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# TECHNOLOGY-BASED FINANCIAL SERVICES DELIVERY AND CUSTOMER SATISFACTION: A STUDY OF THE NIGERIAN BANKING SECTOR

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## ABSTRACT

*This study was designed to identify the extent to which technology has impacted customer satisfaction in the Nigerian banking sector. Data analysis was based on responses obtained from 120 customers of three Deposit Money Banks within Ogun and Lagos States of Nigeria. Features of bank service evaluated in the study are time saving, convenience, crime reduction, reliability, risk reduction, and ease of use. The result showed significant positive impact of all the above service features on customer satisfaction, an indication that electronic-based banking has enhanced customer satisfaction in Nigeria. It is recommended that more service points and user-friendly customer-oriented financial products be provided to support this initiative.*

**Key words:** Technology, Electronic banking, Customer satisfaction, Customer-oriented financial products.

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## 1. INTRODUCTION

Traditionally, financial services delivery was conducted on brick and mortar platforms which required physical presence at the bank for such transactions as cash deposits and withdrawals, fund transfers and all other forms of transactions. Maintenance of customer relationship was a major challenge because daily interactions between staff and customers were unavoidable and the quality of these relationships was critical to the performance of these institutions. To be of great value to both the banks and customers, banks commit a lot of resources to the training and retraining of customer-service staff. However, with advances in technology, banks have changed and continuously change the way they operate and deliver services to their customers in response to changes in customer sophistication and needs. Technology, according to Eleje, Okoh and Okoye (2018), has played a critical role in designing, implementing and maintaining many of organizations' business control processes. Technological innovations have also impacted the way consumers of financial services interact with service providers partly because of the high rate of penetration and adoption of new technologies.

The banking consolidation programme in Nigeria produced fewer banks that are largely driven by information and communication technology (ICT) with the result that access to financial services was enhanced as more of the hitherto excluded members of the society could access formal financial services irrespective of location. Thus, ICT adoption facilitated the economic growth and development process through financial inclusion. Banks that emerged from the consolidation exercise had strong capital base to engage ICT in driving their operations for better performance (Okoye, Adetiloye, Erin and Evbuomwan, 2016).

Today, service delivery in the banking sector in particular and the financial services sector in general is largely technology-driven. Basically the internet is the platform for financial services delivery. The internet is a global system of computer networks that provide a variety of information and communication facilities. These networks are interconnected using communication protocols that enable transmission of data through various media. The internet offers a platform for the provision of financial services by banks and this method of banking services delivery is referred to as electronic banking. Daniel (1999) defines electronic banking as provision of information and services by a bank to its customers through electronic wired or wireless channels. According to Daniel, other electronic banking channels include telephone, mobile phone and interactive television. Aburime (2008) explained electronic banking to include systems that enable financial institutions, individuals and businesses to access accounts, conduct transactions and obtain information on financial products and services through private or public networks, including the internet. Electronic banking services include cash withdrawals, fund transfers, bills payment, account balance inquiry, tracking transactions, account statement requests, etc.

The electronic banking platform has integrated speed and coverage in the packaging of service delivery and removed barriers associated with the traditional branch or brick and mortar banking. A bank can now operate across several jurisdictions without physical presence just maintaining presence on the internet. Agboola (2011) opined that electronic banking blurred the boundaries between financial institutions, enabled the introduction of new products and repackaging of existing of existing ones to meet customer needs. This has provided tremendous marketing opportunities on the internet. Goods can be bought and paid for on-line, real time thereby offering convenience and promoting customer satisfaction. Bank customers now have the option of not being physically present at the bank to move funds from one account to another and for transactions involving inter-bank settlement, time hitherto wasted on cheque clearing is saved as funds hit third party accounts the moment an electronic fund transfer is made. According to Muhammad (2012) some banks now offer home banking service which

enables a customer to transact his business from his personal computer once it is linked to the internet. Indeed the internet has revolutionized the conduct of business transactions in an unprecedented manner. According to Oluwagbemi, Abah and Achimugu (2011), information technology and electronic banking are critical to strengthening economic competitiveness and promoting productivity and efficiency in the banking sector.

Technology-driven banking services delivery has tremendously supported the drive towards financial inclusion, a subject which, according to Okoye, Adetiloye, Erin and Modebe (2016), has continued to attract global in development finance. People can now access financial services from very remote villages so long as there is internet coverage and access to financial services is no longer official working hours and days. Transactions can be on a 24-hour basis all through the year. This has greatly improved the payment system through electronic devices like automated teller machines (ATMs), point-of-sale (POS) machines, mobile phones, etc. Olotewo (2013) opined that the introduction of the various electronic payment initiatives has improved the payment system in Nigeria. This technological innovation has led to a drastic reduction in the cost of cash management and the risk associated with moving cash about is also minimized.

Though the internet has drastically transformed the global banking environment, there are obvious challenges, most of which differ across boundaries depending on factors like infrastructural capacity, institutional quality, human capital development, etc.

Over the years, scholars across different boundaries have conducted researches to identify the impact of electronic banking on bank performance. However, while a good number of these studies focused on the profit performance of banks (see, Oginni, Abba, El-maude and Arikpo, 2013; Amu and Nwaezeaku, 2016; Hassan, 2013; Abaenewe, Ogbulu and Ndugbu, 2013; Eze and Egoro, 2016), some others focused on efficiency (see, Abdullai and Micheni, 2018; Babatunde and Salawudeen, 2017; Taiwo and Agwu, 2017, Igbaekemen, 2016). Research on performance, with respect to customer satisfaction, particularly in sub-Saharan Africa is rather scant. This study contributes to the growing body of literature in this area, more so when it is not in doubt that it is customer satisfaction that sustains continued loyalty and patronage which are key drivers of profitability.

## 1.1. Theoretical Foundation

The Innovation Diffusion Theory (IDT) forms theoretical basis for this work. The theory, developed by Rogers (1983), explains the process of innovation adoption in a social system and offers valuable insights into the process of social change. It explains the motivation to adopt a given technological innovation as a model for performing a particular activity. In a social system, behavioural factors are essential for technology adoption.

## 1.2. Innovation Diffusion Theory

Innovation, according to Rogers (2003), refers to an idea, practice, or object which an individual or other unit of adoption perceives to be new. The theory conceptualizes newness of an innovation as not being limited to lapse of time since its first discovery or use but includes modifications to an existing innovation which enables it to undertake new tasks or execute the same or familiar task in a different manner. In other words, a new method of executing an old task can be termed an innovation.

An innovation is useful only to the extent that is accepted by a social system. To be accepted by the social system, an innovation must engage the process of diffusion which is the process by which members of a social system are acquainted with its attributes, thereby reducing uncertainty about the innovation. Rogers and Shoemaker (1971) identified five features that

influence the rate of innovation adoption as relative advantage, compatibility, complexity, triability, and observability. Rogers (2003) argued that individuals' perception of these attributes is a major predictor of innovation adoption.

An innovation or product that offers an advantage to its user relative to what previously existed is considered useful and therefore can easily be accepted. The greater the acceptance rate of a new innovation, the faster its rate of diffusion. With regard to compatibility, emphasis is on the extent to which a product or innovation conforms with the values and beliefs, needs, and previous ideas and past experiences. An innovation that is considered more compatible has a better chance of being accepted than a disruptive one. Also an innovation that is easy to understand and use enjoys a higher acceptance rate than one that is complex. Furthermore, a new innovation should be tested before introduction to the market. The outcome of the test-run determines its acceptance or rejection rate. Triability assures users of the usefulness and reliability of an innovation by offering them a real life feel of the product. Finally, for an innovation to be easily accepted, its performance should be easily observed and communicated or shared.

## **2. REVIEW OF RELATED LITERATURE**

In a market-driven economy, the customer is central to corporate performance. To succeed, businesses target customer retention through delivery of high quality products or services. The quest for customer satisfaction led to the innovation of technology-driven service delivery channels in the banking sector. This innovation incorporates service features like speed, convenience, cost, reliability, accessibility, etc. The impact of this innovation has been the subject of empirical research among scholars in recent time.

Toor, Hunain, Ali and Shahid (2013) examined the impact of electronic banking on customer satisfaction in Pakistan. Data was gathered by administering questionnaire on a sample of 264 bank customers. The questions were designed to elicit information on the following dimensions of service quality: reliability, responsiveness, assurance, tangibles and empathy. The study shows momentous relationship between service quality and customer satisfaction with the strongest impact from reliability, responsiveness and assurance in that order.

With the aid of Likert-based questionnaire, Firdous and Farooqi conducted an exploratory survey to ascertain the nexus between quality of internet banking service and customer satisfaction in India. A sample of 194 bank customers selected through judgemental and convenience method was used for the study. Efficiency, system availability, fulfillment, privacy, responsiveness, contact, and website design (ease of navigating the website) were dimensions of service quality of interest. The study shows significant impact of internet banking service delivery and customer satisfaction.

The work of Oluwagbemi, Abah and Achimugu (2011) studied how information technology has impacted the Nigerian banking industry. The result indicates that deployment of information technology facilities have fundamentally transformed the content and quality of banking business in Nigeria. Addai, Ameyaw, Ashalley and Quaye (2015) used purposive sampling method to select a sample of 150 bank customers from 3 banks in Ghana. The study was designed to determine the link between electronic banking and customer satisfaction. The study produced strong evidence of empirical support of positive impact of availability, reliability and, convenience of electronic banking on customer satisfaction.

Worku, Tilahun and Tafa (2016) examined the impact of electronic banking on customer satisfaction using a sample of 402 respondents from 4 branches of 2 Ethiopian banks. The respondents were also interviewed. Data gathered were analyzed using the chi-square test. The

study shows that electronic banking led to an improvement in customer satisfaction. The work of Ogunlowore and Oladele (2014) also used chi-square to analyze how electronic banking impacts customer satisfaction but focused on corporate bank customers. The authors report that speed, convenience, flexibility, accessibility and efficiency offered by electronic banking enhanced customer satisfaction among corporate clients.

Dogarawa (2005) used a sample of 180 bank (current account holders) drawn from branches of three deposit money banks (DMBs) in three major Nigerian cities of Lagos, Port Harcourt and Kaduna to examine the impact of electronic banking on customer satisfaction. Sample selection was based on judgemental sampling technique while analysis was based on chi-square technique. The study shows low quality and inefficient service delivery, an indication of low level of or no satisfaction from electronic banking services.

Obikeze, Okolo, Okolo, Mmamel and Okonkwo (2017) examined the relationship between technology-based financial services and customers' perception of the quality of service delivery. A sample of 499 respondents drawn from five DMBs was used for the study. Sample size was determined using Freud and William's formula. Dimensions of service quality captured in the study are usefulness, ease of use and security. The result indicates strong positive impact of electronic banking on customer satisfaction. The work of Agboola (2003) focused on identifying the level of satisfaction derived by bank customers from the array of electronic banking products offered by banks. Data was collected through administration of questionnaire to a sample of ninety customers selected from six DMBs in Lagos, Nigeria. Dimensions of customer service evaluated in the study include convenience, speed of service delivery, accuracy, promptness and ease of service delivery outside the traditional banking hall. Evidence from the study indicates enhanced customer satisfaction derived from electronic banking.

Isibor, Omankhanlen, Okoye, Achugamonu, Adebayo, Afolabi and Ayodeji (2018) conducted a study on the impact of electronic banking technology on customers' satisfaction and economic growth in Nigeria. The authors used a sample of 100 bank customers selected from four DMBs in Ota, Ogun State-Nigeria. Non-probability purposive sampling technique was used for the study. The result of the paired-sample t-test shows that electronic banking improved customer satisfaction and enhanced GDP growth.

Kwarteng (2015) conducted explored the link between electronic banking and the quality of customer service delivery in Kumasi, Ghana. Sixty-nine bank customers and twenty-nine bank staff were selected through purposive sampling method from three branches of three selected DMBs. The study revealed low level of customer satisfaction from electronic banking products as customers experience difficulty in accessing these services.

Hamid, Alabsy and Mukhtar (2018) examined the impact of electronic banking services on customer satisfaction in Sudan. Data were sourced through the use of questionnaires. The study produced statistically significant positive impact of internet-based banking services on customer satisfaction.

### 3. METHODOLOGY

The data used for this study was derived from primary sources through the use of questionnaire and oral interview. However, questionnaire was mainly used. The questionnaire consists of a set of questions designed to gather information from respondents on their perception of the quality of banking services they receive on the electronic platform. Three banks were selected for the study based on personal judgement and convenience. A total of 120 questionnaires were administered on a sample of forty customers of each of the banks within Ogun and Lagos States of Nigeria.

The responses were collated, coded and analyzed using the statistical package for social science (SPSS) while model estimation was based on the method of analysis of variance (ANOVA).

## 4. ANALYSIS OF DATA

### 4.1. Demographic Characteristics of Respondents

The sample comprised of 63 (52.5 per cent) males and 57 or 47.5 per cent females, with 49 below 30 years of age (representing 40.8 per cent) and 71 (59.8 per cent) others 30 years and above. It is composed of 43 or 35.8 per cent singles and 77 or 64.2 per cent others who are either married, divorced, separated or fall within other categorizations.

In terms of education, the status of the respondents is mixed. While 45 of them either have no education or were educated up to senior secondary level, 52 had NCE/OND academic qualifications. 23 others had minimum of HND/B.Sc certificates. All the respondents are familiar with the subject of electronic banking and are users of one type of electronic banking product or the other.

## 5. PRESENTATION AND DISCUSSION OF RESULTS

### 5.1. Test of Hypothesis

$H_0$ : Internet-based banking service has no significant impact on customer satisfaction

$H_1$ : Internet-based banking service has significant impact on customer satisfaction

**Table 1: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.336 <sup>a</sup>	.113	.098	.94435

Source: Authors' Computation using SPSS, 2018

**Table 2: ANOVA**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	13.251	2	6.625	7.429	.001 <sup>b</sup>
Residual	104.341	117	.892		
Total	117.592	119			

Source: Authors' Computation using SPSS, 2018

**Table 3: Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.144	.266		4.306	.000
Time saving	.166	.073	.200	2.261	.026
Convenience	.261	.096	.239	2.713	.008

Source: Authors' Computation using SPSS, 2018

The  $R^2$  of 0.113 shown in the model summary (table 1) and the ANOVA level of significance of 0.000 (table 2) indicate that the dimensions of internet-based banking service analyzed in the study jointly and significantly explain customer satisfaction at 1 per cent level. The coefficients in table 3 show how each explanatory variable explains the dependent variable while the T statistic and Sig. values show statistical significance. A variable is considered significant if the p-value = or < 5 per cent. From the table, time saving and convenience have significant positive impact on customer satisfaction.

The above result implies a rejection of the null hypothesis, leading us to conclude that internet-based banking service has significant impact on customer satisfaction.

To consolidate the above findings, a second test was conducted using other dimensions of service quality. Components of service quality analyzed in this segment are crime reduction, reliability, risk reduction and ease of access. The results are presented in tables 4 to 6 below.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.570 <sup>a</sup>	.324	.301	1.09608

Source: Authors' Computation using SPSS, 2018

Table 5: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	66.340	4	16.585	13.805	.000 <sup>b</sup>
Residual	138.160	115	1.201		
Total	204.500	119			

Source: Authors' Computation using SPSS, 2018

Table 6: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-.069	.471		-.147	.883
Crime reduction	.206	.078	.204	2.634	.010
Non-Reliability	-.358	.095	.302	-3.752	.000
Risk reduction	.211	.076	.223	2.766	.007
Ease of access	.287	.085	.262	3.391	.001

Source: Authors' Computation using SPSS, 2018

The  $R^2$  of 0.324 shown in the model summary (table 4) and the ANOVA level of significance of 0.000 (table 5) indicate that dimensions of internet-based banking service analyzed in the study jointly and significantly explain customer satisfaction at 1 per cent level. The coefficients in table 6 show how each explanatory variable explains customer satisfaction while the T statistic and Sig. values show statistical significance. A variable is considered significant if the p-value = or < 5 per cent. Table 6 shows that reduction in level of crime, reliability of service, safety of cash (reduced risk of carrying cash), and ease of access have significant positive impact on customer satisfaction.

The above result implies a rejection of the null hypothesis, leading us to further conclude that internet-based banking service has significant impact on customer satisfaction.

## 6. SUMMARY OF FINDINGS

Following from the statistical test in the previous section, it was observed that delivery of banking services through the electronic platform has enhanced the quality of services delivered to bank customers. Quality of bank services delivery through electronic platform was evaluated on the basis of time saving, convenience, crime reduction, reliability, risk reduction, and ease of use. Model estimation was based on the method of analysis of variance (ANOVA) using SPSS. The result showed that all the dimensions of service quality analyzed in the work have significant positive impact on customer satisfaction.

## 7. RECOMMENDATION

Based on the outcome of this study, it is recommended that the gains of this innovation be consolidated through provision of more service points and user-friendly customer-oriented financial products. Financial service providers should also continuously upgrade their facilities to meet the changing demands of the customer. Finally, regular training programmes for staff on the use of modern technology should be organized by financial service providers to enhance their quality of service delivery.

## 8. CONCLUSION

The focus of this study was to identify the extent to which technology has impacted delivery of customer-oriented financial services. Responses to the questionnaire administered on 120 customers of three DMBs within Ogun and Lagos States of Nigeria were analyzed using the SPSS software. The result showed significant improvement in the quality of banking service delivery. The study therefore concludes that electronic-based banking has enhanced customer satisfaction in the Nigerian banking sector.

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