

## Impact of Information and Communication Technology (ICT) on the Performance of Commercial Banks in Kogi State, Nigeria

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### **Abstract**

*Commercial banks play critical role in enhancing the nation's economy however, its performance largely depends on the extent to which its resources are utilized. This research on the impact of information and communication technology on the performance of commercial banks in Kogi state is conducted to determine the extent to which information and communication technology resources such as mobile banking, internet banking and telephone banking enhances the performance of commercial banks such as efficiency, competitive advantage and cost reduction. In undertaking the research, the study adopts a descriptive survey design with an infinite population of respondents who are Customers of the selected commercial banks and sample of 384 was used adopting the Krajcic and Morgan sample size formular. However, out of the total sample size of 384 reached only 258 completed and returned the questionnaire giving a retrieval rate of 67%. The study elicited data using a 24 items structured questionnaire designed in a five points Likert scale. The three hypotheses earlier formulated were tested using simple linear regression. Findings from the research revealed that there is significant positive relationship between the application of information and communication technology and performance of commercial banks in Kogi state. The study specifically revealed that there is significant positive relationship between mobile banking and efficiency ( $r = .083$ ,  $p\text{-value} < 0.05$ ), there is significant positive relationship between internet banking and competitive advantage ( $r = .078$ ,  $p\text{-value} < 0.05$ ) and there is significant positive relationship between telephone banking and cost reduction ( $r = .089$ ,  $p\text{-value} < 0.05$ ). Premised on the findings, this research therefore recommends that the application of information and communication technology tools should not only be sustained in the commercial banks in Kogi state but its infrastructure should be improved through innovative techniques so as to ensure improved performance of the banking sector in Kogi State.*

**Keywords:** Information, Communication, Technology, Performance, Banks.

### **Introduction**

Commercial organizations across the globe have started understanding that for effective operation of their business and customer service delivery processes there is need to integrate the use of information communication technology (ICT) (Dabwor et al, 2017), Thus, business practices and human resource practices and policies have been changed through the innovative actions occasioned by information communication technology. Information and communication technology has a scope of operation therefore making its target market fit for the effectiveness of its routine operations (Nwakoby et al, 2018). Though, the benefits of information communication technology in the industrialized nations have been acclaimed to be very impressive than in the developing countries (Muia, 2017; Nwankwo & Agbo, 2021), The application of Information and Communication Technology still provides enormous potentials for enhancing performance of commercial banks thus the application of information communication technology tool in carrying out customer service

delivery at therefore propel service delivery of commercial banks Kogi State (Kawugana & Faruna, 2018). Mensah (2016) noted that performance of might have also been attributable to business environment that became relatively flexible to integrate new forms of technological changes. Apart from information communication technology helping the banks in effectively communicating with their customers, information and communication technology in the banking sector include the application of mobile banking, internet banking and telephone banking. These operations by the banks greatly influence performance in form of efficiency, competitive advantage and cost reduction. The goal of every firm is to meet the needs and aspirations of the stakeholders' expectations not only ensure the survival of the firms but also allow these banks to flourish. Therefore, customers are presumed to be one of the most important stakeholders in any organization because without the customers organizations are not likely to succeed (Popola et al, 2018). Thus, the basic reason for a firm's existence is to satisfy the needs of the customers through efficiency, competitive advantage and cost reduction thereby leading to repeat purchase and customer retention (Appah & Bambo, 2012). Customer service delivery (CSD) practice helps enhance a firm s competitive positioning, enhance reliability, courtesy, and access to good services (Oludayo, 2020).

Additionally, customer service is a service given to a customer once he has made his decision to buy. It is the belief that customer service delivery is an effective tool for achieving positive organizational performance which then reflects an increase in firm performance such as profit maximization, improved business goodwill, better product and service delivery. In the competitive environment, retaining customer is a very challenging tasks because firms compete by providing distinctive services to attract new customers and retain the existing ones (Nzewi et al, 2023). The continual survival of any firm highly depends on the quality-of-service delivery mechanism and the relationship with its customers and organizations should therefore develop effective relationship marketing to understand the requirement of their customers. The application of effective service delivery is vital in the current fierce competition because when there is proper communication and smooth relationship with customer's firms strives to retain their customers. Additionally, firm performance has been the most important issue for every organization be it profit or non-profit organization. It has been very important for Managers and other critical Stakeholders to identify which factors influence organization s performance in order for them to take appropriate steps to not only initiating such but to also sustain them. Considering the enormous benefits that are experienced by business organization particularly commercial banks the use of information and communication technology, its application requires a hitch free utilisation. However, it has been observed that despite the application of information and communication technology the customers satisfaction has not been fully attained. This is evident by the persistent complaint and dissatisfaction in recent time. This suggest that the performance of commercial banks has been adversely affected thus through study examine the extent in which the application of information and communication technology influences the performance of commercial banks in Kogi State.

### **Objectives of the Study**

The major objective of this study is to examine the impact of Information Communication Technology on the performance of commercial banks in Kogi state. However, the research is set to accomplish the following specific objectives;

1. To examine the relationship between mobile banking and efficiency in commercial banks, Kogi State.

2. To determine the relationship between Internet banking and competitive advantage in commercial banks, Kogi State.
3. To evaluate the relationship between telephone banking and cost reduction in commercial banks in Kogi State.

### **Statement of Hypotheses**

This study formulates the following hypotheses in their null form to guide the research.

H<sub>1</sub>: Mobile banking has no relationship with efficiency in commercial banks, Kogi State.

H<sub>2</sub>: Internet banking has no relationship with competitive advantage in commercial banks, Kogi State.

H<sub>3</sub>: Telephone banking has no relationship with cost reduction in commercial banks in Kogi State.

## **Literature Review**

### **Conceptual Review**

Information and communication Technology (ICT) has become a dynamic avenue driving the nation's economy (Okonkwo et al, 2018). Hence, it has become significant for the growth of the entire economy. Olaleye and Fashina (2019) see Information and Communication Technology as the automation of processes, control, and information production using computer system, telecommunications, software and ancillary equipment such as internet, mobile phone, telephone, automated teller machine and debit cards. Therefore, Information Communication technology generally covers the harnessing of electronic technological devices for the information required for a business at all levels. Therefore, Information communication technology is the conveyance or transmission of information from one point to another through an online medium.

In addition, Oludayo (2020) sees Information and Communication Technology (ICT) as the automation of processes, controls, and information production using computers, telecommunications, software and other electronic gadget that ensure smooth and efficient running of business operations. Oludayo (2020) also argued that it largely covers the coupling of electronic technology for the information requirements of business transactions at all levels. ICT has surpassed the pivotal role of support services or only electronic data processing; its area of applications is slightly global and broader than ever. Its devices especially the Internet and modern electronic email facilities have further strengthened emerging modernization like the telephone and fax. Thus; other ICT devices include data recognition equipment, factory automation hardware and services, tele-computing and teleconferences using real time and online system (Boateng & Nagaraju 2020).

Additionally, Born and Breitung (2016) conclude that the merging of computer and telecommunication after about four decades of applying electronic devices to routine data processing mainly in information storage and retrieval, has created a new development where information has become the engine of growth across the world. Thus, this development has created catch-up opportunities for developing nations such as Nigeria to pursue the desired levels of development without necessarily reinventing the wheels of economic prosperity. This new technology has brought far-reaching revolution in societies, which has tremendously transformed most business transaction (telecommunications) (Dehgham et al, 2015).

The concept of Information and Communication Technologies entails a global interconnected network providing free exchange of information. It Implies the most pragmatic application of information communication technology as medium of universal communication platform is critical

to the performance of commercial banks (Higgins 2021). More so, information and communication technology has brought unprecedented changes in the modern society. Spanning the entire globe, this has refocused the techniques of communication, tasks, research, academic, human interaction, sport, entertainment, politics, health, trade, agriculture and commerce. The versatile facilities and opportunities created by the ICT led to the introduction and advancement of electronic commerce.

Information and communications technology (ICT) is an extended term used for information technology (IT) which stresses the significant role of unified communications and the integration of telecommunications (internet, telephone lines as well as wireless signals), computers as well as necessary software application, its storage and the audio-visual systems which enable all users to access, store, transmits, and manipulate information willingly. The term ICT is also used to refer to the combining of audio-visual and telephone networks with computer networks through a single cabling or link system. There are large economic incentives such as huge cost savings due to elimination of the telephone network to merge the telephone network with the computer network application system using a single unified system of cabling, signal distribution and management and such is common in the commercial banks. However, ICT has no universal concept because the concepts, techniques, methodology and applications involved in ICT are constantly evolving on an almost routine basis." The broadness of ICT covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form such as Personal computers, digital television, email and even the current day robots.

Electronic banking consists of the following, mobile banking, internet banking and telephone banking.

The mobile banking involves the application of mobile phone for settlement of financial transactions, it supports person to person transfer with an instantaneous availability of funds for the beneficiary, mobile payments use the card infrastructure for movement of payment instructions as well as secure short message services for confirmation of receipt to the beneficiaries. Thus, mobile banking is meant for low value transactions where speed of completing the transaction is critical, mobile payment have a very exciting potential within the nation, given the low infrastructure requirements and a rapidly increasing mobile phone penetration. The services covered under this product according to Hsiao (2022) include account enquiry, funds transfer, recharge phones, changing of passwords and bill payment which are offered by few commercial institutions.

According to the research report on the survey of developments in the e-payments and service products of commercial banks and other financial institutions in Nigeria it was resolved that several institutions offered these with services experienced very low patronage by the customers for funds transfer.

Internet banking involves conducting banking transactions such as account enquiry, printing of statement of account; funds transfer payments for goods and services on the internet (World Wide Web) using electronic platform such as the computer without physically visiting the banking hall. Electronic commerce is greatly facilitated by internet banking and is mostly used to effect payment, internet banking also uses the electronic card infrastructure for executing payment instructions for final settlement of goods and service over the internet between the merchant and the customer, currently the most common internet payments are for consumer bills and purchase of air ticket through the websites of the merchants.

These are banking services which a customer of a financial institution can assess using a telephone line as a link to the financial institution's computer centre. Services rendered through telephone

banking include account balance, funds transfer, change of pin, and recharge phones and bills payment. Telephone banking which is also described as phone banking is seen as the kind of banking services provided by the banks or other financial institutions through the phone devices. (Edna et al, 2021 & Acho et al, 2021).

Performance is seen as the achievement or accomplishment of a firm based on its stipulated desired immediate and desired objectives. Thus, performance is seen as the total outcome of a bank through its key indicators such as efficiency, competitive advantage and cost reduction mechanism. Efficiency is seen as the optimal utilization of business resources such as material, finance, time, personnel with the aim of attaining the firm immediate and strategic objectives. Thus, Uchenna et al (2021) noted that efficiency could be seen as technical efficiency, allocative efficiency, economic efficiency and dynamic efficiency. Therefore, business performance could be measured with efficiency which also translate into competitive advantage and cost reduction.

## **Theoretical Framework**

### **Commitment-Trust Theory**

The Commitment-Trust Theory (CTT) is seen as a framework in Relationship Marketing applied to describe the strategic relationship in the context of business-to-business marketing scenario. Thus, Grant (1991) and Deyoung (2015) posit that such relies on trust that both parties will act in the most beneficial manner as well as commitment which reflects the desire to persistently maintain such relationship. Therefore, such relationship is anchored on the desire to pursue and maintain mutual benefits from such interaction. More so, that in pursuing such a relationship the key stages involved awareness, exploration, expansion as well as commitment. This implies that with such conscious commitment in executing business relationship, it involves communication, cooperation, independence and shared value. This scenario leads to building of mutual trust through consistent behaviour, improved open business communication, development of cooperative relationship and presence of relationship commitment. This theory on the impact of information communication technology on the performance of commercial banks in Kogi state is anchored on the theory of commitment trust theory owing to its relevance and practical reality.

### **Research Methodology**

The Researcher adopt the descriptive research survey technique. This technique is adopted as a survey research technique in which responses were collected and analyzed relying on empirical data. Additionally, this study which examines information and communication technology and performance of commercial banks involved collecting data through primary sources. The primary data obtained is through a twenty-four items structured questionnaire. The population of this study are the customers of the selected commercial banks such as United Bank for Africa plc, Union bank of Nigeria, Ecobank plc, Zenith bank and First bank of Nigeria who resident in the study area. The population is considered infinite considering the fact that determining the total population is difficult if not impossible owing to the fact that some customers were operating more than one of these commercial banks, some utilizes more than one of these facilities thus ascertain a definite figure becomes difficult while in some respondents are mobile. Thus, researchers adopt Krajcie and Morgan sample size determination statistical formula for an infinite population.

The Krajcie and Morgan formula denoted as.:

$$n = \frac{Z^2 (P) (1 - P)}{\dots}$$

$$E^2$$

Where n = Sample size

Z = Confidence level 5 % = 1.96

P = Percentage of population (0.5%)

E= Error margin = 5 % (0.05)

$$n = \frac{1.96^2 (0.5) (1-0.5)}{0.05^2}$$

$$n = \frac{3.8416 (0.5) (1 - 0.5)}{0.0025}$$

$$n = \frac{0.9604}{0.0025}$$

$$n = 384$$

However, out of the total of 384 questionnaires distributed only 258 were duly completed and retrieved giving a response rate of 67%. The research adopts the systematic sampling technique so that every respondent could be given equal chances of representation.

The questionnaire was the major source of primary data; the study designed a twenty-four items structured questionnaire. The questionnaire contained research questions bordering on both independent and dependent variables. The questionnaire was designed in a five- point Likert-scale responses of strongly agree (5), Agree (4), Undecided (3), Disagree (2) and strongly disagree (1) were used. The research employed the services of three trained Research Assistants who helped in the administration of the research questionnaire.

Therefore, the research questions were analyzed using a five - point's Likert-scale with the decision rule to accept any mean value with 3.00 and above.

The inferential or parametric statistics used in testing the three hypotheses is the simple linear regression analysis which is an inferential technique of examining the strength of relationship between the independent and dependent variables. This process was aided with the statistical package for social sciences (SPSS).

### **Reliability of the Instrument**

Reliability of this study was carried out to determine the internal consistency of the research instrument. Therefore, Uchenna et al (2022) argued that an instrument is reliable if it gives similar outcomes under consistent circumstances. Uchenna et al (2022) further concluded that any coefficient of reliability that is up to 0.70 and above is considered reliable. In testing the reliability of the research instrument, the researcher conducted a pilot study by distributing questionnaires numbering twenty (20) to the target respondents through the help of the trained Research Assistants; the Cronbach Alpha coefficient measure of internal consistency was adopted. The reliability of the research instrument using Cronbach alpha reliability test with the Statistical Package for Social Sciences (SPSS) yielded the result of 0.87 for items on independent variable, 0.76 for items on

dependent variable thus giving the average reliability result of 0.82. The reliability result is showed in table 1.

**Table 1. Reliability Statistics**

Proxies/ Independent Variable	Number of items	Cronbach Alpha
Independent variable	12	0.87
Dependent Variable	12	0.76

Source: SPSS statistical analysis

The table revealed that all the variables have Alpha Values above 0.70. Thus, in line with the submission of Uchenna (2022) the instrument is deemed reliable.

### Data Presentation and Analysis

**Table 2. Descriptive Statistics on Information and Communication Technology**

Indices	Mean	Std. Deviation	N
MB	3.58	1.11	258
IB	3.63	1.21	258
TB	3.31	1.12	258

The table shows the selected scale mean lies within the accepted range; therefore, they are of high extent and the research can conclude that data obtained and analyzed is significant and reliable. More so, in order to ascertain the variability of the data the standard deviations of both variables were examined. The mean for mobile banking (MB) is 3.58 and the standard deviation is 1.11, the mean for internet banking (IB) is 3.63 and the standard deviation is 1.21 and the mean for telephone banking (TB) is 3.31 and the standard deviation is 1.12, hence all variables lie within the value of high extent as indicated by their corresponding means and standard deviations which are closely related.

**Table 3. Descriptive Statistics on Performance of Commercial banks**

Indices	Mean	Std. Deviation	N
E	3.65	1.02	258
CA	3.02	1.04	258
CR	3.82	1.16	258

The table shows the selected scale mean lies within the accepted range; therefore, they are of high extent and the research can conclude that data obtained and analyzed is significant and reliable. More so, in order to ascertain the variability of the data the standard deviations of both variables were examined. The mean for efficiency(E) is 3.65 and the standard deviation is 1.02, the mean for competitive advantage (CA) is 3.02 and the standard deviation is 1.04, the mean for cost reduction is (CR) is 3.82 and the standard deviation is 1.16, hence all variables lie within the value of high extent as indicated by their corresponding means and standard deviations which are closely related.

## Test of Hypotheses

### Hypothesis 1

H<sub>0</sub>: There is no significant relationship between mobile banking and efficiency.

Table 4. Summary of Regression Results and other Statistics

Regression		Mobile banking	Df	F
Coefficient	0.023	0.004	1	1022.112
P. value	0.000	0.000	257	
R	0.83		258	
R <sup>2</sup>	0.69			

Source: Research Data analysis, 2025

The *F*-ratio in the table 4 shows that the variables of mobile banking statistically significantly predict efficiency,  $F(1, 257) = 1022.112, p < .0005$  (this means that the regression model is a good fit of the data). Again, summary of regression equation (model formulated) and the result shows that R is 0.83 which is close to 1.00 meaning that it is useful for making prediction. The goodness of fit revealed that it has a good fit of R with 83% and R<sup>2</sup> of 69% meaning that total variations in mobile banking is explained by variations in efficiency. Thus, all the estimated parameters predicting the value of efficiency outside mobile banking is 17% (i.e. 100- 83 which is statistically insignificant. Therefore, this implies that the independent variable (mobile banking) contributes to the prediction of the dependent variable of about 83% with p- value of 0.000 which is less than 0, 05 affirming that there is a significant positive relationship between the independent and dependent variables.

### Hypothesis 2

H<sub>0</sub>: There is no significant relationship between internet banking and competitive advantage.

Table 5 Summary of Regression Results and other Statistics

Regression		Internet banking	Df	F
Coefficient	0.022	0.08	1	1154.11
P. value	0.000	0.000	257	
R	0.78		258	
R <sup>2</sup>	0.61			

Source: Research Data analysis, 2025

The *F*-ratio in the table 5 shows that the variables of internet banking statistically significantly predict competitive advantage  $F(1, 257) = 1154.11, p < .0005$  (this means that the regression model is a good fit of the data). Again, summary of regression equation (model formulated) and the result shows that R is 0.78 which is close to 1.00 meaning that it is useful for making prediction. The goodness of fit revealed that it has a good fit of R with 78% and R<sup>2</sup> of 61% meaning that total variations in internet banking is explained by variations in competitive advantage. Thus, all the estimated parameters predicting the value of competitive advantage outside internet banking is 22% (i.e, 100- 78) which is statistically insignificant. Therefore, this implies that the independent variable (internet banking) contributes to the prediction of the dependent variable of about 78% with p- value of 0.000 which is



less than 0, 05 affirming that there is a significant positive relationship between the independent and dependent variables.

### Hypothesis 3

H<sub>0</sub>: There is no significant relationship between telephone banking and cost reduction.

Table 6. Summary of Regression Results and other Statistics

Regression		Telephone banking	Df	F
Coefficient	0.014	0.06	1	1388.181
P. value	0.000	0.000	257	
R	0.89		258	
R <sup>2</sup>	0.79			

Source: Research Data analysis, 2025

The *F*-ratio in the table 6 shows that the variables of telephone banking statistically significantly predict cost reduction,  $F(1, 257) = 1388.181, p < .0005$  (this means that the regression model is a good fit of the data). Again, summary of regression equation (model formulated) and the result shows that *R* is 0.89 which is close to 1.00 meaning that it is useful for making prediction. The goodness of fit revealed that it has a good fit of *R* with 89% and *R*<sup>2</sup> of 79% meaning that total variations in telephone banking is explained by variations in cost reduction. Thus, all the estimated parameters predicting the value of telephone banking outside cost reduction is 11% (i.e, 100- 89) which is statistically insignificant. Therefore, this implies that the independent variable (telephone banking) contributes to the prediction of the dependent variable of about 89% with *p*- value of 0.000 which is less than 0, 05 affirming that there is a significant positive relationship between the independent and dependent variables.

### Conclusions

In line with findings from this research, the result has shown that the application of information communication technology has been able to enhance customer service delivery. More so, the information and communication technology (ICT) has been utilized using internet banking tools, mobile banking and telephone banking. The study also concluded that a business that caters for their customers' needs will inevitably attract the loyalty of their customers, therefore resulting in repeat patronage, customers' retention as well as potential referrals. In conclusion, the research conclude that effective service delivery provision will positively affect customer service delivery and improved performance through the application of information and communication technology tools. Therefore, effective utilization of internet banking, mobile banking and telephone banking enhances the performance of commercial banks in Kogi state in form of efficiency, competitive advantage and cost reduction.

### Recommendations

Based on the empirical evidences from this research on the impact of information and communication technology on the performance of commercial banks in Kogi State, the research recommends that the application of internet banking should be strengthen through continuous improvement of the bank's infrastructural facilities. Through this measure, the customers will be able to fully utilize this facility which will thereby lead to sustainable customers' satisfaction and efficiency in the banking

sector. Additionally, the study recommends that provision of mobile banking facilities should not only be sustained but be improved but be sustained as through this measure the customers will have confidence in titillation of such facilities which will by extension leads to improved patronage and bank performance. Finally, considering the pivotal role of telephone banking application towards the attainment of performance of commercial banks the research recommends that the application of telephone banking should not only be sustained but incentives be provided to encourage bank customers to utilize its resources considering the fact that such will enhance performance of banks sustainably. `

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