecutive years. One has also seen the increase in Mobile channel fraud. Therefore, there is need for the Industry to re-evaluate current strategies and policies

Table 2. Fraud per Channels [6].

Channel	Fraud Volume	Actual Loss Value
Across Counter	325	511,072,861.29
ATM	9,522	464,514,684.27
Cheque	12	4,558,897.75
eCommerce	520	132,252,118.32
Internet Banking	698	320,665,957.87
Kiosk	3	10,198,000.00
Mobile	3,832	235,170,720.40
POS	1,658	243,321,812.67
Web	2,677	83,776,994.11
Others	284	190,976,992.10

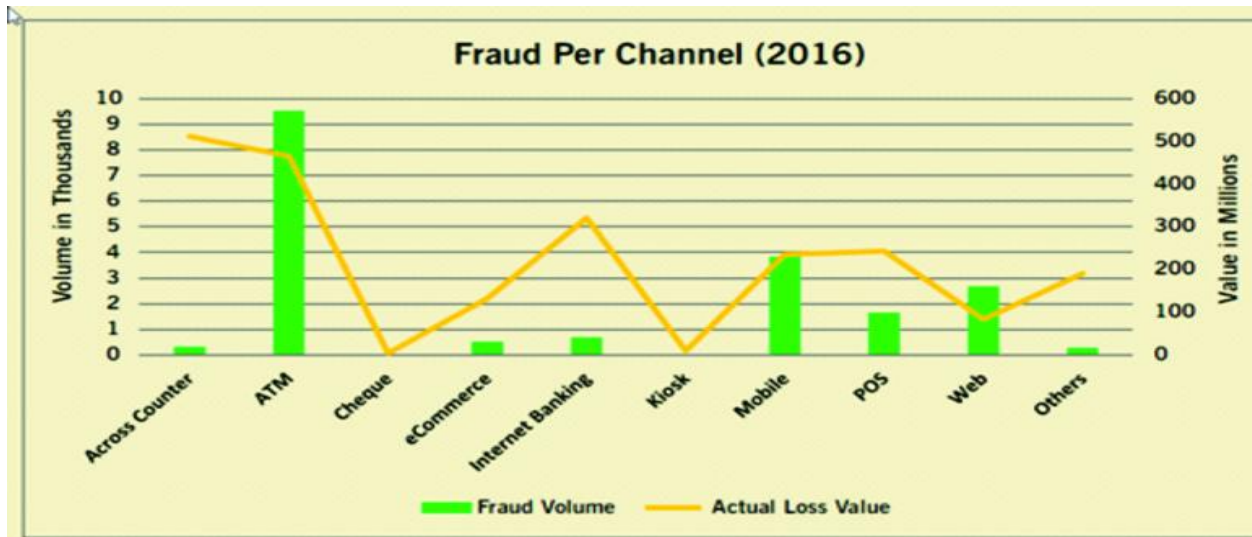


Fig. 5 Fraud according to channels in the year 2016: volume and value [6]

E. Fraud by Platform

According to [6], the Nigeria Inter Bank Settlement System (NIBSS) has categorized various channels stated above into Electronic and Non-Electronic platforms. Tables 3 and 4 below shows all payment channels currently captured on the Industry Anti-fraud portal with their corresponding fraud volume

and actual loss value for 2016 represented as either electronic or non-electronic platform. Examining the total fraud volume and value on both platforms, it is evident that fraudsters still leverage more on the electronic platform to carry out their illicit acts.

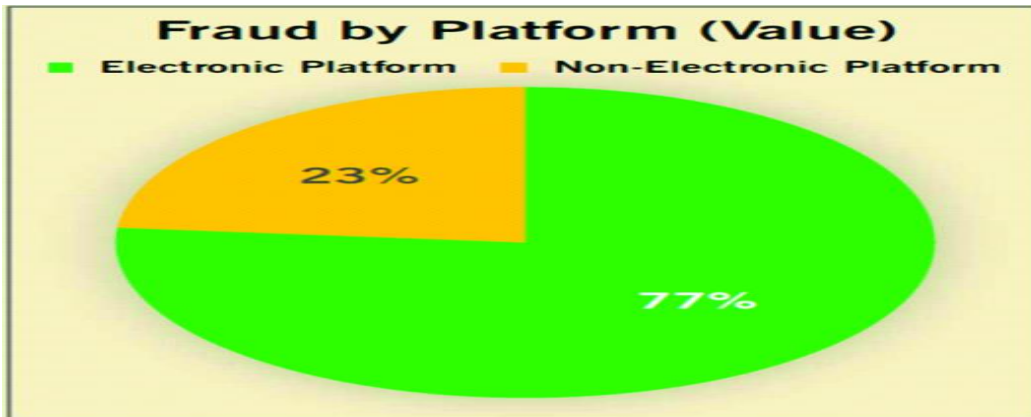


Fig. 6 Fraud by Platform [6].

Table 3. Electronic Channel [6].

ELECTRONIC PLATFORM		
Channel	Fraud Volume	Actual Loss Value
ATM	9,522	464,514,684.27
eCommerce	520	132,252,118.32
Internet Banking	698	320,665,957.87
Kiosk	3	10,198,000.00
Mobile	3,832	235,170,720.40
POS	1,658	243,321,812.67
Web	2,677	83,776,994.11
Others	284	190,976,992.10
TOTAL	19194	1,680,877,279.74

Table 4. Non-Electronic Channel [6].

NON-ELECTRONIC PLATFORM		
Channel	Fraud Volume	Actual Loss Value
Across Counter	325	511,072,861.29
Cheque	12	4,558,897.75
TOTAL	337	515,631,759.04

F. Fraud per Month

Based on human perception and trend, it is believed that fraud rates increase towards the end of the year due to several festivities observed during this period and the need for people to get more money. But, the truth is, fraud can occur anytime, hence the need for

us to always gear up our preventive and detective strategies. Reported fraud cases in 2016 as shown in Table 5, there was a twist when compared with the last two years. Although, there was increase in the “ember”

period, there was less impact in terms of actual loss value

Table 5. Reported fraud per month [6].

Month	Fraud Volume	Actual Loss Value
Jan	1,373	227,538,777.49
Feb	961	247,384,495.54
Mar	2,070	188,483,660.93
Apr	1,558	86,164,641.79
May	1,918	104,982,112.35
Jun	1,991	428,160,136.23
Jul	1,448	202,828,418.01
Aug	1,213	157,102,022.47
Sep	1,587	116,094,659.61
Oct	2,128	153,091,198.51
Nov	1,424	138,862,567.58
Dec	1,860	145,816,348.27
TOTAL	19,531	2,196,509,038.78

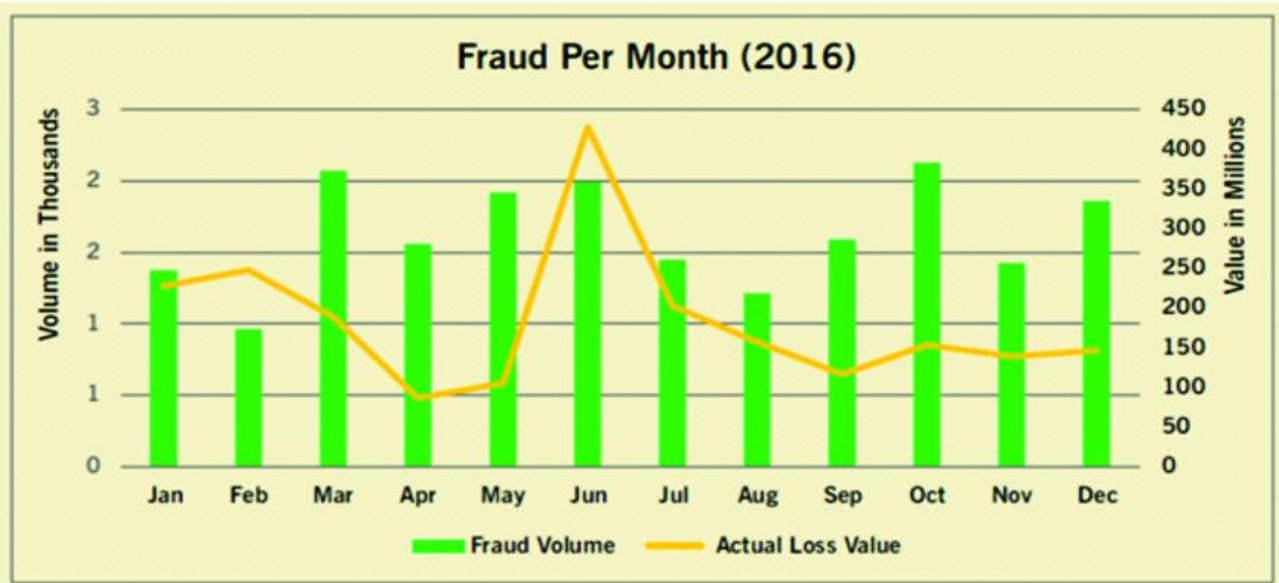


Fig. 7 Reported fraud per month [6].

G. Fraud per Quarter

Grouping reported fraud cases in the year 2016 into quarters; there is a constant decrease in the actual loss value. Indeed, this is remarkable, and shows that our co-operation in the fight against fraud is paying off. For the first time in three years, the fourth quarter of

2016 recorded the lowest actual loss and attempted fraud value. In 2015, attempted fraud value consistently increased across each quarter. The same goes for actual loss value with just a marginal drop in the second quarter as shown in Table 6 and Fig. 8 below.

Table 6. Reported Fraud per Quarter [6].

Quarter	Fraud Volume	Attempted Fraud Value	Actual Loss Value	% Actual Loss Value in Attempted Fraud Value
1st Quarter	4,404	1,136,910,083.39	663,406,933.96	58.35%
2nd Quarter	5,467	1,169,639,671.48	619,306,890.37	52.95%
3rd Quarter	4,248	1,092,332,880.26	476,025,100.09	43.58%
4th Quarter	5,412	969,554,736.51	437,770,114.36	45.15%

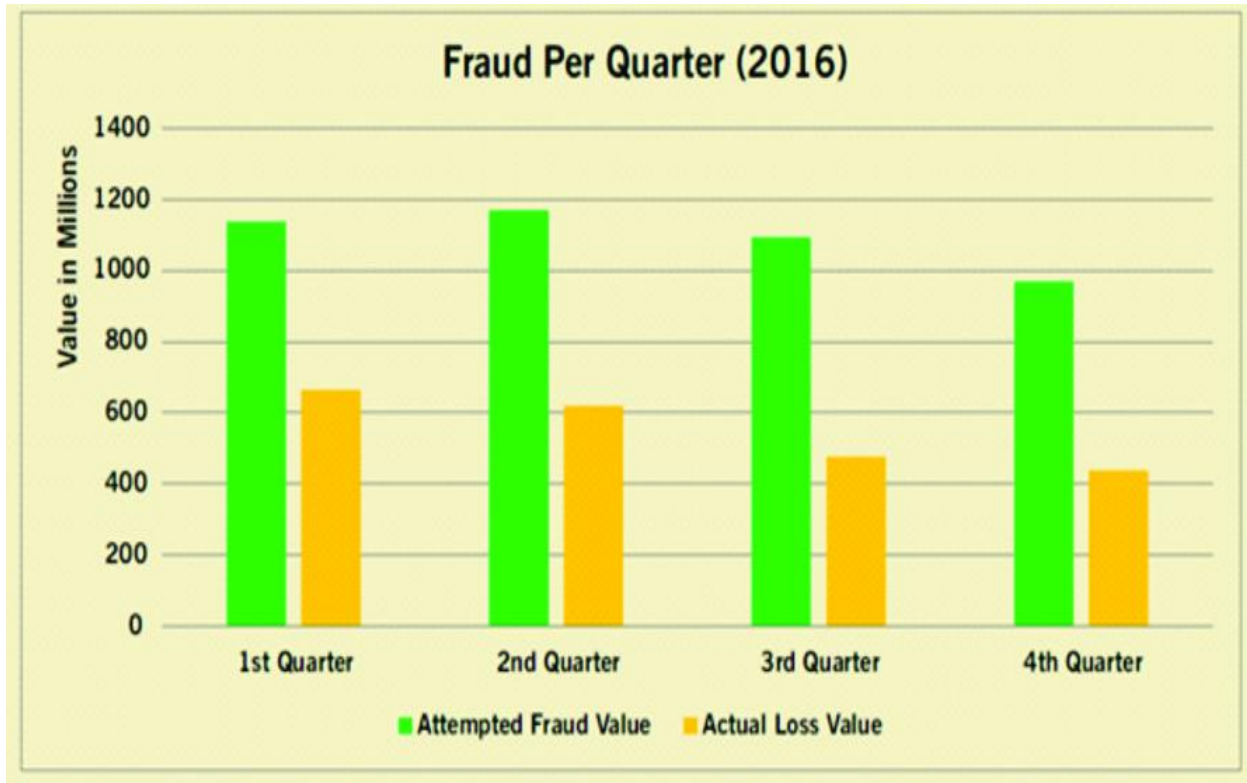


Fig. 8 Reported Fraud per Quarter [6].

H. Fraud in the Last three years...

ATM, Internet banking and Web Channels were the top three fraudulent transactions accomplished in 2014. In 2015, ATM, POS and Web were the top three most used channels to perpetrate fraudulent transactions. However, in 2016, ATM, Mobile and Web were the three most used. Apparently, ATM and Web channels have consistently appeared in top three

channels used to perpetrate fraud for three years running. It can be deduce that ATM channel has been the focal point for fraudsters in the last three years. The emergence of Mobile channel in this category cannot be extraneous to the various financial products and services we have these days, which ride on mobile platforms as shown in Fig 9.

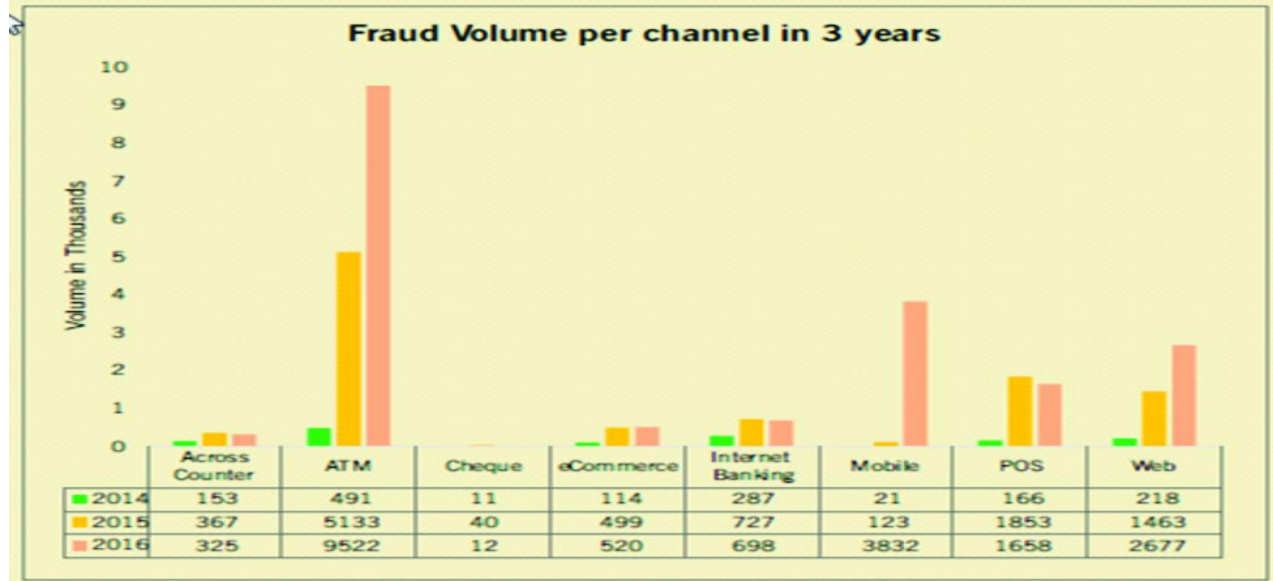


Fig. 9 Fraud volume per channel in the last 3 years [6].

I. Fraud Rate

Tables 7 and 8, shown below fraud rate per value and volume in 2016. Although values of the year 2016 are almost same with those of 2015, the difference in its volume when compared to 2015 suggests more success in curbing fraud. More attempts in volume can be seen over a period of three years, and the rate is

expected to increase significantly if the current recession is to be taken into consideration. Also, with the growing adoption of electronic means of payment by individuals and migration to the use of smart phones coupled with the popularity of crypto-currencies in our nation, heightened fraud attempts in volume is almost inevitable.

Table 7. Fraud rate per value [6].

Year	Attempted fraud value	Actual loss	% difference
2015	4,374,512,776.64	2,256,312,660.00	52
2016	4,368,437,371.64	2,196,509,038.78	50.2

Table 8. Fraud rate per volume [6].

Year	Transaction Volume	Fraud Volume	Fraud Rate (Vol.)	Transaction value	Fraud Value	Fraud Rate (Val.)
2014	113,421,933	1461	0.001%	43,857,678,478,941	7,750,152,748.00	0.017%
2015	162,598,740	10,743	0.006%	48,932,506,699,512.20	4,374,512,776.64	0.009%
2016	278,744,529	19,532	0.007%	64,186,537,023,217.30	4,368,437,371.64	0.007%



Fig. 10 Fraud Trend in Nigeria over the last three years. [6].

V. CONCLUSION

As integration of electronic payment channel system increase in our financial institution, so do the explosive trend of cybercrime, impact negatively on business. This creates doubt and anxiety among user and potential users, because of absence of appropriate security law to guarantee the legality of online transaction. This paper has studied the Prevalence of Electronic Fraud in Nigeria Banking System. It shows that significant number of respondents are still of the opinion that occurrence of electronic payment channel fraud is still on the increase, and do not feel secured when making transactions through electronic banking and expressed general security concern on electronic fraud associated with e-banking transactions in Nigeria banking system. Evidently, there is an utmost need to effectively focus on ways to reduce or completely eradicate the incidence of electronic fraud by all stakeholders, and government must be willing to invest in ICT training for security professionals to fight cybercriminals in term of technological knowledge, computing skills and security expertise.

REFERENCES

[1] Ifeanyi Ndiomewese (2016). How e-fraud can be tackled to reduce losses in Nigeria. <http://www.techpoint.ng/authors/ifeco3show>.
 [2] (CBN); Central Bank of Nigeria Annual Report and Statement of Accounts. (2016). Abuja, Nigeria
 [3] Wikipedia, the free encyclopedia (2007). Advance Fee Fraud. Downloadable from <http://www.wikipedia.org/wiki/advancefeefraud>.
 [4] Nwankwo, G.O. (1992). Banking Fraud. Lecture delivered at the 5th.

[5] Rittenberg, L. E. and Schwieger B. J. (2005), Auditing: Concepts for a Changing Environment, Pittenberg - Schwieger, USA.
 [6] (Neff): Nigeria Electronic Fraud Forum (2016). A Changing Payments Ecosystem: The Security Challenge.
 [7] KPMG (2015). Forensic Service Nigeria: Assisting clients in achieving the highest levels of business integrity through the prevention, detection, and investigation of fraud and misconduct.
 [8] KPMG Nigeria (2016). Top Five (5) Fraud Trends in Nigeria's Commercial Banks in 2016 - Part I & II. <http://www.blog.kpmgafrika.com/category/kpmg-nigeria>
 [9] Nigerian Cyber Threat Barometer Report (2014). Available https://www.wolfpackrisk.com/.../nigeriancyberthreatbarometer_2014_med_res.
 [10] NIBSS (Nigerian Interbank Settlements System) (2014). E-payment Fraud Landscape Report Available at www.nibss-plc.com.ng/reports/2014-fraud-report.
 [11] NDIC: Nigeria Deposit Insurance Corporation (2015). Annual Report and statement of account. Available at www.ndic.gov.ng
 [12] Khyati Chaudhary, Jyoti Yadav, Bhawna Mallick, (2012). A review of Fraud Detection Techniques: Credit Card", International Journal of Computer Applications (0975 - 8887) Volume 45- No. 1
 [13] Linda Delamaire, Hussein Abdou, John Pointon, (2009). Credit card fraud and detection techniques: a review, Banks and Bank Systems, Volume 4, Issue 2,