



Analysis of Infrastructural Challenges, Cybercrime, and the Cashless Policy in Nigeria

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Abstract

This study makes an analysis of infrastructural challenges and the cashless policy in Kaduna state, Nigeria. A survey was conducted to collect the primary data through a structured questionnaire and interviews with bank customers, bank officials, and security personnel to obtain information on infrastructural challenges since the introduction of the Cashless policy by the Central Bank of Nigeria in 2012. Frequency distribution and simple percentage methods are used to analyze the data. Findings show that infrastructural challenges include network failure and infrastructural deficiency, debiting by Automated Teller Machine (ATM) without disbursing cash to beneficiaries, problems not rectified quickly by the banks, and charging by banks for using electronic banking methods. This leads to fraud, cybercrimes, and reduced confidence in the banking system. It is recommended that banks should be made to provide the minimum infrastructure required for cashless policy to succeed. In addition, there should be adequate cyber security measures implemented by banks and the government.

Keywords: Infrastructure; Cashless policy; Cyber-crime, E-Banking fraud

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1. Introduction

From the early stage of banking until the late 20th century, banking businesses were conducted mainly by banknotes and coins. However, with the increasing advancement in information and communication technology, non-cash electronic-based transactions and settlements began in daily life during the 1990s, when electronic banking became popular [9]. And in the present millennium, the cashless banking system has become a widespread practice in many societies, including Nigeria and it is the advanced stage of electronic banking [6].

[10] reports that the electronic money system had steered the cashless banking agenda across various countries of the world, and this is made possible by the massive development in information technology and invention that began in Japan and later the Western societies of Europe and North America. By implication, electronic money, which is made possible by significant development in technology as evidenced in the invention of the Internet, the emergence of electronic account systems, and the ever-increasing sophistication in essential industries all around the world, have made paper money transactions less appealing

An electronic-based cashless banking policy was emphasized in Nigerian society and subsequently implemented in 2012 by the Central Bank of Nigeria. The policy became effective on June 1, 2012. It started with a cumulative daily limit of N500,000 and N3 million on cash withdrawals and lodgements by individual and corporate bodies, respectively, free of processing fees (or cash handling charge or service charge). In addition, Nigerian banks ceased cash in transit lodgement services rendered to merchant customers from January 1, 2013 [6].

The introduction/implementation of electronic banking began in Lagos state in 2012 and extended to Abia, Anambra, Kano, Ogun, Rivers states, and federal capital territory on July 1, 2013. The e-system reached all other parts of the country on July 1, 2014. Consequently, notes and currency are converted into data and stored in an electronic purse or card, transmitted via electronic channels like Automated Teller Machines (ATM), mobile phones, Point of Sales (POS) terminals, and the Internet [11]. Before the introduction of the cashless policy, machinery for doing new ways of business was provided by the banking sector. The banks provide facilities for electronic banking such as A.T.M., P.O.S., and the internet. The government provides an enabling environment for it takes up [16].

Essentially the banking sector formed the infrastructure of cashless banking. At the same time, the government completed the circle with the formulation and implementation of the cashless policy, which this work refers to as the superstructure. Specific tools facilitate the electronic banking system in Nigeria, and these are identified by [6] as follows: A smart card or electronic pulse (use of point-of-sale terminal), internet banking, automated teller machine (A.T.M.), and mobile phone banking are the primary instruments of cashless banking in Nigeria.

Nigeria is a poor country with a poor level of development of economic infrastructure [17]. The question of interest in this research is what is the infrastructural challenges of e-Banking in Nigeria? This constitutes the problem of our study. Hence the study objective is to examine the infrastructural challenges of e-banking in Nigeria. The rest of this article covers a literature review, methodology, results, and discussion.

2. Material and Methods

2.1. Literature Review

According to [6], a cashless banking system suggests a financial practice that can store money in an electronic purse on a card used to purchase the product at a vending machine or any point of sales terminal located within the business premises. [7] and [8] state that currency and notes are converted into data transmitted through telephone lines and satellite transporters in a cashless banking system. Furthermore, "cashless banking could be referred to as a banking system that is commonly practised in a cashless economy. The cashless economy does not refer to an outright absence of cash transactions in the economic setting but one in which the amount of cash-based transactions is kept to the barest minimum."

In their studies, [15] believes that money does not matter in the determination of price movements and consequently inflation and suggests, therefore, that the economy can do without cash as the money base is not relevant for manipulations in the price level.

[7] observes that another important reason for the emergence of cashless banking is reducing the cost of banking services. For instance, he argued that going digital would bring an enormous improvement in the way countries of the world manage their cash supplies since it costs money in the first place to print, issue, and maintain cash in circulation in the Nigeria society, the Central Bank of Nigeria [4] posits that the justification of the introduction of cashless banking in Nigeria is oriented towards keeping it in tandem with Nigeria's Payment System Vision 2020 with the view to facilitating financial inclusion, reducing incidents of fraud related to the handling of cash and helping the country to meet up with the advanced economy of the world. Furthermore, the country's apex bank believes that 'an efficient and modern payment system is positively correlated with economic development and crucial for economic growth, [14] What this tends to suggest is that a country with a digitalized payment system referred to in this study as cashless banking is on its way to economic growth and development.

Another factor adduced by the [4] as being responsible for introducing cashless banking in Nigeria is to minimize the expenditure involved in doing banking business, such as the cost of credit, and facilitate financial inclusion by providing more efficient transaction options and greater reach. For instance, Internet banking, or online banking which avoids physical contact between the customer and the banking hall because once the depositor has an internet connection and have registered for internet banking with their bank, the individual can efficiently perform tasks like money transfer between customers of the same or different banks, pay for satellite access bills, pay for electricity bills, view their account statements amongst other things.

However, this contention has been punctured by [8] and [10] They maintain that the Nigerian banking system is still far behind compared with what is obtainable in the developed countries of Europe and North America. According to them, the network problem that characterizes banks in Nigeria has made most people experience hardship, hunger, and starvation, especially on weekends. Hence, some people have resorted to keeping their monies at home for easy reach to avoid the embarrassment of the network. Again, the network problem will make some transactions hang for

days, or even the transferred sum of money may never reach its destination when needed, thereby eroding the urgency and need of such transactions.

The [4] states that one of the primary reasons for cashless banking in the country is to improve the effectiveness of monetary policy in managing inflation and driving economic growth. This reason has attracted the attention of scholars such as [8], who observe that the monetary policy of Nigeria has not translated into economic improvement; instead, it has worsened the inflation trend. Citing the Forex policy, they argue that difficulty obtaining the U.S. dollar for international business has led to the collapse of many industries, resulting in the high rate of unemployment, hunger, malnutrition, and, of course, increased crime rate.

Many scholars made an empirical investigation on the challenges faced by the cashless policy. For instance, [11], in their studies of electronic banking in Nigeria: Issues and challenges, among others, examined the effect of electronic banking and the quality-of-service delivery of commercial banks in Nigeria. Employed the survey and descriptive research design as their methodology, they found that employees' job security positively correlates with electronic banking and significantly influences it in Nigeria. Furthermore, the recommended that for effective electronic banking penetration, investors' education and marketing of electronic banking products should be the critical strategies banks should use to attract more customers. Other recommendations include reducing charges on banking products and increasing more A.T.M. outlets in Nigeria to enhance quality service delivery and promote electronic banking. The last recommendation alludes to the challenge of inadequate A.T.M. outlets, the study, however, did not investigate the challenge of electronic banking viz -a- viz crimes that may have accrued from it, making this study paramount, especially as it intends to understudy new manifestations of crimes that emanates with the introduction of the electronic banking system in Nigeria.

Similarly, [8], in their prospects and challenges of electronic banking to the attainment of vision 20:2020, examine cashless policy as outlined by the central bank of Nigeria viz a viz especially as the introduction of the procedure according to the paper/article is a 'major steps towards achieving a sound and efficient payment system' that moved juxtapose Nigeria to be among the top 20 countries that have super economies by the year 2020. They also made some far-reaching recommendations, among others, that if the policy is well implemented, it will help achieve the CBNs goal of "expanding, deepening, and modernizing" the payment system in Nigeria. Even though the paper identified reduced risk of cash-related crimes, they did not specify how that can be achieved, significantly more than the cashless tends to facilitate some transition criminal tendencies, which this work intends to understand.

As any social phenomenon and concomitant social realities manifest in all human endeavours, cashless banking is not without its challenges. [9], identify the following difficulties, especially bordering on the cashless banking in Nigeria, security, literacy level, the prevalence of e-fraud, erratic power supply, and infrastructure deficit.

The concern about security forms one of the significant challenges of cashless banking in Nigeria. There is high exposure of the system to fraudsters, hackers, and all manners of criminally minded who work tirelessly to access, retrieve, and utilize confidential information with criminal intent, especially if the networked system is weak [1].

According to [12], the system is challenged by a financial infrastructure deficit. In order words, the cashless payment channels are not adequate to cope with the e-system of banking. This, therefore, implies that the system will require

increasing investment; thus, [11] posits that there are infrastructural challenges that might hamper the system's efficiency. These include the epileptic power supply and the non-availability of the cash A.T.M. The financial infrastructure in Nigeria is not adequate to carry the load of a cashless society; A.T.M.s, point of sales systems, mobile banking, and other medium have to dramatically expand to touch at least 40% of the whole economy before any meaningful effect can be achieved.

For example, [5] identifies the following challenges inherent in the electronic banking system: identify theft, with attendant techniques such as email-based phishing scan, short message scan, and phone calls related scan. Furthermore, in the article published by the journal of interest banking and commerce, the research revealed that 70% of the respondents answered yes as to whether they have ever lost money to internet fraudsters or yahoo. However, 21% responded negatively for Yahoo boys while only 9% responded with 'Don't Know.

For example, a study on the mechanics, benefits, and problem of electronic banking in Nigeria, [1] show that 34% of the respondents cited the issue of internet fraud, 15.5% noted problems of limited POS/ATM, 19.6% of the respondent cited illiteracy among users and 30.7% were neutral. For example, many phone users in Nigeria have experienced receiving "fake" messages from fraudsters ostensibly sent by their banks; billions of Naira have been lost in the process.

The literacy rate is higher in the south of the country Nigeria than in the north. Most people in business prefer to keep their money in their private vault than the bank; therefore, there is low acceptance of cashless banking instruments [2]. Furthermore, [2] highlights illiteracy challenges as an impediment to the use of A.T.M.s, pointing out that over 40% of the users of A.T.M.s are either illiterate or semi-illiterate and that singularly contributes to them believing that the system is not easy to use, the study concluded by suggesting the development of easy-to-use platforms that would accommodate those mentioned.

Also, [14] identify some of the risks or challenges women agro-entrepreneurs face while using e-banking platforms, as follows 'unsuccessful transactions through mobile apps and P.O.S. in which accounts are debited without remittance, smishing and vishing presented as what the paper called social engineering threats that bank customers are exposed to. Just like other research before this, it also advocated customer enlightenment.

Finally, [13] investigate the effect of electronic banking on customer satisfaction in Nigeria with specific limitations to Kwara State. The correlated study security, reliability, ease of use, user-friendly, and transactional speed with customer satisfaction. The study's findings showed that the factors tested have a positive and significant impact on customer satisfaction. In addition, the following were identified as the challenges inherent with the e-system, especially the banks studied application update issues, limited A.T.M. platforms, inconsistent and unreasonable bank charges, lack of adequate security to protect accounts, and poor bank networks.

2.2. Theoretical Framework

Diffusion of Innovation Theory (DOI)

Gabriel and Rogers developed it in their book diffusion innovations. Diffusion is a process by which an innovation is communicated through specific channels over time among the members of a social system. This can be seen with globalization primarily facilitated by development in the technology of transportation and communication, which ushered in the development of the modern banking model, for example, internet banking, etc. Diffusion of Innovation (DOI) Theory, developed by Rogers in 1962, is one of the oldest social science theories. It originated in communication to explain how, over time, an idea or product like the electronic banking system gains momentum and diffuses (or spreads) through a specific population or social plan. The result of this diffusion is that people (the banking industry in Nigeria), as part of the global social system, adopt a new idea, behaviour, or product (the electronic banking infrastructure platforms). Adoption means that a person does something different from what they had previously (i.e., the shift from the analogue system of banking – the innovation). The key to adoption is to perceive the idea, behaviour, or product as new or innovative. It is through this that diffusion is possible. Adopting a new idea, behaviour, or product (that is, "innovation") does not happen simultaneously in a social system; instead, it is a process whereby some people are more apt to adopt the innovation than others. Researchers have found that people who embrace an innovation early have different characteristics than people who adopt an innovation later. Therefore, when promoting innovation to a target population, it is essential to understand the features of the target population that will help or hinder the adoption of the invention.

3. Methodology

The study area for this research is Kaduna Metropolis in Kaduna State of Nigeria. It has population of 1,828,911 as at 2021 based on projection. It is the state capital of Kaduna, fourth largest city of Nigeria and an industrial and commercial center with well-established commercial banks. We used systematic sampling technique and Yamane (1968) approach to draw sample.

$$\frac{N}{1+N(e)^2} = \frac{1828911}{1+1828911(0.5)^2}$$
$$N = 399.91$$

Hence our sample size is 400. We target all the police officers in charge for all the police posts numbering 15, 10 Economic and Financial Crimes Commission (EFCC) officials, 60 bank managers and 315 bank customers get total of 400 sample.

The primary instruments used are semi-structured questionnaires, interview guides, and tape recording to cover the 400 sample residents of Kaduna metropolis represented by bank customers, bank officials and law enforcement agents in the state. Frequency distribution and simple percentage methods are used to analyze the data.

4. Results

4.1. Analysis of Demographic Information

This section of the research deals with frequency distribution, simple percentage statistical analysis, and interpretation of the respondents' personal information. The statistical package for social sciences (SPSS) version 25 was used to carry out the statistical analysis; the results were summarized in the tables below.

Table 1 - Frequency Distribution of Respondents' Demographic Information

Demographic Information	Response	Frequency	Percentage
Gender	Male	260	82%
	Female	57	18%
	TOTAL	317	100%
Age	15 – 29 years	44	13.9%
	30 – 44 years	101	31.9%
	45 – 59 years	91	28.7%
	60 years and above	81	25.5%
	TOTAL	317	100%
Marital Status	Married	267	84.2%
	Single	41	12.9%
	Divorce/separated	6	1.9%
	Widowed	3	1.0%
	TOTAL	317	100%
Educational Attainment	No formal education	1	0.4%
	Primary school only	32	10.1%
	Secondary school only	78	24.6%
	Tertiary school	206	64.9%
	TOTAL	317	100%
Religion	Islam	220	69.4%
	Christianity	97	30.6%
	Traditional	0	0%
	TOTAL	317	100%
Occupation	Public/civil servant	248	78.2%
	Artisan/unskilled	6	2.5%
	Business/trading	61	19.3%
	TOTAL	317	100%
Income level	#30,000 or less	18	5.7%
	#31,000 – #60,000	34	10.7%
	#61,000 – #90,000	61	19.2%
	#91,000 – #120,000	112	35.3%
	#121,000 & above	92	29.1%
	TOTAL	317	100%
Ethnic Group	Hausa	297	93.7%
	Igbo	1	0.3%
	Yoruba	2	0.6%
	Others	17	5.4%
	TOTAL	317	100%

Source: Fieldwork, 2021

Table 1 above, presents the distribution of respondents according to their demographic information. The result indicates that the majority of the respondents, i.e., 260 respondents representing 82%, are male respondents while 57 respondents representing about 18% are female respondents.

For the age bracket, the result showed that most of the respondents' age group were between 30-44 years with a frequency of 101 representing about 32%, followed by the respondents between the age group 45-59 years with a frequency of 91 representing about 29%. The next in line are respondents who are 60 years and above with a frequency of 81 representing about 26%, and last is respondents within the age groups 15 – 29 years with a frequency of 44 and a percentage of about 14%.

The result of marital status indicated that 267 respondents representing about 84% are married, 41 respondents representing about 13% are single, while ten respondents representing about 3% are either divorced, separated, or widowed. For the highest educational attainment, the result showed that most of the respondents had a tertiary education with a frequency of 206 and a percentage of about 65%. In comparison, the minority are respondents with no formal education with a frequency of one and 0.4% of the total respondents.

The frequency distribution of religion indicates that most of the respondents, as 308 respondents representing about 69.4%, are Muslims, nine respondents representing about 30.6% are Christians, and none is a traditionalist.

The result of respondents' occupations showed that most of the respondents, as 248 respondents representing about 78%, are either public or civil servants. The result also indicated that 61 respondents representing about 19%, are either businesspersons or traders, while eight respondents representing 3%, are either artisan or unskilled workers.

The result of respondents' income level shows that most of the respondents, as 112 respondents representing about 35%, earn between N91,000 – N120,000 while the least, as 18 respondents representing about 6%, are the respondents that earn less than N30 000.

Lastly, the respondent's ethnic group result indicated that most of the respondents, as 297 respondents representing about 94%, are Hausa. The result presented in the table above also shows that seventeen respondents representing about 5%, are from other ethnic groups while the remaining respondents are Ibos and Yoruba.

4.2. Discussion

This section is concerned with analysing responses to the research objectives as presented in chapter one of this study. This study answered four questions using frequency distribution, simple percentage, and mean score. The Yes (2) and No (1) responses were used in the research instrument. As well as the analysis of the interview conducted with law enforcement agents – EFCC officials and the police.

Table 2 - Respondents' view on the Infrastructural Challenges and Cashless policy in Nigeria

	Statement	Yes (2)	No (1)	Total	Mean score	Decision
1	Do you usually experience network failure in electronic banking	194 (61%)	123 (39%)	317	1.61	Yes
2	When you want to send or receive money, do you find it very convenient	57 (18%)	260 (82%)	317	1.17	No
3	Have you ever been debited by ATM without getting cash from the machine	194 (61%)	123 (39%)	317	1.61	Yes
4	Do the banks rectify this problem quickly?	200 (63%)	117 (37%)	317	1.63	Yes
5	Do the banks charge you when you make use of electronic banking	224 (71%)	93 (29%)	317	1.71	Yes
6	If you are charged, is it usually much?	220 (69%)	97 (31%)	317	1.69	Yes
7	Do electronic banking and cyber security infrastructure challenges affect the increase in cybersecurity-related crimes	200 (63%)	117 (37%)	317	1.63	Yes
8.	In your opinion, do you think/believe that those transiting to other types of crime have been all along in other crimes?	182 (57%)	135 (43%)	317		
9.	Do you agree with the notion that crimes are today committed by motivated offenders	186 (59%)	131 (41%)	317		

Source: Fieldwork, 2021

Table 2 presents the infrastructure and challenges encountered while using electronic banking in Kaduna; it also shows the guardians that can militate against crimes in the Kaduna metropolis. The result indicated that; respondents agreed that users of ATMs usually experience network failure in electronic banking with (mean score = 2.65). The respondents disagree with (mean score = 1.91) that it is convenient to send and receive money. There is the challenge of debiting by ATM without getting cash from the machine, respondents said yes with (mean score = 2.70), banks rectifying the problem quickly has (mean score = 2.80), charging by banks when using electronic banking (mean score = 3.06), banks charging high amount has (mean score = 2.97) and transiting to other types of crime have been all along in other crimes has (mean score = 2.70).

The result also showed that the grand mean rating of the respondents (mean score = 2.77) is greater than the 4 – Dichotomous scale measurement means of 2.5. It can be concluded that the infrastructure, problems, and challenges of electronic banking are network failure in electronic banking, inconveniences in sending and receiving money, debiting by ATM without getting cash from the machine, problems not rectified quickly by the banks, and charging by banks for using electronic banking methods. The respondents also agreed that; Bank charges are too much for using electronic banking, banks are not doing enough to curb financial crime, electronic banking, and cyber security infrastructure challenges, and transiting from one crime to the others.

Table 3 - Simple linear regression coefficient for the effect of electronic banking and cyber security infrastructure challenges on the increase in cybersecurity-related crimes in Kaduna state

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
1 (Constant)	1.845	.063		29.353	.000
electronic banking	.918	.021	.068	12.857	.039

a. Dependent Variable: cybercrime

Table 4 - Model summary

Model	R	R Square	Adjusted R Square	Std. The error of the Estimate
1	.112 ^a	.082	.081	.391

a. Predictors: (Constant), electronic banking

Table 5 - ANOVA result

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	.606	1	.606	3.974	.047 ^b
Residual	48.037	315	.152		
Total	48.644	316			

a. Dependent Variable: cybercrime

b. Predictors: (Constant), electronic banking

A simple linear regression was calculated to investigate the effect of electronic banking and cyber security infrastructure challenges on the increase in cybersecurity-related crimes in Kaduna state. The result of the simple linear regression suggests a positive effect of electronic banking on cybersecurity-related crimes in Kaduna state. This finding was possible because; $F(1, 315) = 3.974$, $p < .001$ (see tables 4 and 5). The null hypothesis is rejected in favour of the alternative hypothesis. The decision taken is that; electronic banking and cyber security infrastructure challenges affect the increase in cybersecurity-related crimes in Kaduna state.

In Table 3, the unstandardized slope (1.845), b-coefficient for the independent variable "electronic banking and cyber security infrastructure," was 0.918, indicating a strong positive effect on cybersecurity-related crimes. Higher numeric values for the independent variable "electronic banking and cyber security infrastructure challenges" are associated with higher numeric values for the dependent variable "cyber security crime."

In addition to the above opinions from the general public that accrued from questionnaires administered, the interviews elicited other challenges that were not identified by the questionnaire respondents. The opinions were analysed through themes and sub-themes accordingly.

The Insider Connivance: One of the major challenges identified by experts during the interviews was insider connivance. The new trend of crime associated with electronic banking is primarily orchestrated from within the banking system itself, that is, the work of greedy or criminally minded staff working in tandem with fraudsters and cybercriminals. For example, an EFCC officer declared that:

"Most advanced fraudsters liaise with the IT department (staff) of the bank to do some specific tasks for them."

And with that, they can:

"Generate credit electronically in this case; however, one may not be able to withdraw physically in the bank but can transact with the electronically generated credit to make purchases online.

Another operative chipped in the following example of a case they are investigating that confirms the challenges of insider connivance in the perpetration of crimes using electronic banking platforms.

"Fraudsters electronically credited an account to the tune of 214 million (two hundred and fourteen million Naira) to somebody's account and arranged with a Bureau De Change (BDC) owner to buy dollars, they did what they 'called dry' posting, the BDC saw the alert of 214 million Naira and gave them dollars equivalent of up to \$1million (one million dollars), when the BDC reached a threshold of what he can give them, he went physically to the bank to make a withdrawal, that was when the bank discovered that, there was no (cash) backing to the transaction and therefore raised the alarm and all of them were arrested. This kind of transfer cannot (necessarily) be done by an outsider, but through an insider of the bank".

Billions of Naira have been lost to the challenge of insider connivance in the banking sector, and the consequences of that loss can never be overemphasized, as we shall see in the subsequent sections.

Another operative categorized the electronic banking system challenges into three categories; the first relates to the regulator itself. The regulator of the banking industry is the Central Bank of Nigeria (CBN), and it is the agency that sets the standard of the type of infrastructure and the level of security mechanism that is supposed to be installed in the infrastructure. Accordingly:

"You found out that there are a lot of instances in which the regulator itself is not doing what it ought to be doing possibly."

He wondered why even though the CBN is competent and equipped with the best staff possibly one can find, you see this kind of lapses (that) gives you a reason to suspect that something is fishy.

The second category as identified by the operative is:

"The infrastructure itself, that is the hardware and the software that process this electronic system and the relevant policies that guide how to install, maintain or manage and operate those systems, there are times where you see that there are failures in the system, vulnerabilities that criminals have taken advantage of or some glitches.

The operative gave an example to buttress his point on the vulnerabilities of some of the infrastructures of the electronic banking platforms to the effect that:

"I (he) can remember there was a time that (at) a particular ATM, some young men discovered that if they make a transfer from a first bank account to another, the first bank account doesn't get debited, and the other account gets credited, they took massive advantage of it and defrauded the bank of a lot of money, and that went on for quite some time. He then wondered why it happened?"

In his last categorization of the challenges in the electronic banking system, he lumped the challenges of insider connivance with the nature of recruitment of some bank staffs that are handling critical segments of the system, that

banks are supposed to do proper background checks of all their staff, of some criminal related issues and should continuously vet them, because the weakest thing in any information technology setting is the people, you find out that virtually 90% of the compromises that we (they) have seen, there is an insider that is involved.

To further bolster his argument on the relationship between insider connivance and electronic banking-related crimes, he cited an example of a case where:

"There was a case in which some syndicate wanted to compromise a particular company (Bank), they recruited an IT staff (of the bank) and on a Saturday (the staff) scheduled routine maintenance (of their equipment), and he took these fraudsters directly into the server room of the bank, (that is to say) they had physical access to the bank data, they connected to it and changed the balances in some accounts to defraud the bank of almost 6 billion Naira (six billion Naira), it was only through investigation and the CCTV that we (they) were able to discover that there was an insider that was involved"

One operative believes that the basis behind insider connivance has to do with the fact that:

"The contract staff that the bank employs massively are a weak link; a lot of them are poorly paid and overworked; as a result, they develop a grudge against the bank, they become disgruntled, thinking of avenues to see how they can get at the bank, hit it and then disappear."

Infrastructural Deficiencies: Another inherent challenge with the electronic banking system is the infrastructural deficiencies.

One respondent posited that there are software deficiencies that sometimes tend to develop issues. According to him, banks buy software from major international vendors that majorly have certificates/purchases. If they don't regularly apply those purchases, they will develop lapses.

Finally, a respondent viewed the challenges of electronic banking primarily as a result of:

"A lot of gullibility, lack of knowledge, people never know the security of their money". For example, according to the operative:

There is a card-present transaction and card, not present transaction which stores ATM details and can be used in the dark web, which can be used anywhere around the world for the transaction".

In the event of possible weekend frauds, the bank's response is not adequate and readily available to their customers.

4.3. Summary of Findings

Fundamentally, this study has found that the challenges in the electronic banking system are not only the supervising department of the Central Bank and the commercial bank staff but also infrastructures such as the network, computers, server, and all other platforms and the challenges that customers experienced during their day-to-day transactions.

As identified by other scholars, some of the problems and challenges of the electronic banking system persist till the present, as observed during the study. For example, among other challenges, as found in the li, security, literacy literature infrastructure deficit, [9], hackers, exposure of the system to fraudsters among others receiving of fake messages from fraudsters, [6], the inadequacy of the cashless/electronic banking (payment) channels, [12].

This study also found that respondents also indicated that the challenges experienced by the ATM users include network failure, debiting by ATM without getting cash from the machine, problems not rectified quickly by the banks even with orders by the supervising authority the CBN to the effect that banks should rectify all banking related issues quickly.

Those interviewed also identified other challenges that include, among others snatching of ATM cards and some reports of an attack by hoodlums in "lonely" ATM platforms, software malfunctions, failure of the computers, relaxation of rules by the supervising authority, in other words, not insisting on the rules governing the banking industry, which one respondent insist is one of the problem/challenges bedevilling the banking insecurity.

Thus, depositors' funds are still being lost to the menace of insider connivance. It was observed that most of the frauds that happen/occur in the banking industry are largely a result of insider connivance. Some of the above challenges tend to confirm the integrity of the routine activity theory as proposed by Felson & Cohen (1979), especially on the issue of the absence of a capable guardian – (law enforcement agencies, the supervising authority, and the insiders that connive with fraudsters are supposed to act as guardians to the infrastructures of the electronic banking – the server, the computer, and all other electronic banking platforms, 36% of the respondents which was the highest viewed. In addition to general security, i.e., both physical and latent, and the enforcement of extant laws by the CBN in the banks, have all least to speak fell short in safeguarding depositors' funds as billions of Naira are being lost yearly (at least 200 billion Naira) in the banking sector alone.

Furthermore, with regards to the patterns of crimes before the introduction of the electronic system, among others. Armed robbery, burglary, rape, and cheating (Adenuga & Adam, 2016), (Adegbile & Oluwole, 2018). Other patterns of crime before the electronic system include WHW, wash-wash, fake payment schedules, romance scams, fake oil sales, etc. Today the scam continued albeit in different forms; for example, criminal records or statistics reviewed by the police and the interview conducted with them indicated that bank robberies had reduced tremendously.

5. Conclusion and Recommendations

The study identifies various infrastructures used for electronic banking systems, including ATMs, POS, and internet banking. The challenges inherent with the system can be divided into 4, viz the challenges that emanated from the regulators of the system, i.e., the Central Bank of Nigeria, was alleged by one of the respondents interviewed that they do not supervise the system appropriately, making it possible for some of the problems being encountered to persist.

The other challenge that has to do with the banks themselves was that they do not subject their staff to criminal behavioural checks, making it also possible for insider connivance. This challenge has also led to an enormous loss of depositors' cash in the system.

The third challenge is the electronic banking system platforms; for example, software issues and other platforms malfunctions, and intermittent network failure.

Finally, the challenge of the banking populace where for example, they divulge private banking information to fraudsters, this also has led to the loss of hard-earned money to the fraudsters, that do not necessarily take up arms against their victims but sit in the comfort of their rooms/offices to perpetrate cybercrime.

I. The supervising authority of the commercial banking sector should develop more ways to address the challenges experienced by the public from the banks and enforce extant laws on violators of the rules and regulations guiding the banking system

II. Banks must ensure that their hardware and software are always serviceable and subjected to hackproof/integrity tests often, without which colossal amounts of depositors' funds may continue to be lost. They must ensure they vet and continuously vet their staff and subject them to crime tendencies checks before and after employment.

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