STRATEGIES FOR ENHANCING THE AVAILABILITY AND UTILIZATION OF TECHNOLOGICAL APPLICATIONS FOR FINANCIAL FRAUD CONTROL AND PREVENTION IN COMMERCIAL BANKS IN ANAMBRA STATE

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Abstract
The study identified strategies to enhance the availability and utilization of technological applications for financial fraud prevention and control in commercial banks in Anambra State. The study adopted a descriptive survey research design. One research question guided the study, and one hypothesis was tested at 0.05 level of significance. The study population comprised 1,092 management staff from 156 commercial banks operating in Anambra State. Proportionate Stratified Random Sampling was used to select 624 respondents as a sample for the study. A structured questionnaire containing 12 items was used in the study. Three experts validated the questionnaire. The reliability of the questionnaire was ascertained using Cronbach's alpha method, and the reliability coefficient of 0.89 was established. Copies of the questionnaire were administered by the researcher with the help of three research assistants. Data collected were analyzed using mean and standard deviation to answer the research question, while the z-test was used to test the null hypothesis at a 0.05 level of significance. The study's findings revealed that the listed strategies, such as the acquisition of anti-fraud technologies, should be exempt from taxation. Fraud control and prevention systems should be regularly reviewed and updated to align with emerging technologies, among other factors, to enhance the availability and use of technological applications for financial fraud control and prevention in commercial banks. It is recommended, among other measures, that banks allocate adequate funds in their annual budgets for the acquisition, installation, and regular upgrading of technological applications to strengthen financial fraud control and prevention activities.

Keywords: Strategies, Financial Fraud, Control, Presentation, Availability, and Utilization

Introduction

For any economy to develop and grow, the financial institutions, among others, must be strong, solid, effective, and efficient. Financial institutions are institutions engaged in monetary transactions such as deposits, withdrawals, loans, investments, and currency exchange (Abor, 2021). These institutions help individuals and businesses fulfill their financial needs either by holding, investing, or managing their funds. The critical roles played by financial institutions explain why every economy prioritizes and regulates them to ensure stability and growth. Some of the most recognized financial institutions include commercial banks, investment firms, trusts, brokerage firms, and insurance companies, among others (Dheeraj, 2023).

However, for the purpose of this research work, attention is focused on commercial banks. According to Black (2023), a commercial bank is a financial institution that accepts deposits from the public and provides loans for consumption and investment purposes with the primary aim of making a profit. Commercial banks also carry out services related to deposit and withdrawal of funds, loan issuance, and various other retail banking operations (Baruah, 2019). They play a central role in both domestic and international financial systems, forming a vital component of economic infrastructure (Manasseh, Asogwa & Agu, 2021).

In Nigeria, commercial banking activities date back to 1892 with the establishment of the African Banking Corporation by the British West Africa, marking the beginning of formal financial services in the country (Aigbokhaevbolo, 2021). Since then, the banking sector has undergone several policy reforms and consolidations, including the major recapitalization effort in December 2005, which aimed to address liquidity issues and enhance service delivery. Recognizing the critical contribution of commercial banks to national development, Nigerian financial regulators and banks have embraced reforms that include the integration of Information and Communication Technology (ICT) into banking operations to improve service efficiency and customer satisfaction.

The incorporation of ICT into commercial banking has significantly transformed its service delivery landscape in Nigeria. This transformation reflects the substantial investments commercial banks have made to operate efficiently in an increasingly digital economy. To this end, banks now operate on comprehensive electronic platforms that enable seamless financial transactions and customer interaction. Some of the ICT-enabled services adopted include Automated Teller Machines (ATM), Electronic Point-of-Sale (POS) terminals, Internet banking, and Mobile banking services such as SMS alerts (Idris, 2021). These services not only increase the speed and convenience of banking transactions but also enhance customer access and engagement across urban and rural areas. The relevance and adoption of ICT in the banking sector continue to evolve rapidly. Enofe et al, (2021) observed that the application of ICT products and services has become a dominant trend in Nigerian commercial banking. The introduction of digital platforms seems to have brought about enhanced payment systems, improved fund transfer mechanisms, and innovative channels for delivering financial products. These developments have improved customer experience and increased trust in the banking system, particularly in previously underserved regions. There are some electronic platforms that have been adopted by Commercial banks to enhance service delivery and operational efficiency (Kent, 2020). They include internet banking, mobile banking applications, Automated Teller

Machines (ATMs) and Point-of-Sale (POS). However, despite the numerous benefits of these innovations, they have also introduced vulnerable individuals to financial fraud.

Financial fraud refers to any deliberate act of deception or misrepresentation intended to gain an unlawful financial advantage. According to Reurink (2019), financial fraud is the intentional manipulation of financial information or systems for personal gain, often at the expense of an organization or its clients. Similarly, Karpoff (2021) defines financial fraud as a premeditated act involving deceit, theft, and breach of trust to obtain financial benefits. These definitions emphasize the fraudulent intent and deception associated with such crimes, making them highly suspicious to credibility, operations, and customer confidence in the banking system. In Nigeria, financial fraud has taken various forms, including cyber fraud, ATM skimming, email phishing, unauthorized withdrawals, and insider manipulation. This fraud not only results in monetary losses but also erodes customer trust and weakens the stability of financial institutions. Data from the Nigeria Inter-Bank Settlement System (NIBSS) shows that over ₦14.65 billion was lost to fraud-related cases in 2021 alone, with 98% of the attempts executed via digital platforms such as mobile and internet banking (NIBSS, 2022). Moreover, the Central Bank of Nigeria (CBN) has reported a consistent rise in fraud cases between 2019 and 2023, attributing the surge to weak internal controls, lack of cybersecurity infrastructure, and poor staff training (CBN, 2023). These incidents demonstrate the urgency for Nigerian commercial banks to adopt more effective and proactive fraud control and prevention strategies.

Financial fraud control and prevention strategies are a series of physical, logical, and procedural barriers established by commercial banks to discourage the incidence of fraudulent activities in the banks (Khanna and Arora 2020). Some examples of financial fraud control and prevention technology include a neural network that is being used in the prevention of electronic fund transfer fraud; encrypting electronic data that is used to secure electronic fund transfers using an algorithm that encodes messages; and biometric identification systems that make use of an individual's unique physical characteristics, like fingerprints, voice patterns, among others. The high transaction volume, combined with growing digital adoption, creates multiple fraud exposure points. Several banks have reported cases of internal collusion, ATM fraud, and cyber-attacks, leading to revenue losses and declining public trust (Okonkwo & Eze, 2020). These frauds strain operational budgets, increase insurance premiums, and disrupt banking services. Meanwhile, in developed nations, banks such as the Hongkong and Shanghai Banking Corporation (HSBC) and JPMorgan Chase are using artificial intelligence, machine learning, and blockchain to combat financial fraud effectively (Price Waterhouse Coopers (PWC) Nigeria, 2022). These advancements point to the importance of robust technology deployment. Despite growing awareness of the threats posed by financial fraud, commercial banks in Nigeria continue to face significant infrastructural and operational challenges in adopting and utilizing technological tools for financial operations. It is therefore important that commercial banks should adopt some strategies to enhance the availability and utilization of technological applications for financial fraud control and prevention. However, the strategies need to be identified. Hence, the need for the study.

Research Question

The research question that guided the study was.

1. What are the strategies for enhancing the availability and utilization of technological applications for financial fraud control and prevention in commercial banks in Anambra State?

Null Hypothesis

The null hypothesis was tested at a 0.05 level of significance.

$H0_1$: There is no significant difference in the mean ratings of urban and rural respondents on the strategies for enhancing the availability and utilization of technological applications for financial fraud control and prevention in commercial banks

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Methods

The study adopted a descriptive survey research design. The population of the study comprised 1,092 management staff in the 156 commercial bank branches operating in Anambra State. The management staff includes the manager, the accountant, the supervisor, and the ICT Personnel from each of the banks used. Proportionate Stratified Random sampling was used to select 624 respondents from 156 commercial bank branches as the sample for the study. The instrument for data collection was a structured questionnaire. The instrument was titled 'Strategies for enhancing the availability and utilization of technological applications for financial fraud control and prevention in commercial banks (SEAUTAFFCP)'. It has two sections (A – B). Section A contained the respondents' demographic information covering the category of staff or job position and the location of the commercial bank. Section B contained 12 items that were used to answer the research question. It was structured on a five-point scale. The response options of Strongly Agree (SA) =5, Agree (A) =4, Undecided (U) =3, Disagree (D) =2, and Strongly Disagree (SD) =1 were used. The study utilized a direct method of questionnaire administration. Data collected from the respondents were analyzed using mean and standard deviation to answer the research question. Standard deviation was used to measure the variability of the respondents' responses, while inferential statistics of the z-test were used to test the null hypothesis at a 0.05 level of significance. The decision rule was based on the real limit of numbers as shown below;

Response Option Rating Scale	Real Limit of Numbers
Strongly Agreed (SA)	4.50 – 5.00
Agreed (A)	3.50 – 4.49
Undecided (U)	2.50 – 3.49
Disagreed (D)	1.50 – 2.49
Strongly Disagree (SD)	0.50 – 1.49

For the test of the hypothesis, where the P-value is greater than the significance level of 0.05, the null hypothesis was not rejected; otherwise, the null hypothesis was rejected. The analysis was done using Statistical Package for the Social Sciences (SPSS) version 25.

Results of findings

Research Question 1

What are the strategies for enhancing the availability and utilization of technological applications for financial fraud control and prevention in commercial banks in Anambra state?

Table 1: Mean Responses of Respondents to the Strategies for Enhancing the Availability and Utilization of Technological Applications for Financial Fraud Control and Prevention

S/N	Item statements	$\overline{X}$	SD	Remarks

1.	Adequate funds should always be set aside in the banks' budget for the installation of technological applications for fraud control and prevention	4.80	0.48	Strongly Agreed
2.	Acquisition of anti-fraud technologies should be made tax-free by the government	4.47	0.68	Agreed
3.	More experts on financial fraud control and prevention systems should be employed to reduce workload of bank staff	4.30	0.69	Agreed
4.	Regular and frequent regulatory examination of assets, finances, records and systems in the banks should be encouraged	4.92	0.54	Strongly Agreed
5.	Fraud control and prevention systems should be regularly reviewed and updated to match with emerging technologies	4.78	0.57	Strongly Agreed
6.	The organizational structure of the bank should be clearly defined and monitored to check manipulations by both management and staff	4.25	0.70	Agreed
7.	Single systems that could be used for many operations in fraud control and prevention should be used to reduce costs	4.14	0.65	Agreed
8.	Specialized training, seminars and workshops on control and prevention of financial should be regularly organized for bank staff	4.41	0.69	Agreed
9.	Recognition of and the use of reward systems that are in connection with fraud control and prevention should be enhanced	4.22	0.63	Agreed
10.	Adequate effort should be given to research and development on financial fraud control and prevention mechanisms by the bank management	4.19	0.70	Agreed
11.	Sustainable programmes for continuous education and awareness of all bank stakeholders in financial fraud control and prevention should be maintained	4.43	0.65	Agreed
12.	Commensurate incentives should be given to financial fraud control and prevention experts for encouragement	3.93	0.68	Agreed

Data presented in Table 1 show the respondents' level of agreement on the strategies for enhancing the availability and utilization of the technological applications for financial fraud control and prevention in commercial banks. The data presented in Table 1 show that all the items listed except items 1, 4, and 5 have mean scores ranging from 4.78 to 4.92, which implies that the respondents strongly agreed that the strategies stated in those items could enhance the availability and utilization of technological applications for financial fraud control and prevention in commercial banks. Standard deviation, which ranges from 0.54 to 0.70, implies that most of the respondents' responses were closely related in their level of agreement on the strategies for enhancing the availability and utilization of technological applications for financial fraud control and prevention in commercial banks.

Hypothesis 1:

There is no significant difference in the mean ratings of urban and rural respondents on the strategies for enhancing the availability and utilization of technological applications for financial fraud control and prevention in commercial banks.

Table 2: The z-test analysis of the Significance Difference in the Mean Ratings of Urban and Rural Respondents on the Strategies for Enhancing the Availability of Technological Applications for Financial Fraud Control and Prevention

Variables	N	$\overline{X}$	SD	Df	p-value	α	Remark
Urban	394	43.65	2.60	609	0.072	0.05	Not Significant
Rural	217	43.30	1.98				

Table 2 shows that the p-value of 0.72 at 609 degrees of freedom is greater than the α–value of 0.05 (0.072 > 0.05). This means that there is no significant difference in the mean ratings of respondents on the strategies for enhancing the availability and utilization of technological applications for financial fraud control and prevention in commercial banks as a result of location. Therefore, the null hypothesis is not rejected.

Discussion of Findings

Findings from the research question revealed that strategies such as; Adequate funds should always be set aside in the banks' budget for the installation and implementation of technological applications for fraud control and prevention, Acquisition of the anti-fraud technologies should be made tax-free by the government, More experts on financial fraud control and prevention systems should be employed to reduce workload of bank staff, Regular and frequent regulatory examination of assets, finances, records and systems in the banks should be encouraged, The fraud control and prevention systems should be regularly reviewed and updated to match with emerging technologies, The organizational structure of the bank should be clearly defined and monitored to check manipulations by both management and staff, Single systems that could be used for many operations in fraud control and prevention should be used to reduce costs, Specialized training, seminars and workshops on control and prevention of financial should be regularly organized for bank staff, Recognition of and the use of reward systems that are in connection with fraud control and prevention should be enhanced, Adequate effort should be given to research and development on financial fraud control and prevention mechanisms by the bank management, Sustainable programmes for continuous education and awareness of all bank stakeholders in financial fraud control and prevention should be maintained and Commensurate incentives should be given to financial fraud control and prevention experts for encouragement, could enhance the availability or utilization of technological applications for financial fraud control and prevention in commercial banks.

This is in line with Bonchi *et al* (2019) who stated that enough funds should always be set aside in the banks' budget for the installation and implementation of fraud control and prevention technologies. This is because the high cost of acquiring, developing and maintaining advanced fraud detection and prevention technologies could discourage its widespread adoption. Also, Michel, (2018) asserted that there should also be regular and frequent regulatory examination of assets, finances, records and systems in the banks to check incidents of fraud. This is necessary so that appropriate actions will be taken against those who committed the fraud. Furthermore, Etim (2019) stated that banks at regular basis should upgrade their systems to match up with the current or latest technologies to combat fraudulent activities. This entails that

the banks should regularly review and update their fraud control and prevention mechanisms to ensure that they match the current trend in technology to avert financial fraud.
Findings from the hypothesis revealed that there is no significant difference in the mean ratings of the respondents on the strategies for enhancing the availability and utilization of the technological applications for financial fraud control and prevention with regard to location.

Conclusion

From the findings, it can be concluded that the listed strategies could enhance the availability and utilization of technological applications for financial fraud control and prevention in commercial banks.

Recommendations

Based on the findings and conclusions drawn, the following recommendations are made:

1. Banks should allocate adequate funds in their annual budgets for the acquisition, installation, and regular upgrading of technological applications to strengthen the activities of financial fraud control and prevention.
2. Management should organize continuous training and awareness programs for staff and stakeholders to enhance their competence in using modern fraud detection technologies and ensure compliance with regulatory standards.
3. The government should provide tax incentives for anti-fraud technologies to encourage wider adoption and sustainability of fraud control and prevention measures.

References

Abor, B. (2021). Use of E-Banking in the 21st Century: The Major Challenges, *Journal of Business and Finance*.

Aigbokhaevbolo, O.M. (2021). Frauds and Commercial Banks in Nigeria. *The Certified National Accountant, The Journal of the Association of National Accountants of Nigeria* (ANAN), 10 (4) Pp. 30-39

Baruah, S.K. (2019). RBI Chief Wants PMO to Act against Bank Frauds Worth Rs. 17,500 crores, The Hindustan Times, April 24, available at www.hindustantimes.com.

Black, W. K. (2023). When Fragile becomes Friable: Endemic Control Fraud as a Cause of Economic Stagnation and Collapse Being a *Paper Presented in an IDEAS Workshop: Delhi*, India Financial Crime and Fragility Under Financial Globalization, December 19-20.

Bonchi, F., Castillo, C., Gionis, A. and Jaimes, A. (2019). *Social Network Analysis and Mining for Business Applications.* Retrieved from CiteseerxWebSite: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.225.9932andrep=rep1andtype=pdf.

Central Bank of Nigeria (CBN). (2023). *CBN Fraud Report: 2019–2023*. Retrieved from https://www.cbn.gov.ng

Etim, E. (2019). Fraud in Nigerian Banking Industry *a study of customers' perception* within three commercial banks in Uyo metropolis.

Dheeraj, V. (2023). *Chartered Financial Analyst (CFA)*, Financial Risk Managers (FRM)/ http://www.wallstreetmojo.com/financial_institutions/

Enofe, A., Abilogun, T. and Omoolorun., A. (2019). Bank fraud, and preventive measures in Nigeria: An empirical review. *International Journal of Academic Research in Business, and Social Science*. 7(7): 40-51.

Idris, O. A (2021). Hi-Tech Banking: Shared Ambition and Shared Opportunity: *Business World*, Lagos: Business World Communication Limited. April 2021. P.

Karpoff, J. M. (2021). The future of financial fraud. *Journal of Corporate Finance*, *66*, 101694.

Kent, O. (2020). *Money and Capital in Economic Development*, Washington, D.C.: Brookings Institution.

Manasseh, A. G, Asogwa, O. C and Agu, U. E. (2021) Fraud in Nigerian banking industry a study of customers' perception within three commercial banks in Uyo metropolis, 2(4), pp. 150–156.

Michel, P. (2018). Financial crimes: The constant Challenge of Seeking Effective Prevention Solutions. *Journal of Financial Crime*. https://doi.org/10.1108/13590790810907227

Nigeria Inter-Bank Settlement System (NIBSS), (2022). *Annual Fraud Landscape Report*. Retrieved from https://www.nibss-plc.com.ng

Okonkwo, C. A. and Eze, C. C. (2020). *Digital transformation and financial fraud in South-East Nigeria: A banking sector perspective*. Nigerian Journal of Finance and Management, 5(2), 79–90.

PwC Nigeria. (2022). *Fraud in the Digital Age: Fighting Financial Crime with Technology*. Retrieved from https://www.pwc.com/ng

Reurink, A. (2019). Financial fraud: A literature review. *Contemporary topics in finance: A collection of literature surveys*, 79-115.

Sanusi, J. (2023). *Financial Fraud, Money Laundering and Advance Fee Fraud.* Lagos: Central Bank Nigeria

Umoh, B. U., Ofurum, U. D. and Folasade, O. A. S. (2024). The Impact of Bank Fraud on Economic Stability and Public Trust in Nigeria's Financial System.