UNIPORT JOURNAL OF BUSINESS, ACCOUNTING & FINANCE MANAGEMENT
DEPARTMENT OF ACCOUNTING
UNIVERSITY OF PORT HARCOURT, CHOBA
PORT HARCOURT, RIVERS STATE
NIGERIA
VOL. 16 NO. 1 JANUARY 2025

EXPLORING FINANCIAL TECHNOLOGIES (FINTECH) SERVICE DELIVERY SYSTEMS AND EFFICIENCY OF BANKING OPERATIONS IN NIGERIA

ANDREW O. AGBADA (Ph.D)
FInance Department, Faculty of Administration and Management,
Delta State University of Science and Technology,
Ozoro,
Nigeria.
Email: andrewoagbada@gmail.com

Abstract

The study explored the effects of Financial Technologies Service Delivery (FTSD) Systems on the Efficiency of Banking operations. The study utilized Survey strategy in gathering data which were empirically estimated using Pearson Product-Moment Correlation Coefficient (PPMCC) denoted by 'r'. The estimated model exhibited healthy results as the PPMCC or 'r' coefficient stood at 0.7835, indicating a strong positive correlation. The magnitude of the computed coefficient signifies that Fintech Systems have the potential to predict Efficiency of Banking operations. It demonstrates that as FinTech systems adoption for service delivery increases, it facilitates and amplifies a corresponding increase in efficiency of operations. The value of the Coefficient of determination (r^2) stood at 0.6139 which portends that 61.39% of the variation in the Efficency of Banking operations is predicted by FinTech Systems. Based on the forgoing, we therefore conclude that FinTech service systems has substantial leverage on the Efficiency of banking operations in Nigeria. We thus recommend that it would be necessary for Bank Management teams to reinforce service delivery systems with modern financial technologies and infrastructures to enhance and sustain banking operations efficiently

Keywords: Finance, Technologies, Service Delivery, Banking Efficiency, Nigeria.
American Economic Association JEL Classification: G1, G2, G_4

Introduction

Financial Technology (FinTech) is a novelty and modernization in technology to upgrade, advance and automate finanacial services. At its best, Fintech helps firms, corporations, consumers and households to manage their financial transactions, processes and operations better.

FinTech are inventions and innovations made up of specially designed software built in computers, electronic devices and smartphones to facilitate efficient rendering of services. Kagan, (2024), opined that FinTech is an invention of the 21st century, a technology that was employed by established financial institutions, such as banks to augument financial service delivery and oprations. Between 2018 to 2022, there was a shift to consumer-oriented services and it extended to diversed sectors of the economy and industries akin to education, investment management, retail banking, et cetera.

FinTech companies are businesses that employs technology to transform, automate, improve or embellish financial services for firms or consumers. They use digital software platforms to supply finanacial service such as payments, credits, investments and transfer of funds. Investment in innovative payment systems worldwide has increased tremendously in the past decades. In most advance economies of the world, these technologies have played key roles especially in the banking industries and the economy as a whole. For developing economies like Nigeria, FinTech schemes has been so widely adopted and is being used in delivering services as we would say of developed economies. The Nigerian banking industry deregulation in 1986 saw banks deploying electronics as major competitive weapon to achieve significant market shares in the industry (Aduba, 2017).

The endorsement of FinTech devices and instruments in service delivery expanded rapidly because it creates enabling environment for fast payments processes to enhance the delivery of services. It thus creates a new banking culture that guarantee customer flexibility in service deliveries through wider choice of transaction outlets given by banks network of branches. Broadly, since the internet revolution, the term FinTech applies to innovations that allow people to transact businesses using the invention of digital money and its adoption has grown rapidly and explosively.

In practice FinTech infrastructures share the perculiar characteristics as they are somewhat designed to eventually take over traditional methods of providing financial services, being faster, more dexterous and skillful and serving the underserved population of the economy. Kagan, (2024), argured that the move to digital service setup which Fintech provides has pushed several traditional institutions to invest heavily in related products. Good example of such is Goldman Sachs, an investment bank based in the US which launched a digital banking platform referred to ‘Marcus’ in 2016 in their bid to project themselves into the FinTech space. Marcus offers high interest yielding Savings accounts, Certificate of deposit (CDs) and personal loans to individual. Figure 1.1 attempts to define and illustrate finanacial Technology (FinTech).

Figure 1.1: FinTech Defined.
Source: Kagan, (2024), https://www.investopedia.com/terms/f/fintech.asp.

Above is an elaboration on the concept of FinTech. In specific terms, this study focuses on FinTech Service Delivery Systems - the digital platforms, tools and infrastructures that allow the efficient delivery and rendering of financial, especially banking services to customer. Service delivery has to do with the rendering of quality and excellent services to clients and the public who desire such services. In like manner, delivery of services in the banking sector means providing quality and fast services to customers.

Importantly, the ability of banking firms to provide fast and perfect services depend largely on their digital platforms and infrastructures. It is obvious that customers want quick and good services. A core factors that separate competing banks from each other in the banking and financial industry and indeed globally is their methods of rendering and delivering services.

The way and manner in which services are delivered determines how satisfied customers would be. The benefits a banking firm derive from satisfied customers is winning a larger customer base because effective service delivery helps to drive customer patronage. Satisfaction with respect to the delivery of bank services has to do with the way the customer evaluates the service, whether or not the services rendered met their expectations and needs (Anderson, (2019)). In accordance with Abor, (2004), FinTech systems leverage technology to boost efficiency, accessibility and user experience of financial services.

It is good to take cognizant of the fact that before the advent of FinTech electronic-based service delivery systems in banking, operations were faced with so many challenges especially the processing of transactions. Financial Technology delivery schemes has helped in ameliorating the risks of carrying huge sum of cash and this has boosted the cashless policy initiative of government of Nigeria. Presently FinTech systems ways of rendering services are changing operational banking processes and has become important in business communities. Essencially, the reason is because it has the ability and potential to fasten banking transactions and operations. There are various forms of FinTech Service Delivery Schemes and they are grouped into several categories, some of which include:

Digital Payment Systems: They are systems that facilitate online payments, enabling customers to carry out secured and efficient transactions. Fintech payment gateways are basically digital systems that allow businesses to receive online payments from customers. They operate as intermediaries between merchants, businesses and banking institutions, facilitating secured and efficient transactions. Examples include:

Mobile Wallets: These are digital and electronic wallets that allows clients to store their banking accounts information and carry out transactions by employing their mobile devices. Popular mobile wallets frequently used include Google Pay and Apple Pay .

- **Online Payment gateways:** Examples are Paypal, ans Strpe.
- **Cryptocurrency Payment System:** Which include Bitcon, Ethereum

Digital Banking Platforms: These are mobile banking devices that operate online and they help customers to conduct, manage and control their accounts, make trasanctions and have access to financial services. Examples are: Chime, Simple, Revolut.

Blockchain-based Systems: This system utilizes distributed ledger technology to facilitate secured, transparent and efficient transactions. Examples are Cryptocurrency, Coinbase and Binance.

Robo-Advisory Platforms: These are plateforms engaged in automated investment progams using algorithms to provide and administer investment advice and manage portfolios. Robo-advisors are online platforms or applications (apps) that excellently invest client's funds automatically with little service charge or cost, and are accessible to business entities and ordinary individuals.

InsurTech Platforms: This platform leverage technology to improve the insurance industry, offering services such as online insurance marketplaces, usage-based insurance and peer-to-peer insurance.

Digital Identity Verification Systems: These systems use technology to verify individuals' identities, enabling secure and efficient onboarding processes.

On the other side is Efficiency of Banking operations which implies optimization of specific banking processes and methods to achieve faster, cheaper and definite results. It does involve streamlining and automating banking processes to reduce and ameliorate costs, enhance customer experience, improve and facilitate overall performance.

It does also give banks the ability to deliver high-quality services while minimizing waste, reducing costs and optimizing the utilization of resources in their operations. Pursuant to Okonkwo and Ekwueme (2022), the core areas efficiency is of utmost need in operations in banks include the following. Process efficiency: It involves streamlining and optimizing business processes to eliminate waste and reduce variability. Technology efficiency: It relates to using automated or computer driven processes to make better customer experiences and to curtail costs.

Supply Chain Efficiency: This is concerned with optimizing the bank's net work of organizations, individuals and activities involved in delivery of services to lower costs and improve the quality of services. Akinlolu (2007), advocates that some fundamental strategies to develop operational efficiency in banking is through digital transformation, that is, to leverage technology to automate processes.

This refers to Process re-engineering which involves consolidating, integrating and sytematizing business processes. Banking efficiency can also be achieved through converting manual processes into digital formats such as we have in online and mobile banking. Augumenting efficiency in the banking sector may also include assessing and checking operational risks to prevent or alleviate losses.

It is based on the fogoing discussions that the study investigates Financial Technologies (FinTech) Service delivery systems with the hope to optimize efficiency and productivity of banking operations. The prime objective of research study is to resolve and decide how FinTech in service dlivery could facilitate banking efficiency by utilizing technology to change completely traditional banking processes into digital, automated and efficient processes. In the critical view of the study, the change would enable banks to provide faster and more efficient and convenient services. Specifically, the study objective is to deternine how FinTech digital processes have improved and facilitated Banking efficiency in Nigeria. Deductions from the foregoing led us to formulate a null hypothesis specified as follows.

Hypothesis Formulation

A null hypothese is formulated below to be tested and from where valid and logical inferences will be made and conclusion of general application on the topic will be drawn.

H0: No significant relationship exists between FinTech digital processes in service delivery and Efficiency of Banking operations in Nigeria.

Literature Review

From its origin, banking and financial services were basically administered and conducted on what could be said to be 'brick and mortar' platforms. That required consistently the physical presence of the customers at the banking hall at all times for all kinds of transactions especially cash deposits, cash withdrawals and fund transfers. However, with advancements in Information and Communication Technologies (ICT), banking institutions changed the processes of operations and delivery of services to customers regularly in reaction to sophistication in technologies, customer needs and preferences. Eleje, Okoh and Okoye (2018), asserts that technology has played vital roles in designing, implementing and maintaining many organizations' business processes.

Besides, innovations in technologies have facilitated the means and ways consumers and financial companies interact owing to the high rate of penetration of new technologies. The adoption of Fin-tech strategies and schemes ushered in various electronic payment and financial transmission channels. Notable amongst them are the Automated Teller Machine (ATM), Mobile banking, Online banking, Point of Sale (POS) and Nigerian Inter-Bank Settlement System (NIBSS) instant payments, et cetera. Online banking system or Internet banking allows various customers to perform secured financial and indeed banking transactions by means of the internet. These services are offered without physical interaction between customers and banks' staff. Firms opt for internet banking as it eases working and processing of banking and other financial transactions (Gbanador, Makwe and Olushola (2022).

Financial technology (FinTech) is now one of the modern yardsticks used for rating a modern business firms, especially banking institutions. The rating is done based on the effectiveness of the firm's service delivery system infrastructural layout. So, banks adopted FinTech startegies to elevate the effectiveness of services rendered to clients, advance business processes so as to ease and facilitate efficient managerial decision making and workgroup collaborations. Eleje, et al (2018) argued that the adoption of Fintech blueprint has helped banks strengthen their competitive

positions in rapidly changing economies, particularly as the pace of change and degree of uncertainty in business competitive arenas are assuming geometrical dimensions. Basically, FinTech appliances and systems rely on internet platforms to execute financial service delivery.

Thus, the internet is described as a global computer network systems and infrastructures that provide divergent and differng information and communication facilities. These networks are interconnected using communication protocols that enable transmission of data through various media. Aburime (2008) elucidated FinTech to mean electronic systems that allow finance institutions and businesses to conduct commercial transactions and derive financial information through dedicated networks such as the internet. FinTech payment platforms are fast in service delivery and no barriers are associated with it as there are with the traditional payment systems or the brick and mortar banking.

With the application of FinTech service delivery systems to facilitate efficiency of operations, a bank can operate across several jurisdictions without being physically present but just dealing on the internet stage. Pursuant to Agboola (2011), FinTech service schemes removed boundaries and distinctions between financial institutions, powered the introduction of new products into the industry and repackaged existing services to meet customers' preferences. This has provided tremendous marketing opportunities on the internet. Goods can be bought and paid for on-line, real time thereby offering convenience and advancing customer satisfaction. Bank customers now have the option to transact and make even interbank transfers anywhere and anytime without being physically present at any of the banks. Time wasted previously on cheque clearance is now saved as funds hit third party accounts the moment an electronic fund transfer is made.

According to Oluwagbemi, Abah and Achimugu (2011), ICT and FinTech have become important elements in making more forceful economic competitiveness amongst banking firms and facilitating productivity and of course, efficiency in banking. Automated services delivery has helped tremendously to support and drive financial inclusion. In accordance with Okoye, Adetiloye, and Modebe (2016), financial inclusion is an evolving global concept which has attracted much attention in development finance. FinTech made it possible for people to access financial services anywhere and anytime there is internet coverage and that eliminates daily official working hours.

It has greatly enhanced and advanced the global payment systems particularly with devices such as the ATM machines, POS gargets, Mobile phones, et cetera. Olotewo (2015) contends that the influx of the different types of electronic payment initiatives has led to advancement of the payment systems in the Nigerian economy. Consequent upon that there is drastic reduction in cash management costs and the relative risks associated with cash in transit is equally minimized.

Financial scholars globally have conducted researches to determine the consequences of FinTech systems on banking effectiveness and relatively on the efficiency of operations. While a good number of these studies focused on the profit-based performance of banking institutions (for instance, Amu and Nwaezeaku, (2016); Abaenewe, Ogbulu and Ndugbu (2015); some others are focused on capability and expertise-based banking operational efficiency (examples include; Abdullai and Micheni (2018); Babatunde and Salawudeen (2017) and Taiwo and

Agwu, (2017). Oluwagbemi, et al (2011) studied how information technology affected the Nigerian banking industry.

The result showed that the deployment of FinTech facilities changed completely the quality and content of banking transactions and the entire business. Dogarawa (2005), examined a sample of one hundred and eighty demand deposit account holders drawn from different Deposit Money Banks (DMBs) in Lagos, Port Harcourt and Kaduna to determine the impact of FinTech facilities on the efficiency of banking opertaions.

The study results counter apriori expectation showing low quality and inefficient service delivery which also implied low level of customer satisfaction. Obikeze, Okolo, Mmamel and Okonkwo (2017) investigated the relationship that exist between FinTech-based financial services delivery and customers' perception. A sample of 499 respondents drawn from five DMBs was used for the study. Sample size was determined using Freud and Williams's formula. The result outcomes implied that FinTech Service Delivery Systems has strong positive effects on the efficiency of banking firms as per their customer satisfaction.

Furthermore, Deekor (2021), evaluated electronic-banking and DMB's performance utilizing quarterly data for the period 2010 to 2018. Net interest margin served as the proxy for Performance and electronic channels such as POS, ATM, Web pay and Mobile banking were proxies for E-banking. The results showed that channels like POS, ATM, and Web pay have no significant effect on the dependent variable - Net interest margin. However, Mobile banking varaible signified very significant and positive inter-relationship with the variable Net interest margin. In addition, Abubakar (2014) investigated tha influence of FinTech schemes on the performance of DMBs.

The study adopted the secondary data, while multiple regression was utilized to analyze the data. Specifically, the findings pointed out that there is a positive link between FinTech progams and DMBs performance and it also facilitated, total deposits liabilities and total assets. Again, Okonkwo and Ekwueme (2022) appraised how e-payment systems affect financial performance of DMBs employing time series data for a space of ten years starting from 2009 to 2019.

Return on Asset (ROA) was made use of or engaged as the dependent variable while the independent variables were Point of Sale (POS) and Automated Teller Machines (ATM). The research findings showed some unique characteristics revealing that the ATM variable though has positive coefficent but displays insignificant effect on ROA. The variable POS exhibited a negative coefficient and revealed an insignificant relationship with ROA. It countered apriori expectation signifying that the POS variable could not be relevant to policies formulated to affect ROA.

Research Methods

This section specified the approach, techniques and methods used in accomplishing the study. In it the Population, Sample size, Sampling proceedures and Data analysis technique are defined. The theoretical framework, Model specification and Decision rule conclude the section.

Research Design, Population and Sample size

The research utilized 'Survey design' in the gathering of data and employed the random sampling technique in the distribution of questionnaires. Survey design is known to be a realistic, pragmatic, and comprehensive method of sourcing for primary data because it gives an intellectual view and knowledge of the study population. Pursuant to Creswell (2005), Population is said to be the largest level that a group of things or observations, finite or infinite in scope being studied possess one unique characteristic that makes them differ from other groups. The study trys to use FinTech to explain Efficiency in banking operations, o1ur focuses is thus on banking institutions.

Therefore, the Population consists of employees of all listed banks in the managerial levels in Nigeria. Owing to the large nature of the population, a Sample population was necessary. Creswell (2005), defined Sample population as the actual list of sampling units from which the sample or research data are selected. The size of the Sample population is thus made up of seven hundred (700) Management employees of all listed banking institutions in Delta and Edo States of Nigeria.]

Sampling techniques and Questionnaire design

Random sampling technique was utilized for the survey exercise in which structured questionnaires were randomly distributed in the targeted Sample population to respondents so as to elicit their views. There is a consensus amongst researchers that the 'Random sampling' method is free from biases and prejudice. The structured questionnaire has two sections namely: the Demographic section containing the respondent personal data and the Questions with Answers options section in which the respondent indicate his or her interest.

The questionnaire design took after an innovation referred to as 'Item-Specific-Response-Options (ISRO). In consonant with Wronski (2018), 'Item specific' implies that response options are constructed distinct to a survey question, though different questions could have various set of response options. The ISRO strategy has a five point rating sacle ranging from Very Affirmative; Somewhat Affirmative; Nuetral; Somewhat Negative to Very Negative. The five point answer options are given wights from 5,4,3,2 to1 for Very affirmative to Very negative respectively.

Data analysis technique and model specification

An Analysis technique known as Pearson's Product-Moment Correlation Co-efficient (PPMCC) designated by the 'r' letter was used to estimate the model. PPMCC or 'r' also refered to as 'Sample coefficient' is an authentic statistical instrument applied extensively to measure the size, level or stregth of inter-relationship between study variables. Boone and Boone **(**2012), affirmed that PPMCC technique is a veritable statictical measuring apparatus and is suitable to analyze a five point ISRO rating scale.

The estimation of the model produces the 'r' coefficient and when the product 'r' is squared it produces another authentic measuring parameter referred to as Coefficient of Determination (r^2) and also known as adjusted R-squared. These two measuring coefficients were utilized to analyze the linear relationship existing between variables. The 'r' coefficient has the power to affirm the direction, positive or negative of linear relationship existing between the variables. The magnitude

the'r' coefficient assumes portends the strength of relatioship, whether it is a weak or strong association.

The research model is specified in line with Obadan, (2012) which asserts that in order to have an accurate measurement of the magnitude of the PPMCC or 'r' correlation between variables Y and X with linear realationship it may be necessary to estimate the model in equation 1.

$$\text{PPMCC or } r = \frac{\sum \left(X - \overline{X}\right)\left(Y - \overline{Y}\right)}{\sqrt{\sum \left(X - \overline{X}\right)^2 \sum \left(Y - \overline{Y}\right)^2}} \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (1)$$

Where: r = Pearson's Product-Moment Correlation Coefficient (PPMCC)
X = Weights attached to answer response options.
Y = Frequency of answer response options
$\sum$ = Summation sign
$\overline{X}$ = Mean of weighted response options
$\overline{Y}$ = Mean of frequency of response options

However, estimating formula 1 expressed in mathematical terms and using the actual or real values of the variables is difficult to manipulate. Obadan, (2012), thus specified another simplier model that uses the deviation of the variables from their mean values. So to reduce the diffulty of deriving the 'r' coefficient, formula 2 is specified and used to compute the study coefficients.

$$\text{'r'} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (2)$$

Where x = $X - \overline{X}$ and
y = $Y - \overline{Y}$

Decision rule:

Obadan (2012), affirmed that the estimated product of PPMCC or 'r' could assume values falling within the ambit of -1 to +1. So, when r' value is:

i. 0 (zero); there is no relationship between the variables.
ii. +1, A perfect positive correlation exists between the variables.
iii. -1, A perfect negative correlation subsist between the variables.

When 'r' coefficient is squared, a product known as 'Coefficient of Determination r^2 is obtained. The r^2 coefficient indicates the goodness of fit of the estimsted model.

Data Presentation And Analysis Of Results

Presentation of data

In this section, data obtained from field survey are first presented in a table to display their typical features and represented in a column chart for the distinct characteristics of each class or tier of answer options to be clearly acknoledged. The Sample size of the study consists of seven hundred (700) Management employees of listed banks in the Sample population. So, seven hundred questionnaires were randomly distributed to the sample population and six hundred and sixty five (665) were retrieved to constitute 95% of total questionnaires distributed.

The question that captured the relationship existing between FinTech digital and automated processes in service delivery and Efficient Banking operations states as follows.

How contented or discontented would you say that FinTech digital and automated processes in service delivery has facilitated Banking operational Efficiency in Nigeria? The response frequencies received for the question above are exhibited in table 4.1, first in absolute figures and then in percentages.

Table 4.1: Responses frequencies in figures and percentages

Response Options	Response Frequencies in figures	Response Frequencies in Percentages (%)
Very Contented	210	31.58 %
Somewhat contented	182	27.37 %
Neutral	79	11.88 %
Somewhat Discontented	108	16.24 %
Very Discontented	86	12.93 %
Total	665	100.00 %

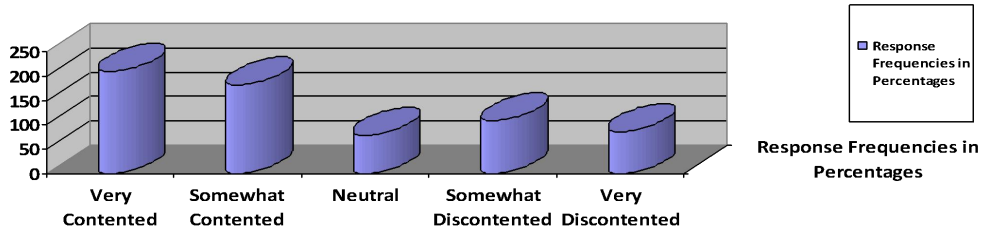
Source: Field Survey, 2024.

The questionnaire question was designed to elicit respondents' view on how contented or discontented they believe that FinTech digital processes in service delivery has facilitated and augumented efficiency of operations in the Banking industry. Table 4.1 portends that a large proportion of respondents constituting 31.58% of total respondents are contented that FinTech digital processes facilitate Banking Efficiency in service delivery. Another category of respondents that constitute 27.37% are contented to some extent. Both answer options put together shows that a large propotion constituting 58.95% of total respondents are positive that Financial Technologies can and are helping to enhance and aid efficiency in banking operations positively. Specifically, the percentage or proportion of respondents who are contented appear to suggest that banking firms are now more efficient with the taking on of financial technologies (FinTech).

The results thus propose that the null hypothesis stated in the negative do not hold true and should be rejected for the alternate hypothesis that there is correlation between FinTech sytems and digital methods and Efficiency in banking operations. More about this result will be revealed on evaluation and assesment of data.

The data are represented in a column chart in figure 4.1 to exhibit the distinct features and characteristics of response frequencies derived from the administration of questionnaires to respondents in the field.

Figure 4.1 Responses frequencies to research question.



Source:

Author's computation , 2024

4.2 Estimation of Data:

The sums (∑) of variables must be derived before estimating the specified model. Table 4.2 was utilized to derive the totals (∑) of the variables.

Table 4.2: Derivation of totals (∑) of variables

	X	Y	x = X - Ẍ	y = Y - Ȳ	Xy	x²	y²
Very Contented	5	210	2	77	154	4	5929
Somewhat Contented	4	182	1	49	49	1	2401
Neutral	3	79	00	-54	00	00	2916
Somewhat Discontented	2	108	-1	-25	25	1	625
Very Discontented	1	86	-2	-47	94	4	2209
Total (∑)	15	665	00	00	322	10	14080

Source: Authors' computation, 2024**.**

The sum total of the varibles derived in table 4.2 were used in the empirical estimation employing formula 2. The means of the variables were also derived.

Mean of Weighted Answer Options; $\overline{X} = \frac{\sum X}{n} = \frac{15}{5} = 3$

Mean of Frequency Response Options $\overline{Y} = \frac{\sum Y}{n} = \frac{665}{5} = 133$

From equation 2; PPMCC; $r^{*} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{294}{\sqrt{10x14080}} = \frac{294}{375.23} = 0.7835$

Therefore:

The Pearson's Product-Moment Correlation Co-efficient (PPMCC) or 'r' = 0.7835 and

The Coefficient of Determination (r^2) = $(0.7835)^2$ = 0.6139 or 61.39%.

Discussion of Findings, Conclusion and Recommendation

Discussion of findings

The discussions we have on research findings in this section is centered on the empirical results elicited from the assesment of the study model with data from field survey. The study data was empirically estimated using Pearson Product-Moment Correlation Coefficient (PPMCC) denoted by 'r'. We wish to recapitulate here that the computation of the reaserch model produces PPMCC or 'r' coefficient, a measure of how strong the linear relationship is, that is, the strength and it also gives the direction the relationship tilts. For this study, the estimated model

produced a PPMCC or 'r' coefficient of 0.7835. Obadan (2012), affirmed that in practical terms, a PPMCC value of 0.71 to 1.00 indicates a very strong correlation. So, the PPMCC value of 0.7835 signifies a very strong positive correlation suggesting that the correlation existing between FinTech digital processes and Efficient banking opertaions is substantial because, in terms of its magnitude, the 'r' coefficient standing at 0.7835 tilts towards a near perfect positive association. The 'r' coefficient of 0.7835 also suggests that a large proportion of variance of one variable can be explained. However, this will be affirmed by the other measuring parameter - the Coefficient of determination (r^2).

He high coefficient signifies that the relationship is unlikely to be due to chance. Since the coefficient is positive, it also means that as one variable increases, the other tends to increase. It implies that as the adoption of FinTech delivery systems increases, there will be a corresponding increase in the efficiency of banking operations in Nigeria. The underlying fact therefore is that Fintech sytems in service delivery has greatly fostered banking efficiency in Nigeria.

The other parameter derived from the empirical estimation is the Coefficient of determination (r^2) also known as R-squared. The R-squared coefficient for the estimated model stood at 0.6139 or 61.39%. Recall that the r^2 coefficient is to gauge and estimate the proportion of variance in the dependent variable in a regression model being predicted by the independent variable(s). In terms of this study, an r^2 value of 0.6139 suggests that about 61.39% of the variation in Efficient Banking operations which in broad terms might includes operational cost, productivity is explained by FinTech Service Delivery Systems, FinTech in a wider view include; process automation, process re-engineering, et, cetera.

This implies that the model exhibited strong descriptive and expository power and the explanatory variable – Fintech service delivery systems has significant and relevant impact on Efficient banking operations. The result also suggest that the remaining 39% may be due to other factors such as external market conditions, regulatory requirements or random errors. This insight from the results has several implications and can help bank managers, stakeholders and policy makers to:

- Identify key drivers of efficiency. By evaluating the independent or explanatory variables in the model, banking firms can recognize areas that have the greatest impact on operational efficiency.
- Optimize resource allocation. With a better understanding of the factors that influence efficiency, bank can allocate resources more effectively and efficiently to improve operational performance.
- Develop targeted strategies. By addressing the factors that contribute to the remaining 39% of variation, banks can develop targeted strategies to further improve operational efficiency.

The overall implications of r^2 value of 0.6139 signifies that the model independent variable –FinTech delivery systems can strongly predict Banking efficiency accurately. However, the remaining 39% implies that there are likely to be other factors not captured by the model that influence efficient banking operations.

Conclusion

The conclusions are drawn from the findings as per discussed in the above sections. The product, PPMCC or 'r' produced from the evaluation and survey of the study model displayed a coefficient of 0.7835. This signifies a strong and positive

inter-relationship which impliess that the correlation between FinTech service delivery systems and Banking Efficiency in Nigeria is substantial. Besides, the model also exhibited a Coefficient of Determination or r^2 value of 0.6139 or 61.39% which suggests that 61% of the variation in Banking efficiency can be explained by FinTech Service Delivery Systems.

Therefore we conclude based on derived results from the above analysis that the independent variable – FinTech service delivery systems has strong power to predict changes in and also has significant and relevant impact on Banking efficiency in Nigeria. The reason being that the positive sign of the 'r' coefficient portents that they are properly related in degree, meaning that an increase in the adoption of FinTech delivery systems will boost or lead to a corresponding increase in Banking Efficiency.

Recommendations

The study disclosed and brought to light that the emergence of Financial technologies in service delivery has substantial influence and leverage on Banking Efficiency. The PPMCC or 'r' coefficient of 0.7835 suggests that there is aconsiderable strong relationship between FinTech service delivey systems and Banking Efficiency variable in Nigeria. Besides, the model Coefficient of Determination or r^2 value standing at 0.6139 or 61.39% shows that FinTech Service Delivery Systems is relevant to policies formulated to affect Banking Efficiency in Nigeria. From the foregoing, we recommend that Management of Banking institutions should empower the workforce with modern financial technologies and infrastructures in service delivery to replace obsolete and aged equipments so as to enhance efficiency of banking.

We recognize that effective manipulation of complex financial technologies in service delivery to achieve efficiency in banking operations require expertise and skills. To maintain and sustain customer relationship therefore, we recommend that it would be of great value to both the banks and customers of banks to commit a lot of resources to the training and retraining of customer service staff members in particular and to the entire bank employees in general. Training and re-training of employees and workforce of the financial institutions particularly as the adoption of FinTech infrastructures in service delivery increases would play key and fundamental roles in improving the efficiency of banking operationns.

Aknowledgements

I wish to sincerely acknowledge the various authors whose work were cited in the body of the article and referenced. We owe them thanks for their contributions towards making this article a success. Thanks go my family for their patience, cooperation and financial support. I also thank the Editorial Board of the Journal for their cooperation in publishing the article. We thank God Almighty for His infinite mercies and inspirations.

References

Abaenewe, Z. C., Ogbulu, O. M., & Ndugbu, M. O. (2015). Electronic banking and bank performance in Nigeria. *West African Journal of Industrial & Academic Research, 6*(1), 171-187

Abdullai M. H and Micheni E. M , (2018); Effect of Internet Banking on Operational Performance of Commercial Banks in Nakuru County, Kenya; *International Journal of Economics, Finance and Management Sciences* (Volume 6, Issue 2)

Abor, J., (2004). Technological innovations and banking in Ghana: An evaluation of customers‟ perceptions: *American Academy of Financial Management,* 1.Retrieved from:: http://www.financialcertified.com/armstrong.html. Accessed on May 6, 2015.

Abubakar H. (2014), Impact of Marketing Communication on Financial Performance of Banks: A Study of First Bank of Nigeria Plc; *Research Journal of Finance and Accounting*. Retrieved from: https://www.semanticscholar.org/paper/

Aburime (2008), Determinants of Bank Profitability: Industry-Level Evidence from Nigeria *International Journal of Nigerian Studies and Development,* Vol. 14, pp. 21-34,

Aduba N. (2017),Technology Driven Banking Services Hand Book, *Technology Driven Banking Services Hand Book* Series" Volume 10, Number 2, 1997, Pg 4.

Agboola, A.A. (2011) Towards Reducing Common Ergonomic Hazards and Alleviating Techno-Stress Associated with the Adoption of Information and Communication Technology. *International Journal of Innovation in the Digital Economy*, 2, 56-65. http://dx.doi.org/10.4018/jide.2011040105

Akinlolu (2007),"Information and communication Technology (Ict) In Banking Operations In Nigeria –An Evaluation Of Recent Experiences", *African Journal of Public administration and Management* Vol XVIII, No. 1 January 2007.

Amu, C.U., & Nwaezeaku, N.C. (2016). Commercial bank and performance of electronic-banking in Nigeria: A causality/cointegration approach, *International Journal of e-Education, e-Business, e-Management and e-Learning,* 6(3), 175-185.

Anderson R.G. (2019), Data Processing and Management Information System. *The Publication Lagos State.*

Babatunde, M.O. and Salawudeen, M.O. (2017). Analysis of the Impact of Electronic Banking on Customers' Satisfaction in Nigeria. Greener Journal of Business and Management, 7(3); 30-42, Retrieved from http://doi.org/10.15580/GJBMS.2017.3.083117117.

Boone, (Jr) H.N. and Boone, D**.A. (**2012) *Analyzing Likert Data;* Retrieved from: http://www.joe.org/joe/2012april/tt2.php.

Creswell J. W. (2005). *Educational Research, Planning, Conducting and Evaluating Quantitative and Qualitative Research*. New Jersey: Pearson Education Inc.

Deekor L.N (2021). Electronic Banking and Deposit Money Bank's. Performance in Nigeria. Retrieved from: https://www.google.com/search?q=Deekor+(2021)&oq=Deekor

Dogarawa A. B (2005): The Impact of E-banking on Customer Satisfaction in Nigeria: *The Abuja Management Review* , Vol. No. 1, No. Vol. III (2005): pp. 160-173.

Eleje, E. O, OKOH, J. I and Okoye, L. U.(2018) *Computer-Based Financial Reporting and Transaction Processing System in the Nigerian Banking Industry: The Role of Financial Managers.* Sokoto Journal of ·Management Studies, 14 (1). pp. 212-230. ISSN 2141-1670

Gbanador, M. A. Makwe, E. U. and Olushola, O. A. (2022). Financial innovation and the performance of deposit money banks in Nigeria. *IIARD International Journal of Banking and Finance Research*, *2*, 37-50.

Kagan, J. (2024) Financial Technology (Fintech): Its Uses and Impact on Our Lives. Retrieved from: https://www.investopedia.com/terms/f/fintech.asp

Obadan, M.I. (2012), *Research Process, Report Writing and Referencing*; Abuja, Goldmark Press Limited

Obikeze, C.O. Okolo J.U. Mmamel Z.U. and Okonkwo R. (2017), Effects of e-banking services delivery on customer satisfaction in selected banks. Retrieved from: https://www.google.com/search?q=Obikeze%2C+Okolo%2C+Mamel+and+Okonkwo.

Okonkwo, A. A., & Ekwueme, C. M. (2022). Effect of electronic payment on financial performance of Nigeria Deposit Money Banks. *International Journal of Advance Academic Research, 8*(3), 105-117.

Okoye, L.U, Adetiloye K. and Modebe N (2016), Financial Inclusion: A Panacea for Banlanced Economic Development. Retrieved from: https://www.semanticscholar.org/paper/Financial-Inclusion.

Olotewo J. (2015), Marketing and Logistics strategy: The Intergration Process, *International Journal of Online Marketing Research:* Retrieved from: https://www.researchgate.net/publication/283902636_Marketing_and_Logistics_Strategy_The_Integration_Process

Oluwagbemi, O., Abah, J. and Achimugu, P. (2011) The Impact of Information Technology in Nigeria's Banking Industry. *Journal of Computer Science and Engineering*, 7, 25-36.

Taiwo, J.N., & Agwu, M.E., (2017) The Role of E-Banking on Operational Efficiency of Banks in Nigeria. *Basic Research Journal of Business Management and Accounts* ISSN 2315-6899 Vol. 6(1) pp. 01-10 January 2017. Available online at: http//www.basicresearchjournals.org

Wronski L. (2018), *Let's agree NOT to use agree/disagree questions.* retrieved on 2 April 2024 from: https://www.surveymonkey.com/curiosity/lets-agree-not-us