THE EFFECT OF TECHNOLOGICAL CHANGE ON EMPLOYEE PERFORMANCE: A STUDY OF UNION BANK OF NIGERIA PLC OKO BRANCH

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ABSTRACT
The paper sought to investigate the effect of technological change on employee performance: a study of Union Bank of Nigeria Plc. Oko Branch. The paper tracks technological changes and the consequent performance changes along technological lines. The objectives of the study were identifying the degree of acceptance of information and communication technology in the banking sector, the contribution of technological change to the growth of the banking sector and to investigate if technological change is enhancing performance of employees in the banking sector. The research design was a descriptive survey. The population of the study was thirty six. The major instrument for data collection was the questionnaire. The method of data analysis was by the Chi Squared statistical tool. The findings were that; Technological change is accepted by management in banks, it has contributed to the social infrastructural development in the organisation under study and it has led to improvement of information in the bank which has improved their efficiency.

Key words: Technological change, employee performance, ICT, social process, banking.

Introduction
The search to ease the hardships in life especially the economic difficulties, has led to many innovative activities and inventive drives. Technology has created the tool and processes to accomplish various tasks that ease human activities and can lead to new products and new ways of doing things. Many businesses are using technology to stay competitive by creating new products and services and using technology to deliver these products and services to their customers. The thriving businesses use ICT advantageously, while the dying businesses either do not use ICT or they make use of it in a disadvantageous way (McNamara, 2011).

Information and communication technologies have become so important in the life of businesses that McNamara (2011) viewed ICT as the life wire of successful business ventures. Application of information and communication technology is capable of enhancing optimal performance in service delivery if appropriately carried out. Optimal utilization of facilities might be achieved if the design is done based on clear understanding of how the service is to be measured. Such measurement includes customers service rate, traffic intensity and the average number of customers in the queue. All these assist to make decisions on the level at which information and communication technology can be applied for an optimal performance in banking operations.
Information technology has vital importance in every field. To stay in business, and to meet customer’s needs, organizations have to adopt new practices and new technologies. Financial institutions remain the largest stakeholders in technology (Aliyu and Tasmin, 2012). For Jawad (2016), information technology infrastructures have brought great opportunities towards SMEs, improving their productivity and enabling them to compete against their larger enterprise adversaries. As technology changes, so does performance follow in a pattern that one imagines Chandler’s structure following strategies.

Imran (2014) believes that technological advancement is the process of combining and reorganizing knowledge to generate new ideas, but Mumford (2000) sees that, technological advancement comes from internal advancement which comes from employee capability. Technologies can only lead to increased productivity or improved performance when combined with other resources. For Nohria and Gulati (1996), technological advancement has enormous influence on employee performance, as such, most technological studies have shown a positive relationship between a firm’s technological advancement and performance.

For this to hold water, the place of the employee must not be relegated to the background. Jagero and Kemba (2012) hold that training helps the employees to achieve different task of the organization. As a systematic approach, it enables employees to change their behaviors according to the norms and values of the organization. Information Communication Technology training provides a diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information.

**Information technology training for IT managers** and systems analysts may seem superfluous. Every manager who plays a role in researching, selecting or implementing enterprise technology needs to have a firm grasp on the basics of emerging technologies, as well as how they serve a larger business purpose, to ensure that technology is being used to the company's best strategic advantage. Enhancement of performance can be viewed and measured from the point of view of the employees and from the point of view of organizational productivity.

Jean, Sinkovics and Kim (2014) argue that information technology plays a crucial role in managing inter organizational B2B (Business to business) relationships, most importantly among supply chain members across borders. In a research conducted by the European Commission Joint research centre, (2015) on ICT usage in Europe, carried out within three studies show the following: The first study presents new empirical evidence on the impact of ICT/e-commerce activities on industry performance measured as employment and labour productivity growth. The different types of ICT activities are significantly related to labour productivity.

The second study presents new empirical evidence on the effects of ICT/e-commerce indicators on the skill intensity measured as the share of workers with a university degree. The results indicate that broadband connected employees, diffusion of mobile internet, use of enterprise resource planning systems and electronic invoicing are all significantly positively related to the industries’ skill intensity, while for the service industries only internet was significant.
The third study investigates whether, and to what extent ICT/e-commerce activities are enablers of innovation activities. The data consists of micro-aggregated data on firms drawn from the production, ICT and CIS survey. It discovered that the sales share of new market products is significantly positively related with both the percentage of workers with mobile internet access and e-procurement activities. Sharing electronic data also contributed to product innovation. All three point to the questions and concerns around the Nigerian business environment on the effects of technological changes both in commerce and in the banking industries.

Machine age brought development of methods to business executives, administrative managers and staff, beyond their natural endowment to understand the operations and procedures of new machines. Only few individuals and businesses can afford the training required to operate these machines. The implication is that half baked technicians are forced to service the machines. Other than progress, such businesses experience setback in every dimension. The importance of studying and utilizing the ICT to achieve progress becomes an imperative.

The consequent importance of doing business in an advanced technological environment calls for training of employees and personnel in organizations to stay and gain competitive advantage against adversaries. This means that, as technology changes, so does performance, on both the employees and the organization itself. Since the world of information and communication technology is an ever changing sea it overwhelms stakeholders in the business world who are unprepared to change behavior for improved performance.

This is why the study, effect of technological change on employee performance in the banking sector, seeks to examine how the industry copes with the ever changing technology and also to examine and determine if the use of ICT achieves its purpose and enhances productivity in the banking sector. This means that it seeks to determine ICT acceptance in the banking sector, its contribution to growth and if it affects employee efficiency and productivity.

The main objective of the study is examining the effect of technological change on employee performance within the banking sector. The sub objectives explore the need to identify the degree of acceptance of information and communication technology in the banking sector. To examine the contribution of technological change to the growth of the banking sector and to investigate if technological change is enhancing performance of employees in the banking sector. The scope covers the effects of technological change on employee performance in Union Bank of Nigeria Plc. Oko Branch. It concerns only the use of ICT in the banking sector while examining its effects on the employees. Thus, the study is limited to the current use of ICT in the banking sector from 2000 to 2016.
Methodology
The methodology employs the descriptive survey design and the area of the study is the Oko community of Aguata L.G.A. in Anambra State, Nigeria, while the population was the 36 personnel of the Union Bank Plc chosen using the simple random sampling technique. Collation of data was through the instrumentality of the questionnaire. The analysis of data and test of hypothesis was carried out suing the statistical tool of chi square ($X^2$).

Theoretical framework
The study is anchored on Herzberg’s (1923 – 2000) two factor theory. The two factor theory argues that there are two factors that motivate workers: Hygiene factors and the Satisfiers. These factors are not determinants of success, but their absence results in under performance. Hygiene factors in this case refer to job security, salary, organizational policies and working conditions. Satisfiers as motivators include growth opportunities, responsibility and recognition. In order to remove dissatisfaction in a work environment, these hygiene factors must be eliminated. The other aspect would be to increase satisfaction in the workplace. This can be done by improving on motivating factors. Motivation factors are needed to motivate an employee to higher performance.

According to the Two-Factor Theory there are four possible combinations:

1. High Hygiene + High Motivation: The ideal situation where employees are highly motivated and have few complaints.
2. High Hygiene + Low Motivation: Employees have few complaints but are not highly motivated. The job is viewed as a paycheck.
3. Low Hygiene + High Motivation: Employees are motivated but have a lot of complaints. A situation where the job is exciting and challenging but salaries and work conditions are not up to par.
4. Low Hygiene + Low Motivation: This is the worst situation where employees are not motivated and have many complaints.

In a technologically charged work place, Herzberg’s two factors enable both employer and employees to adjust for optimal performance and organizational productivity.

Review of related literature
Concept of ICT
The acronym ICT Stands for "Information and Communication Technologies", which refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums. In the past few decades, information and communication technologies have provided society with a vast array of new communication capabilities. Modern information and communication technologies have created a "global village," in which people can communicate with others across the world as if they were living next door (Tech Terms, 2017).

ICT has no universal definition, as the concepts, methods and applications involved in ICT are constantly evolving on an almost daily basis. The broadness of ICT covers any product that will
store, retrieve, manipulate, transmit or receive information electronically in a digital form. Michalson (2017) proposes two options to the acronym ICT thus: (a) Information and communication technology and (b) Information, communication and technology. First option makes it to read that, it is either “information technology” or “communication technology”. Neither can exist independently, rather information and communication justify technology.

Option two shows that, each aspect of the acronym can stand on its own. It includes “information” or “communication” and technology. This includes all the facets of information (or data) in paper or in electronic format. Communication in person or electronically, information technology (IT) in its software, hardware and electronic forms, and communication technology which includes protocols, software and hardware. With this, ICT has a cross-cutting nature and it plays a role in the social and economic development of a country. With this also, one can agree with Michalson that the major institution that binds and address all economic functions of the economy should take part in ICT for ease and facilitation.

Technology is one of the most powerful agents of change in our society. New inventions bring new ways of doing things. Change comes with technology and it is now moving at a faster pace than ever. Technological change therefore, is the invention of technologies (including processes) and their commercialization via research and development (producing emerging technologies), the continual improvement of technologies (in which they often become less expensive), and the diffusion of technologies throughout industry or society (which sometimes involves disruption and convergence).

For Debessish (2017), Technological change means the technical knowledge used in the production of capital and machinery. Underpinning technological change as a social process is anchored on the importance of the social context and communication model. According to this model, technological change is seen as a social process involving producers and adopters and others (such as government) who are profoundly affected by cultural setting, political institutions and marketing strategies. Technological change is a social process strongly biased by the financial interests of capital.

**Concept of Bank/Banking**
A bank is a financial institution that accepts deposits from the public and creates credit. For the Distinguished Educator (2013), a bank is a company that provides financial services of various sorts to various types of customers. Its major function is to gather money from various people and to lend that money out to other people. One of the most visible things that a bank does is to take deposits from customers and act as a place for them to store their money. According to Nkechukwu (2012), Banks are a class of financial intermediaries that mobilizes funds from one surplus saving units of the economy to the deficit saving units of the economy. Banks and their operations give allusion to different types of bank.

**Acceptability of ICT in the banking sector in Nigeria**
According to Anitha and Vasanth (2014), the major concern for banks to embrace the use of ICT is to serve clients more conveniently and in the process to increase profits and competitiveness. Banks have recognized that ICT is an opportunity for them to increase profit and competitiveness. Banks worldwide have adopted the use of ICT in its varied forms because they
now see some kind of evolution in it. They also went ahead to state that ICT in the banking sector needs compatibility, convenience and communication on customer adaptation. Hassanuddin, et. al. (2012) assert that the implementation of internet banking have become a necessity for every bank to ensure that they are able to compete in the global market. For Rogers and Shoemaker, (1971) consumers go through a process of knowledge, persuasion, decision and confirmation before they are ready to accept a product or service. ICT creates ease of use, security and privacy and quality of internet connection.

For Al-Madhagy (2013), continual operations around the clock are becoming feasible in Nigeria due to the innovations on ICT gadgets adoptions. Payment systems such as ATM, Electronic Fund Transfer (EFT), Clearing House Automated Payments (CHAP), Electronic Purse (E-Purse), Automated Cheque Sorter (ACS) and Electronic and Transfer at Point of Sales (EFTPOS) have made services much easier, faster and convenient for both customers and banks. To add to this, regulations have become more technology dependent. Online services have facilitated instant funds transfers from one location to the other (Osabuohien, 2008). Among these systems are;

**a) Global System for Mobile Communication (GSM)**

GSM has a vital role in the improvement of banks operational efficiency. Through mobile phones, many clients can receive short messages series (SMS) to get informed of the amount deposited or withdrawn and balance up to last two transactions (Oluwatolani, Joshua and Phillips 2011). This saves a lot of time and effort not only for customers who were waiting in queues, but also it facilitates the efficiency of operations to serve more clients existing physically in banks.

**b) Internet Banking**

Home banking becomes a vital space for banks to expand its operations day and night anywhere and anytime. Visa’s remote subsidiary becomes of a major player to connect banks in a secure channel for the safety of money transactions. The internet transactions require levels of security known as authentication, authorization, data integrity and non-repudiation as a key of four elements to provide security channel safer to use. Internet supplies have to encrypt all transactions between them and the client online to make decoding it complex to guess, unless authorized (Agoola, 2001).

**c) Automated Teller Machines (ATM)**

ATMs are computer based machines used to provide services for bank’s clients such as cash disposal, payment as well as give information about client’s recent transfers or balances. In 1990, the first bank to launch the service was Societe Generale Bank in its Broad Street Office with the name Cash Point 24 (Agboola, 2001). Union Bank and first Bank Plc were the last banks to come on board for fear of fraud and theft. This made the new generation banks to over run them in banking services. Today, Union Bank of Nigeria Plc has deployed a new core banking application to modernize its infrastructure and improve operating efficiency. The application, called oracle flexube universal banking solution, helps to improve business operations and enhance the customer experience, according to a statement by the lender. The Chief Information Officer, Mr. Yomi Akinade, reports that the bank would be enhancing and standardizing its operations across the country by leveraging the capabilities of the new technology. They beg their customers to be patient during this period of upgrading.
c) **Telephone Banking Technology**
Technology advancement in the banking sector saw the use of telephone for banking businesses which enabled customers to call specific numbers to use their services. This technology uses voice activation technique and tone pad to enable customers to have transactions at their convenience (Osabuohien, 2008).

d) **E-mail (Electronic messaging)**
E-mail has given a great impact on the ease of communication between bank clients and other parties. This facility has taken a lion’s share of the ICT usage in the past decade (Agboola, 2001).

e) **Bankers Automated Clearing Services**
From 1980, banks faced a huge growth of cheque usage in Nigeria, as a result of fast strides in economic developments. The clearance process faced significant delays. The Magnetic Ink Character Reader (MICR) machines were commissioned in Nigeria (Agboola, 2001). This machine encodes, decodes, reads and sort cheques. Finally, the adoption of the ICT integrated project successfully enabled transaction/services within and outside the country.

**Technological change and growth of the banking sector**
The stronghold of technological developments experienced all over the world followed its natural process of formulation of scientific principles, application of these principles to the technical problem and consequently, the development of technical inventions to the point of commercial exploitation. Schumpeter, (1985) called this process innovation. Today there is no gain saying that technology has grown and spread all over, rather, it is pertinent to find out how it has impacted on human growth on the one hand, and the economic growth especially in the banking sector on the other hand.

Berger (2003) in his study of the economic effects of technological progress, asserts that banks experienced improvements in costs and lending capacity due to improvements in “back – office” technologies as well as consumer benefits from improved “front – office” technologies. This meant an overall productivity increase in terms of improved quality and variety of banking services. The evidence of technological change shows that bank’s innovation in information processing, telecommunication are credited for helping to fuel strong growth in the U.S. economy (Triplett and Bosworth, 2003).

As an integral part of the economy, it has employed economic and statistical models to create and value new securities, estimate return distributions and made portfolio decision based on financial data. Thus management has improved. Sequel to this, Berger (2003) alludes to the changes experienced in the banking sector over time as follows: changes in the structure of the banking industry over the periods of 1984-2001. For him, this is the period of consolidation. Consolidation here means that, the total number of banking organizations (top-tier holding companies plus independent banks) and the number of banks substantially declined in the U.S. within the 17 years period.

In Nigeria, the consolidation process accruing from technological change prompted Soludo’s bank consolidation of the (2000 – 2010) and its 25billion Naira recapitalization. Though it was
both positive and negative to many banks, it turned out much assuring for banking consumers and grew the financial markets (Abdullahi, 2005; Carlos 2012). This consolidation in line with technological change accounted for the new use of internet banking, ATMs, electronic payments technologies, ACH (Account Clearing House) technologies. Finally, information exchanges got improved within banks and among inter banks. Because of technology, banks spread and correlated among themselves. Apart from the banking sectors, technological changes positively impacted on the productive growth of industries.

According to the *Transfer Wise* technology has changed banking in the following ways:

1. No more long queues: This shows that banks have leaped on the opportunities offered by online and mobile banking to eliminate queues in banks.
2. One quick tap and you are done: Mobile technology had merged with contactless and the wave of apps. This allowed their owners to pay by tapping the phone against the terminal.
3. Cyber-security and data protection: due to the data breach experienced in 2005, keeping financial information safe became an issue. But for that purpose, easy passwords, public computers and “phishing” scams became the safest ways to deal with internet banking.
4. It has created a different sort of customer service: this means that high street banking collapsed. In other words, the banking halls became empty and the generic customer service gave way for online self help.
5. Technological change created more competition and bigger challenges.

With all these changes, one expects to examine how these growth and development have affected the performance of employees in their various organizations and more especially, in the banking sector.

**Technological change and the enhancement on employee performance**

Individual performance is a core concept within work and organizational psychology. Performance appraisal is the function of the HRM (Human Resource Management). It is the process of assessing an employee’s job performance and productivity over a period of time (Boundless.com). Evaluating employee performance, one is relegated to a face-to-face contacts, confrontations, evaluation and feedback. According to Seidenfeld (2007), assessing employee performance and providing feedback to employee is a task most supervisors dread. Employees can perform without feedback, but they need positive recognition to keep them motivated. There can be many reasons why an employee may not be performing well. That is, the employee may not see the job from a broad perspective, the specific job meshes with other jobs in the organization or the employees do not fully and clearly grasp what is expected of them.

An employee performance is typically influenced by motivation, ability and the work environment of the employee (Class Note 2016). At present, organizations and work as a whole are undergoing dramatic changes which have implications for conceptualizing and understanding performance (Sonnentag and Frese, 2001). Technology, particularly computer and information systems, play an important role in most work processes. In many jobs, individual work behavior, thus performance, is very closely linked to the use of technology-based systems. This development has implications for conceptualizing and measuring performance. The widespread use of technology in work processes threaten traditional views of performance in which performance is conceptualized as behavior which is completely under the control of the individual (Campbell, 1990 in Sonnentage and Frese 2001).
Practically, it becomes very difficult to separate the technology’s and the individual’s contribution to individual performance. Hesketh and Neal introduced a person by technology (P×T) interaction perspective on performance and suggested that the way an individual uses the technology is an important performance component. Moreover, with the increased implementation of well-designed user interfaces of technically highly sophisticated devices, the relevance of specific skills and knowledge needed in previous work systems decreases while other skills and knowledge become more important in the performance process.

However, Nicole Long shows how technology is affecting employee performance in the following ways:

Communications: Technology related to communications can help employees perform their jobs to the best of their ability. For employees with the ability to grasp new technology, it can speed up their productivity. New technologies, such as instant messaging, can help employees communicate in a more efficient manner and get answers and help immediately. This allows them to solve problems and address issues in the workplace instantaneously. Communications technology can also have a positive impact on the relationships between employees and suppliers or customers by improving response times to questions, comments and concerns.

Employee Workload: Technology that helps automate processes will help reduce the workload for employees, freeing them up to work on other projects and assignments. New computer programs and software packages can help collect and analyze data that would normally go unused or would take employees a good deal of time to extrapolate. New technology can also be used to help improve work processes and in turn increase productivity for both the employee and the business.

Accommodations: Disabled workers are perhaps the largest sector of the workforce that can benefit from technological advances. With new technology, doors open for disabled workers who previously may have lacked the ability to work a specific job due to the inability of an employer to provide accommodations. In addition, technology can help increase the productivity of disabled individuals who are already employed. Technology, such as touch-screen computers, can help employees more easily access and operate common office equipment.

Considerations: The ability to keep up and use technology to your advantage requires the ability to identify possible uses for each technological advance. Some technological advances may prove cost-prohibitive for some small businesses. In addition, business owners must evaluate the potential benefits of each new technology. This evaluation should shine some light on the possible benefits it will provide to both employees and the company.

2.3 Empirical framework
Various empirical studies on information technology and its impact on the banking sector in various countries have been conducted over the years. Scholars such as Wilson (1993), Freund, Konig and Roth (1997), Radeck, Wenninger and Orlow (1997), O’Sullivan (2000) and others have been engaged in unending discourse on the positive payoffs emanating from the utilization of information technology in banks and other financial institutions. Such academic debates have resulted in the origin of the term ‘information technology productivity paradox’ which is
concerned with appraising the impact of information technology on operational efficiency and the productivity of organizations.

Wilson (1993), Jordan, John and Katz (1999), Furst, Lang and Nolle (1998) portray that in many instances a positive correlation exist between increased investment in information technology and productivity. On the contrary, other works such as those of Strassman (1990), Morrison and Berndt (1990), Dos-Santos et.al. (1993) show that an additional investment in information technology does not necessarily contribute positively to productivity. Such works argue that the estimated marginal benefits are less than the estimated marginal costs; that for each additional dollar spent in information technology equipment, the marginal increase in measured output is only eighty cents. Such stand is still a progress.

Brynjolfsson and Hitt (2002), Ojung’a (2005) and Magutu et al. (2009) noted that most of such results from researches account for what he referred to as the ‘economic theory of equilibrium’. This means that increased profitability is not necessarily a by-product of increased spending in information technology. Some other researchers such as Loveman (1994), Lichtenberg (1995), Madueme (2010) and others have worked on ICT impact on a bank’s performance. They discovered that the utilization of information technology made no significant impact on the performance of commercial banks using the Cobb Douglas production function.

In addition, the International data Group (IDG) usually compiles on an annual basis, details of expenditures made by firms on information technology while the Standard and Poor’s Compustat II database provides various measures of output and non information communication technology expenses. These two sets of data were analyzed by Brynjolfsson and Hitt (1996) whose findings revealed that information communication technology staff were twice more productive than their non information communication technology counterparts. In addition, computer capital contributes over eighty percent marginal increase in output whereas the contribution of non information communication technology capital is as low as six percent.


Agboola (2004), Agboola (2006), Ayo (2006) and Emmanuel and Sife (2008) studied the positive impact and growth of the sector by the influence of ICT and its growing use in Nigeria. study by Aubert, (2004) and Kaufmann, (2004) on promoting innovations in ICT agree that Technological developments particularly in the area of Telecommunications and Information Technology are revolutionizing the way business is done. ICT has impacted banking operations positively on the activities rendered and boosted the performances of businesses in Nigeria industry. However Internet banking and online banking is not yet fully developed Amaoko (2012).
Summary of findings
Technological change has already become the nervous system of the banks all over. Having stipulated that males 26 representing 72% and females 10 (28%) participated in the research. The age brackets showed 18 – 25 (5) 13.89%, 26 – 35 (15) 41.67%, 36 – 40 (5) 13.89% and above 41 years (11) 30.56%. 11 respondents, representing 30.56% were single while 25 representing 69.44% were married. Based on this, the following findings were made:

1.) Technological change is accepted by management in banks.
2.) It has contributed to the social infrastructural development in the organisation under study.
3.) It has led to improvement of information in the bank which has improved their efficiency.

Conclusion
It is a well known fact that the state of technology in any organization has a significant influence on the quality and quantity of production of its goods and services. Consequently, the level of production measures the performance of that organization and its work force to determine how effective and efficient the processes of work carried out are. For profitability and competitiveness, organizations should ensure that their employees are constantly trained to be abreast with the ever changing technologies. In like manner, banks should ensure that the Internet service provider (ISP) has implemented firewall to protect the banks website from unauthorized users and banks are also to ensure that they are properly configured and institute procedure for continued monitoring and maintenance arrangements.

ICT has helped in rendering proper services to bank customers. There is no doubt that the majority of organizations and especially the banking industries, have taken the advantage of ICT to enhance their operations. ICT plays a vital role towards enhancing performance and achieving productivity, while at the same time increasing profitability within the banking sector. From history, ICT have contributed greatly to the actual structure of banking today. Through organized trade, showed the need for banking and invariably, showed humanity’s ability to make life easy and worth living. Therefore, in the banking sector, it was discovered that Nigeria fully embraced the technological age in doing business because it fully impacted on both organizational and employee performance as well as behavioural change.

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