

# IMPACT OF INFORMATION COMMUNICATION TECHNOLOGY ON ORGANIZATIONAL PRODUCTIVITY IN THE NIGERIA BANKING INDUSTRY: EMPIRICAL EVIDENCE

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**ABSTRACT:** Information Communication Technology has been acknowledged as the building block for any organization in order to maximize profit, ensure customer satisfaction and minimize cost. This study was aimed to determine the impact of information communication technology on organizational productivity in the Nigeria banking industry. Questionnaire was employed as a method of data collection of the study, while multiple regression analysis was used to test the hypotheses under study. The result of the study indicates that hardware component, software component and network have significant and positive impact on organizational productivity in the Nigeria banking industry. The study recommends that banks should acquire or make use of modernized and 21st century software, hardware, and network in order to increase organizational productivity and customer satisfaction which will eventually resulted to diversification of the organization.

**Keywords:** Information Communication Technology, Organizational Productivity.

## 1. INTRODUCTION

Productivity is a measure of the efficiency of production. Employing information communication technology (ICT) into production activities enhanced and increased in workers' productivity. The upward shift of aggregate economic productivity leads to increase in gross domestic product and export of a nation in general. Increase in labor productivity per hour worked is the key measure of well utilization of economic resources by manufacturing companies which enable sustainable income, standard of living and consumption in an economy (Sadun and Reenen, 2005). ICT has transformed the way businesses are conducted by impacting on almost all aspects of business operations including product development, automation of processes, storage of customer data, communication and interaction with customers and suppliers. In today's global and dynamic competitive environment, organizations are leveraging on technology to innovate. ICT innovation is becoming more and more relevant, mainly as a result of three major trends; intense international competition, fragmented and demanding markets and diverse and rapidly changing technologies (Wheelwright and Clark, 1992).

Firms that offer innovative products adapted to the needs of target customers or firms that are quick market new products and are more efficient than their competitors are in a better position to create a sustainable competitive advantage. In recent decades the discussion of outfit and proper distribution of resources in economic sectors of the society is considered as one of the most important issues low wages (Adenutsi, 2010). Particularly, in the process of economic development, optimal use of physical and mental labor force plays a vital role, setting a superior goal for the planners in order to increase the rate of effective employment in the country.

On the other hand the issue of globalization and information technology development is now defined as an inseparable part of development, following rapid changes occurred in developed as well as

developing countries with respect to information technology equipment. The economists believe that during the last two decades, new technological paradigms based on information and communication technology (ICT), especially economical application of internet, could bring about a positive change in the field of creating employment opportunities and promoting labor force markets (Olise *et al.*, 2014). Nowadays the need for the development of ICT is a global resolution and has been a subject of great significance to all mankind (Al-Azzawi and Altmimi, 2015). These technologies have become central to contemporary societies. Whether one is talking on phone, sending an email, going to the bank, using a library, listening to sports coverage on the radio, watching the news on television, working in an office or in the field, going to the doctor, driving a car or catching a plane, one is using ICTs. Technology is usually considered as any sort of knowledge, creativity, invention, machinery and equipment community life (Onasanya *et al.*, 2010).

Information communication technology is vital to any organization (Al-Azzawi and Altmimi, 2015). Successful and quality ICT can bring enhanced efficiency and effectiveness in operation, possible better business performance and stronger organizational culture. According to Stair and Reynolds (2010), Information system means not only to capture, process and disseminate information but good and quality information Communication technology. Quality information system is a system which contains relevance, accurate, complete, comprehensive, detail, flexible, reliable and timeliness information so as to ensure streamline its operations into a cohesive functioning unit, support business decision-making by providing management with critical data, and they serve to enhance the organization's communication, reduce human labor, support short and long-term organizational goals, improving employees' productivity and distribute complex information. However, not all ICT have been successful in achieving efficient and effective organization performance.

Despite the positive contribution of ICT to economic productivity and development, a developing country like Nigeria is still lagging behind in using ICT in production activities. Nigeria is faced with enormous problems of ICT which had continued to nose dive Nigeria economy as a result of challenges in terms of building IT related to production functions. It is evident that Nigeria economy lack innovation, capacities and capabilities in ICT management, these have resulted to low economic productivity and performance in Nigeria as a whole. As also posited by Hawash (2010) that developing countries lack complementary assets necessary in order to benefit from the payoff of ICT investments such as the needed infrastructure and the knowledge base which is essential to support the effective use of ICT. Nigerian economy is labor intensive that is using more human resources than capital resources (investment). An economy that is under or optimum populated will used more of capital resources than human resources, but in a country that is over populated, if capital resources are used in the production processes than human resources such economy will experienced high rate of unemployment and criminal act. Nigeria government should be at equal usage of both capital and labor intensive, so as to prevent high unemployment rate. The organization environment determine return of ICT on production activities of a firm, manufacturing companies faced the problem of poor awareness ICT, lack of recognition, inadequate staff training, lack of technological support and supervising will not optimally achieved ICT returns. Sadun and Reenen (2005) noted that old style organization are characterized by large bureaucracies, rigid and centralized hierarchies where decision made by senior managers are cascaded down application ,inadequate power supply, low remuneration to people below. These firms have on average, produced much lower returns to IT than more organic flexible firms with flatter hierarchies, less centralized control and more autonomy for lower level employees, i.e. management structure and style could also be a problem to productivity.

Sadun and Reenen (2005) also mentioned that there are other factors that unable an organization to achieve higher productivity return from ICT usage like old style management structure and system in which decisions are centralized, working environment and unskilled or uneducated labor. Hawash (2010) indicates that developing countries lack complementary assets necessary in order to benefit from the payoff of ICT Investments such as the needed infrastructure and the knowledge base which is essential to support the effective use of information technology.

The broad objective of the study is to evaluate the impact of information communication technology on organizational productivity in the Nigeria banking industry, while the specific objectives of the study are as follows:

1. To determine the impact of software component on organizational productivity.
2. To examine the impact hardware component on organizational productivity.
3. To investigate the impact of network on organization productivity

## **1.1. Research Hypotheses**

H<sub>1</sub>: There is significant and positive impact of software on organizational productivity.

H<sub>2</sub>: There is significant and positive impact of hardware on organizational productivity.

H<sub>3</sub>: There is significant and positive impact of network on organizational productivity.

The research covers aspect of information communication technology and organizational productivity in the Nigeria banking industry and the study jurisdiction including its dimension such as software, hardware, and network. The study is within first bank PLC in Kano State Nigeria. The study serve as a reference for justifying investment in technology and to dispel the fear that bank were suffering from productivity paradox experience in other industries. The result of the study will also be invaluable to researchers and scholars, as it will form a basis for further research. The student and academics can used this study as a basis for discussion on the ICT by banking industries in Nigeria.

## **2. LITERATURE REVIEW**

### **2.1. Organizational Productivity**

Organizational productivity is identified as the foundation for economic prosperity, a prerequisite for national development and also an important indicator of organizational competitiveness. The process represents the functions or primary activities engaged in by manager. These functions are typically labeled planning, organizing, leading, and controlling. Each organization has certain objectives and main objective of every organization is to earn profits by increasing performance (Shaukat, 2012). Sushil and Agrawal (2013) stated that organizations composed five major components, organizational structure, & corporate culture, management & business processes, organization's strategy, individuals and roles. These components are in stable condition, called equilibrium, as long as no significant changes occur in the environment or in any of the components. However, as soon as a significant change occurs, the systems become unstable and it is necessary to adjust some or all of the internal components since all are inter-related. The performance as stated by Wheelen and Hunger (2000) is an end result of an activity and an organizational performance is accumulated end result of all the organization's work process and activities. Managers measure and control organization performance because it leads to better asset management, to an increased ability to provide customer value, to improve measures of organizational knowledge and measure of organizational performance do have an impact on an organization's reputation. However term productivity is often confused with the term production many people think that the greater the production the greater the productivity this is not always true. The meaning of productivity and production are different, .production is concerned with the activity of production good and service, but productivity is defined with the efficient application of resource in producing good and service.

### **2.2. Information Communication Technology**

ICT is an umbrella term used to define a collection of telecommunication devices, computer hardware and software. According to Chaffey and White (2005) ICT refers to software applications that captures, manipulates and allows access to information, hardware that helps run installed applications and telecommunication devices and networks that facilitate transfer of information within an organization and beyond. ICT has transformed the way businesses are conducted by impacting on almost all aspects of business operations including product development, automation of processes, storage of customer data, communication and interaction with customers and suppliers. In today's global and dynamic competitive environment, organizations are leveraging on technology to innovate. ICT innovation is becoming more and more relevant, mainly as a result of three major trends; intense international competition, fragmented and demanding markets and diverse and rapidly changing technologies Wheelwright and Clark (1992). ICT on the other hand refers to a wide range of computerized technologies that enables communication and the electronic capturing, processing, and transmission of information. These technologies include products and services such as desktop computers, laptops, hand-held devices, wired or wireless intranet, business productivity software, data storage and security, network security etc. Ashrafi. and Murtaza. (2008).

The ICT contribute to economic activities through increase in aggregate productivity which will cause improvement on economic growth and development (Laudon and Laudon, 2012). Ardalan (2011) suggested that ICT is the bedrock for organization and national survival and development on a rapidly changing global environment. Adewoye and Akanbi (2012) stated that ICT is a complex and

heterogeneous set of goods, application and services used to produce, distribute, process and transform information. ICT is reliable to human resources and infrastructure which constitute the fundamental tools and means of assessing, planning, managing development and for achieving sustainable economic activities and growth. Technological development have changed the majority of wealth creating work from physical effort based to knowledge effort based and enable manufacturing organization to know the value of ICT to their firms by offering business opportunities over competitors in the market. For a manufacturing organization to survive in the global competition or market, organization must improve and acquired ICT skills in the production processes so as to achieve high rate and improvement on workers' productivity. (Agbolade, 2011).

### **2.3. Theoretical Background of the Study**

The theories that will guide this research are the theory of planned behavior and socio-technical systems theory. The Theory of Planned Behavior (TPB) proposes that a person's intention to perform certain behavior is the central determinant of that behavior because it reflects the level of motivation a person is willing to exert to perform the said behavior (Teece *et al.*, 1997). A fundamental principle of socio-technical systems thinking is that a technology on its own has little meaning for purposes of organizational performance analysis. It can only be understandable in terms of the context in which it was embedded and the organizational goals or transformations that it serves or enables (Rothwell, 1992). Socio-technical systems theory argues that a network of social relationships surround all working practices (cooperation among workers over the course of a task or activity, supervisory relationships, and general social interaction). Productive application of any technology relies heavily on the ability and willingness of users to employ it for worthwhile tasks. This study, applied the TPB model and socio-technical systems theory as a theoretical background of the study.

### **2.4. Empirical Review of Literature**

Taleghani *et al.* (2013) examined the impact of information technology application on personal empowerment of social security organization in Guilan province Iran. The result of the study shows that there is significant relationship between hardware, software, network, database, and empowerment of employee. Al-Azzawi and Altmimi (2015) investigated the effect of information and communication technology investment on the profitability of the Jordanian commercial banks. The result of the study indicated a positive effect between investment in information and technology and the performance of the Jordanian commercial bank. Akomea-Bonsu and Sampong (2012) examined the impact of information and communication technology (ICT) on small and medium scale enterprises (SMEs) in the Kumasi metropolis Ghana West Africa. The result of the study found significant positive relationship between ICT and small and medium scale enterprises.

A study by Ayatse (2012) investigated the impact of information communication technology (ICT) on corporate performance. The result of the study show that ICT has positively contributed to cooperated performance. Pirzada and Ahmed (2013) study the effect of new technology on firm business objective. The result of the study indicate that new technology have a strong relationship with firm business objective. Hawajreh and Sharabati (2012) investigated the impact of information technology on knowledge management practice in Jordan. The result of the study shows that there is positive and significant relationship between information technology and knowledge management practice. (Onu *et al.*, 2015) examined the effect of information communication technology investment on organizational productivity and growth of small and medium scale enterprises in developing countries. The result of the study shows that positive and significant effect exists between independent variable and dependent variable of the study.

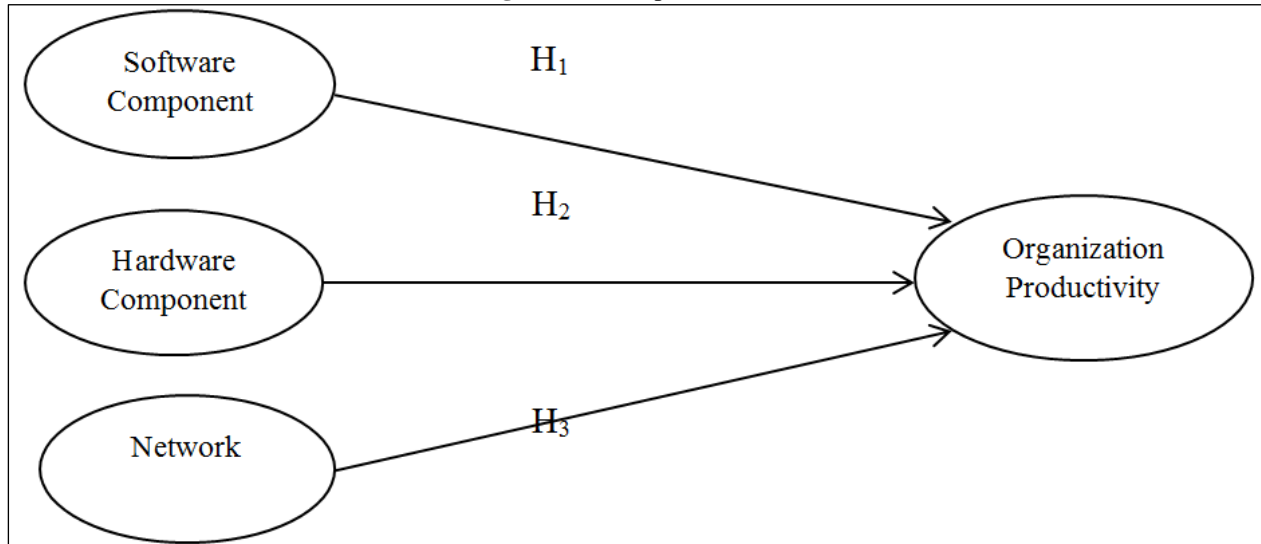
Hailu (2014) determine the impact of information system (IS) on organizational performance with reference to ethio-telecom Southern region, Hawassa, Ethiopia. The result of the study show that top management commitment facilities, skilled man power, information ethic, quality system, user perception, significantly affect organizational performance. Another similar empirical study show that information and communication technology have significant positive effect in innovation activities of companies Penalba (2015). Similar study by Alabar and Agema (2014) indicated that the information and communication technology have significant influence on customer satisfaction. Sepehrdoust and Khodae (2013) found positive and significant effect between ICT and employment selected of Selected OIC Countries. Olise *et al.* (2014) investigated the determinant of ICT adoption for Improve SMEs performance in Anambra state Nigeria. The result indicated that there is positive and significant relationship between dimension and SMEs performance. Binuya and Aregbehola (2004) findings of the

study indicated that the use of ICT increased return on capital employed as well as return on asset of south African banking industry and the study discover more of the contribution come from ICT cost efficiency.

## 2.5. Framework of the Study

The objective of the research is to study the impact of information communication technology (ICT) on organizational productivity. After consider the research question, objectives and review of literature, and the theory guiding the study variables of the study are identified. The framework was formed to shows the effect of independent variables on dependent variable. Therefore the model is stipulated below:

Figure 1: Conceptual Model



Source: Author

## 3. METHODOLOGY

The research design used for this study was descriptive survey research design. This type of research attempts to answer questions about the current status of the subject of the study. According to [Sekaran and Bougie \(2013\)](#) population refers to the total or entire group of people or element of interest that the research wishes or want to investigated or discover. Therefore, the population of the study consists of First Bank in Kano State, Nigeria whereby five (5) branches of First Bank in the focused study area were purposively selected for the study. Three (3) branches are selected from the population as a sample size through simple random sampling, which enable the researcher to reduced bias in sample size selection from the population of the study. For the purpose of this study three (3) branches of First Bank in Kano State Nigeria. A non-probability sampling technique was chosen which involve convenience sampling techniques to determine the respondents of the study which was capture based on the intuition of the researcher. Therefore, 140 respondents serve as the sample size out of 220 focused population of the study which was intuitionally captured. Close-ended questionnaire (primary data) was used as the method of data collection of the study with 1-5 Likert scale that consist of Strongly Disagree, Disagree, Neutral, Agree and Strongly Agree. Multiple regression analysis was used in order to test the hypothesized model of the study.

## 4. RESULT AND DISCUSSION

This section presents the result of data analysis in this study. Descriptive statistics, test of reliability and regression result are presented and analyzed, and then recommendations were drawn from the findings of the study.

### 4.1. Descriptive Profile of the Respondents

The respondents were asked to explain their demographic information which includes their qualification/ educational level, gender, age bracket, position / rank, working experience.

**Table 1.** Socio-Demographic Characteristics of the Respondent

Category	Frequency	Percentage (%)
<b>Gender</b>		
Male	62	62
Female	38	38
Total	100	100.0
<b>Educational qualifications</b>		
ND/OND	40	40.0
BSc/HND	53	53.0
Masters	7	7.0
Total	100	100.0
<b>Position</b>		
Owner	17	17.0
Manager	3	3.0
Others	79	79.0
Total	100	100
<b>Working Experience</b>		
Below 5 year	29	29.0
6- 25 years	39	39.0
26-10 years and Above	22	22.0
Total	100	100.0

**Source:** Field Survey (2017)

The [Table 1](#) above indicated that respondents in the study are mostly males representing 62% of the respondents, while females represent 38% of the respondents. The Table indicated that majority 53.0% of the respondents had a B.Sc./HND, 40.0% of the respondents had ND/OND and 7.0 % of the respondent holds masters. The [table 1](#) indicated that respondent in the study are mostly owner representing 17 % while manager represent 3% and other representing 79 %. The above Table also indicated that respondents below 5years working experience with the frequency of 29(29%), followed by 6-25 years with 39% and finally, 26-10 years and above with 32%.

#### 4.2. Reliability Test

The Cronbach alpha coefficient test was carried out to measure the internal consistency reliability. [Table 4.7](#) present the summary of the reliability test result.

**Table 2.** Reliability Test

Variables	Number of Items	Cronbach Alpha
Organizational productivity	4	0.778
Hardware component	5	0.779
Software component	5	0.774
Networking	5	0.777

**Source:** Generated from SPSS Output (2017)

The [Table 2](#) above shows the reliability result as generated using SPSS. The study relies on Cronbach Alpha’s coefficient to determine the reliability of items involved. A Cronbach Alpha’s coefficient value that is less than 0.6 is considered poor; 0.6 to 0.8 considered acceptable, and anything above 0.8 is considered good [Sekaran and Bougie \(2006\)](#). All the constructs involved in the current study obtained the required Cronbach Alpha’s coefficient values. There are 0.779, 0.774, and, 0.777 coefficients for hardware software component, and networking respectively. These are the components of the independent construct information communication technology. Similarly, there are 0.778 coefficients for organizational productivity.

**Table 3.** Regression Result

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	2.013	0.200		10.044	0.000
	Hardware	0.269	0.051	0.293	5.259	0.000
	Software	0.055	0.046	0.068	1.189	0.000
	Network	0.082	0.033	0.146	2.485	0.000
R	R <sup>2</sup>	Adj. R <sup>2</sup>	R <sup>2</sup> Change	F. Change	Sig.	
0.39	0.352	0.344	.152	17.990	0.000	

Source: SPSS Output (2017)

The results of regression analysis presented in [table 3](#) shows a significant  $R = 0.39$ , this implies that multiple regression coefficients between the predictors and the criterion was 39%, while  $R^2$  of 0.352 implies that predicting variables (ICT and organizational productivity) under the study were able to account or explain 35% variance in the dependent variable while the remaining 65% was not captured by this study. The results also shows adjusted  $R^2$  of 0.344 which implies organizational productivity were able to explain 34% variation in the performance. The significant F.test of (17.990,  $p < 0.000$ ) signifies that the overall significant prediction of independent variables to the dependent variable, this further implies that, p value of 0.000 has a model fitness in regressing the impact ICT on organizational productivity in the Nigeria banking industry.

In evaluating the model based on the regression result in [Table 3](#) software component has a value of ( $\beta = 0.55$ ,  $t = 1.189$ ,  $p < 0.000$ ), and the result shows that there is positive and significant impact of software component on organizational productivity in the Nigeria banking industry. This result shows that the hypothesis one was supported and the result found is consistent with the studies of [Ayatse \(2012\)](#), [Hawajreh and Sharabati \(2012\)](#).

Based on the regression result in [Table 3](#) hardware component as the predicting variable on organizational productivity with ( $\beta = 0.269$ ,  $t = 5.25$ ,  $p < 0.000$ ), it indicate that hardware component has positive and significant impact on organizational productivity in the Nigeria banking industry. The result shows that hypothesis two was supported and the result is consistent with the studies of [Onu et al. \(2015\)](#). However, network as the last predicting variable on organizational productivity with value of ( $\beta = 0.082$ ,  $t = 2.485$ ,  $p > 0.000$ ). The result indicated positive and significant impact of network and organizational productivity in the Nigerian banking industry. The result in [Table 3](#) shows that hypothesis 3 was supported and the result is also consistent with studies of [Al-Azzawi and Altmimi \(2015\)](#), [Taleghani et al. \(2013\)](#). Based on this result, among the three (3) predicting variables, hardware component is the variable that best predict the dependent variable with the value of ( $\beta = 0.269$ ,  $t = 5.259$ ,  $P < 0.000$ ), followed by the software component ( $\beta = 0.055$ ,  $T = 1.189$ ,  $P < 0.000$ ), and lastly, the network component with the value of ( $\beta = 0.082$ ,  $T = 2.485$ ,  $P < 0.000$ ).

## 5. CONCLUSION AND RECOMMENDATION

Base on the study the finding shows that there is significant and positive impact of factors of ICT such as hardware, software, network on organizational productivity. This means that application of information communication technology has an impact on organizational productivity, ultimately stepwise regression in application of information communication technology and the organizational productivity show that impact of software variable is more prominent. According to the result obtained, the following suggestion are recommended, the study recommend that bank should acquire or make use of modernized and 21<sup>st</sup> century software, hardware, and network in order to increase customer satisfaction and organizational productivity that will result to diversification of the organization. It is suggested that the management should increase the output of existing software, continual improvement and to identify reliable software of the department of information technology. It is also recommended for the management to change the current management platform of system to oracle Hardware in the future and necessitate to maintain the current system.

To raise productivity and global competitiveness, bank owners should invest in ICT and its component because they have proven to significantly influence organizational performance.

The study recommends banks to invest in ICT innovations in order to build capacity to design specialized products to serve niche markets. The introduction of innovative products and services like internet banking, mobile and agency banking does not just attract new customers but also improves on customer retention and loyalty. Most customers are moving towards self-service channels that are

accessible at all times. Such services can only be made available through innovative technologies and banks must strive to seize and capitalize on such opportunities.

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