



Technological Changes and Organizational Growth in Deposit Money Banks in Rivers State, Nigeria

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Author's contribution

This work was carried out in collaboration between both authors. Author GPA designed the study, managed the literature searches and wrote the first draft. Author AEB supervised the whole study which, author GPA used as part of her Masters Dissertation in the Department of Office and Information Management, Rivers State University, Port Harcourt, Nigeria. Both authors read and approved the final manuscript.

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ABSTRACT

This study examined the relationship between technological changes and organizational growth in deposit money banks in Rivers State. The study adopted the cross-sectional survey design to elicit response from staff of the identified deposit money banks in Rivers State. Primary data was collected using self-administered questionnaire. The population of the study comprised all the 16 deposit money banks in Port Harcourt. Using a multi-stage sampling technique, 96 staff were selected as the sample of the study. Since the banks had few permanent staff, convenient and census frame were adopted to determine the number of staff per bank. Thus, using the simple stratified random sampling technique the staff were categorized into three cadres-Top management, IT Personnel and Cashiers/Tellers from which staff were randomly selected from each cadre amounting 6 staff from each bank. The reliability was attained using test-re-test and

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Cronbach's Alpha coefficient analysis with all items having a reliability index above 0.70. The Spearman Rank Order Correlation Coefficient (ρ) was used in testing the hypotheses. The study revealed that there is a positive significant relationship between technological changes and organizational growth. This implies that the various developments in ICT have positive and significant influence on organizational growth. It, therefore, concluded that organizational growth in deposit money banks can be improved by the application of the various innovations and devices generated in the various stages of technological changes. The study, therefore, more attention be directed towards the use of ICTs in banking operations in deposit money banks in Port Harcourt, Rivers State, since the banking industry serve as a lubricant to the cog of the wheel of the nation's economy.

Keywords: Technological changes; organizational growth; increased productivity and intangible benefit.

1. INTRODUCTION

The world banking and financial system is in the throes of a transformation caused by increasing globalization and deregulation. Technological innovations such as those available in ATMs, phone banking, Internet banking and smartcard applications are taking place at an overwhelmingly fast pace in the global banking industry. Banking can be traced back to the year 1694 with the establishment of the bank of England. The bank was started by a few individuals who were actually money lenders with an aim of lending money at interest [1] Massive, rapid, technological innovations are replacing the traditional branch teller. With greater competition brought by deregulation, globalization and widespread mergers and acquisitions taking place in the banking sector, more branches are being closed down and replaced by self-serviced banking (SSB) facilities like the ATMs as part of a larger rationalization exercise.

Digital technology has become increasingly important as firms seek to achieve their business goals. Innovation management is focused on the systematic processes that organizations use to develop new and improved products, services and business processes. It involves development of creative ideas within organisations. At the heart of all activities is innovation [2]. Technology innovation has influenced the performance of all Nigerian banks. In the last ten years tremendous achievements were achieved in banks networking, service delivery, profitability and customers responses. Employees were made to cope with the demands of information and communication technologies (ICT) dominated global banking industry. Customers also benefited from improved networking and service delivery which inevitably improved banks competitiveness and

profitability. But despite these achievements Nigerian banks have witnessed severe downturn in their profit and many of them have almost collapsed [3].

Technological innovation rests on the creative ability of human being. Man has the capacity to use his knowledge to create new machines process and method that could enhance or improve the quality of goods and services. Innovation is required for man to satisfy his changing needs and cope with the demand of the changing and dynamic environment. The production of the unusual, uncommon novel and quality, ideas and product which enable man to satisfy his need despite his changing condition and requirements. Technology innovation is the changes in technology that can significantly improve the organization performance, improve its process and promote its service delivery system beyond the state of the art to produce quality goods and services [4].

Technological changes have been observed to replace the tasks normally undertaken by unskilled employees; by this it favours skilled employees more and increase inequality. This is resultant from the major alteration in technology, including the rapid evolution in computer technology in the workplace and societal lives, this has resulted in wage inequality [5]. In the modern world situation, many firms across the globe are increasingly conducting their business in a virtual workplace, employees that are located in different locations across the universe, different countries and cities now communicate with each other. Technological changes has brought about the novel concept known as the virtual organization, this allows employees to work away from the organization's premises and communicate with their respective work teams and work places with the aid of telephone,

computer devices and social media applications. The use of technology which has made organizations to become virtual in nature has numerous or greater challenges that it readily brings to the fore in human relationship building.

The purpose of this paper is to examine the effect of technological changes on organizational growth of deposit money banks in Rivers State. Furthermore, this study was also guided by the following research questions:

- i. To what extent does enterprise computing enhance increased productivity in deposit money banks in Rivers State?
- ii. To what extent does enterprise computing enhance intangible benefits in deposit money banks in Rivers State?

2. LITERATURE REVIEW

2.1 Theoretical Foundation

2.1.1 Diffusion of innovation theory (DOI)

This concept was established by E.M Rogers in the year 1962 and it defends the position that organizations take part in the dissemination of innovation so as to acquire competitive benefit, minimize charges and safeguard their tactical spots. The philosophy as suggested by Rogers expounds on in what manner a novelty is dissolved amongst consumers over a specific period [6]. It furthermore aids to comprehend client's behavior in the acceptance and implementation of an invention [7]. The underpinning demonstrates that the adopters partakers of any advancement in technology assume a bell-shaped scatter curve which can be categorized into five portions to group consumers by way of innovativeness [6]. Rogers categorized clients as pacesetters, initial adopters, primary majority, late majority and dawdlers [6].

This theory holds that organizations take part in the adoption of innovation so as to achieve comparative advantage, minimize costs and defend their positions strategically [8]. The innovation diffusion theory presented by Rogers in 1962 is a recognized and well respected theory that enlightens in what way an innovation is absorbed amongst consumers over a period of time [6]. It as well aids to comprehend purchaser's personality through acceptance and

implementation or non-adoption of such an innovation [7]. The theory portrays that those that make use of any innovation assume a bell-shaped distribution curve which can be categorized into five portions in terms of innovativeness [6]. Rogers categorized users as innovators, early adopters, early majority, late majority and laggards [6].

2.1.2 Technological changes

Technological changes have been acknowledged as an essential predictor of organizational growth and effectiveness [9]. However, business dynamics, comprising the entrance and exit of organizations, the effective reallocation of labour through the development and destruction of jobs in diverse firms are another known factor that influences the growth and success of organization. According to [10], technological changes and business dynamics are inter-dependent and its entrance into any market is usually from new entrepreneurial firms.

Technological changes develop a creative destruction of current firms, this permit production factors to be effectively reallocated to the most efficient technology embedded in the new firms [11]. It is very important to note that, theoretical studies on technological changes defines it as a new technologies in technologically endowed countries and the diffusion of these new technologies in technologically low advanced countries [12,13,14].

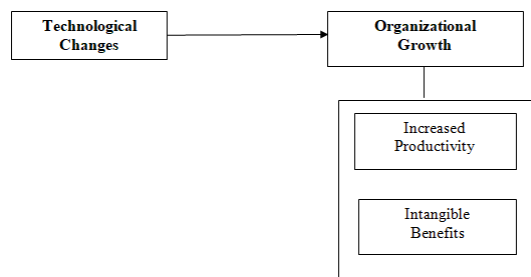


Fig. 1. Conceptual framework for the relationship technological change and organizational growth

Source: Desk Research (2020)

Technological changes result globally from the efforts made by both governments of technologically advanced nations and technological firms through investment in improving the innovative drives of technological

entrepreneurs [15]. This process takes place simultaneously in a closed feedback loop because the technological, economic and institutional environment impacts greatly and positively on the decisions of entrepreneurs and customers alters the technological environment [16,17,5].

It has been acknowledged in scientific literature that technological changes is diverse in its scope; researchers on technological changes have paid more attention on comprehending how technological changes occurs in technologically endowed nation and how these technologies developed are diffused in other less technologically advanced nations. However, there still exists this gap that it is not feasible to anticipate accurate degrees of success achieved in research and the degree to which technological changes alters the activities and operations of work organization [18,19,20]. From the illustrations given by the above cited scholars, this study contend that because of the interdependent and adaptive nature of technology amongst firms in most less developed society, that the future of technological changes is apparently clouded with deeper uncertain phenomenon. [21], contend that a new assessment procedure allows modern computing to profoundly modify the ability of experts to systematically reason towards the long term future of technological changes and help face the challenges that the deep uncertainties pose.

2.1.3 Concept of organizational growth

Growth is something for which most organizations strive, regardless of their size. The small firms want to get big and big firms want to get bigger. Organizational growth has the potential to provide small business with a myriad of benefits, including things like greater efficiencies from economics of scale, increased power, a greater ability to withstand market fluctuation, an increased survival rate, greater profits, and increased prestige for organizational members. Many small firms desire growth because they generally see growth as a sign of success and progress [22].

Organizational growth is also used as an indicator of effectiveness for businesses and is a basic concern of most practicing managers. Organizational growth, however, means different things to different organizations. So also there

are many parameters a company may apply to measure its growth since the ultimate goal of most companies is profitability, most companies usually measure their growth in terms of net profit, revenue and other financial data. Other business owners may also use the underlined criteria to assess their growth. These include sales, number of employee, physical expansion, success of a product line, or increased market share. However, success and growth will be measured by how well a firm or organization does relative to the goals it has set for itself.

2.1.4 Measures of organizational growth

Organizational growth as earlier highlighted means different things to different organization. Consequently, there are many parameters a company or organization may use to measure its growth. Since the ultimate goal of most companies is profitability, they often measure their growth in terms of net profit, improved productivity and other financial data [22].

Although the literature contains an impressive volume of studies attempting to identify determinants of organizational growth, researchers have observed inconsistencies in the findings. These inconsistencies may be explained, in part by the variety of approaches used to measure growth [23].

Productivity: This includes business process outcomes, labour productivity, organizational productivity, operational efficiency, production output and service performance.

Intangible Benefits: These refer to such terms as customer satisfaction (goodwill) industry performance (dynamism, longevity, usability, reputation) human resource management, number of downloads, public image and client loyalty, quality improvement and social productivity (in an economic sense). While this category may appear less significant, it is important to note that not all, measures are related to profitability or productivity.

2.1.5 Technological changes and organizational growth

The state of technology in any organization has a significant influence on the quality and quantity of production of its goods and services. Technology is prone to constant change; it is dynamic and it

behaves organization to monitor, manage and cope with it. Thus, organizations that will like to remain competitive and profitable ought to ensure that their human resources are trained and involved in the management of technological innovations for organizational survival. The correlates between working tools, employees and institutional performance are high [24]. The levels of technology utilization in any organization significantly influences the quality and quantity of production of goods and services [3]. Organizational performance is determined by the systematic application of working tools or technology.

Working tools here could be in the form of equipment, machine, or other devices of information and communication technology (ICT), software, surveillance camera, computers, vehicles etc. which enable task accomplishment in work or security organizations [25]. For instance, [3] observe that employees of various categories have benefited from internet and multimedia working tools which provide technical solution to their individual and organizational problems as well as increase their effectiveness and efficiency. They also observe that the level of technology or working tools utilized in an organization greatly influence the quality and quantity of its output.

Goods and services manufactured in Nigeria and in the world at large have been greatly influenced by the systematic application of technology [3]. Technological environment is highly dynamic as new technologies are invented, old ones become obsolete while the shift or changes can affect costs, quality of the product and growth of the organization.

2.1.6 Technological changes and organizational growth

Technological changes have been acknowledged as an essential predictor of organizational growth and effectiveness [9]. However, business dynamics, comprising the entrance and exit of organizations, the effective reallocation of labour through the development and destruction of jobs in diverse firms are another known factor that influences the growth and success of organization. According to [10], technological changes and business dynamics are inter-dependent and its entrance into any market is usually from new entrepreneurial firms.

Technological changes develop a creative destruction of current firms, this permit production factors to be effectively reallocated to the most efficient technology embedded in the new firms [11]. It is very important to note that, theoretical studies on technological changes defines it as a new technologies in technologically endowed countries and the diffusion of these new technologies in technologically low advanced countries [12,13,14].

Technologies have been seen to assist managers of organizations to pay close attention to their interactions with co-workers. Therefore it can easily be said that the evolution of changes in technology have increased managers effectiveness, because technologies make work to be more malleable. However, Ndlovu (2009) stated that management of organizations should make concerted effort to effectively manage their highly productive workforce aptitude in executing goals that are related with the organization's core objectives and technological advancement offers a helping hand in meeting these objectives.

In the views of [26], we currently live in the era of tablets, computers, phones, and internets that, Information technology has become a known enabler of greater convenience for both managers and subordinates. However, with the modern technologies available today, managers can easily and effectively interact with all the stakeholders of the organization and conclude essential deals without being present in the different locations. To this effect [27] posits that today's global business environment calls for varied and widely distributed technologies to drive a highly mobile workforce. [28], reveal that the current magnitude and speed at which technology have been evolving has significantly had a stunning alteration of managerial practices over the years.

The study postulates the following hypotheses to be tested:

Ho₁: There is no significant effect of technological changes on increased productivity in deposit money banks in Rivers State.

Ho₂: There is no significant effect of technological changes on intangible benefits of deposit money banks in Rivers State.

Table 1. Technological changes and increased productivity

			Technological changes	Productivity Decision	
Spearman's rho	Technological changes	Correlation Coefficient	1.000	.776**	Significant
		Sig. (2-tailed)	.	.000	
		N	72	72	
	Productivity	Correlation Coefficient	.776**	1.000	
		Sig. (2-tailed)	.000	.	
		N	72	72	

Source: Research data, 2020

Table 2. Enterprise computing and intangible benefits

			Technological changes	Benefits Decision	
Spearman's rho	Technological changes	Correlation Coefficient	1.000	.557**	Significant
		Sig. (2-tailed)	.	.000	
		N	72	72	
	Benefits	Correlation Coefficient	.557**	1.000	
		Sig. (2-tailed)	.000	.	
		N	72	72	

Source: Research data, 2020

3. METHODOLOGY

The study adopted the cross-sectional survey in its investigation of the variables. Primary data was sourced through structured questionnaire. The population of the study comprised all the 16 deposit money banks in Port Harcourt. Using a multi-stage sampling technique, 96 staff were selected as the sample of the study. Since the banks had few permanent staff, convenient and census frame were adopted to determine the number of staff per bank. Thus, using the simple stratified random sampling technique the staff were categorized into three cadres-Top management, IT Personnel and Cashiers/Tellers from which staff were randomly selected from each cadre amounting 6 staff from each bank. The research instrument was validated through by experts as provided by supervisors vetting and approval while the reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring coefficients above 0.70. The hypotheses were tested using the Spearman's Rank Order Correlation Statistics. The tests were carried out at a 95% confidence interval and a 0.05 level of significance.

4. DATA ANALYSIS AND RESULTS

4.1 Bivariate Analysis

The Spearman Rank Order Correlation coefficient is calculated using the SPSS 21.0 version to establish the relationship among the empirical referents of the predictor variable and the measures of the criterion variable.

The first null hypothetical statement which addressed the significance of the relationship between enterprise computing and increased productivity is noted to be false. This is as the relationship between enterprise computing and increased productivity is noted to be significant at a rho = 0.776 and a Pv = 0.000. The hypothesis of no significant relationship is therefore rejected.

The second null hypothetical statement which addressed the significance of the relationship between enterprise computing and intangible benefits is noted to be false. This is as the relationship between enterprise computing and intangible benefits is noted to be significant at a rho = 0.557 and a Pv = 0.000. The hypothesis of no significant relationship is therefore rejected.

5. DISCUSSION OF FINDINGS

The results from the test of hypotheses revealed that there is a significant positive relationship between technological changes and organizational growth of Deposit Money Banks in River State. This reinforces previous studies by [29] who had stated that technology has become very beneficial when backed by good management systems, but it is not only technology that contributes to employee performance. Davenport [30], viewed information and communication technology as veritable tools that; ensures the consistent and continuous relationship between management and the entire workforce in the organization. Scholars have acknowledged that technological changes falls within the broad areas of organizational activities of managing assets, managing relationship and leveraging information in novel ways. The influence of technological changes has introduced the use of modern technological equipment's such as computers, laptops, Smart phones, fast windows operating systems, tablets, internet and intranet being used by employees in the work place and these gadgets are helpful with regards in the terms of making work very flexibly and easy for everyone.

In the views of [26], we currently live in the era of tablets, computers, phones, and internets that, Information technology has become a known enabler of greater convenience for both managers and subordinates. However, with the modern technologies available today, managers can easily and effectively interact with all the stakeholders of the organization and conclude essential deals without being present in the different locations. To this effect [27], posits that today's global business environment calls for varied and widely distributed technologies to drive a highly mobile workforce. Christensen [28], reveal that the current magnitude and speed at which technology have been evolving has significantly had a stunning alteration of managerial practices over the years.

Managing this technological changes can make a significant difference; therefore, there is no reason to believe that the most recent rate of change could slow down, the big problem is to harness this newly emerging technology for the gain of the technological changes have a positive influence on the quality of work life and this trend of development is expected to keep rising. According to [31], the observed new

technological changes has been reshaping organizations across industries where organizations are expected to acquire new technologies to be able to have the edge to compete successfully. Technologies boost the manager's aptitude to manage relationship in the workplace through an enhanced interaction between managers and employees. Employee relationship refers to the assessment of the numerous aspects of how human beings interact at work-place, and therefore is the relationship that manifests between workers on one side and employers on the other hand.

6. CONCLUSION AND RECOMMENDATIONS

The study concluded that these ICT devices such as the internet, computers, telecommunication devices, ATM and others influence growth in the deposit money banks in Port Harcourt. However, this positive influence can only be realized depending on the type of leadership. A Leadership that is proactive, transformational and understands the technological needs of the organization and the type of technology and strategies for implementing them in the organization in order to achieve the set goals of the organizations.

The study recommends that more attention be directed towards the use of ICTs in banking operations in deposit money banks in Port Harcourt, Rivers State, since the banking industry serve as a lubricant to the cog of the wheel of the nation's economy.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Kariuki N. Six puzzles in electronic money and banking. IMF Working Paper. 2005;19.
2. Bestman AE, Ugwuala VC. Digital disruptive innovation and organizational productivity of some manufacturing companies in Port Harcourt. British International Journal of Education and Social Sciences. 2019;6(6):25-36.
3. Dauda YA, Akingbade WA. Technology innovation and Nigeria banks performance: The assessment of employee's and customer's responses. American Journal

- of Social and Management Sciences. 2020;2(3):329-340.
4. Taylor OW. Variables related to creativity and productivity among men in two research Laboratories. University of Utah creativity Research Report; 1958.
 5. Acemoglu D, Philippe A, Leonardo B, David H. The environment and directed technical change. *American Economic Review*. 2012;102(1):131-166.
 6. Liu KS, Lee KS. Factors influencing the adoption behavior of mobile banking: A South Korean a South Korean perspective. *Journal of Internet Banking and Commerce*. 2009;12(2).
 7. Vaugh MS, chavione P. Early lessons from the deployment of M-PESA. Vodafone's own mobile transactions service. In D. Coyle (Ed.), 6, 6 London: Vodafone Group 9; 2007.
 8. Hannig A, Jansen S. Financial inclusion and financial stability: Current policy issues. ADBI Working Paper Series. Working Paper No: 259; 2010.
 9. Solow RM. Technical change and the aggregate production function. *Review of Economics*. 1957;39:312-320.
 10. Klette J, Kortum S. Innovating firms and aggregate innovation. *Journal of Political Economy*. 2004;112:986–1018.
 11. Caballero Ricardo J, Mohamad Hammour L. On the timing and efficiency of creative destruction. *Quarterly Journal of Economics*. 1996;111(3):805-852.
 12. Keller W. International technology diffusion. *Journal of Economic Literature*. 2004;42(3):752-782.
 13. Di Maria C, Sjak AS. Trade pessimists vs technology optimists: Induced technical change and pollution havens. *Advances in Economic Analysis & Policy*. 2004;4(2): 1-25.
 14. Fisher-Vanden K, Ho MS. Technology, development and the environment. *Journal of Environmental Economics and Management*. 2010;59(1):94-108.
 15. Popp D. International innovation and diffusion of air pollution control technologies: The effects of NOx and SO2 regulation in the US, Japan, and Germany. *Journal of Environmental Economics and Management*. 2006;51(1):46-71.
 16. Popp D. ENTICE: endogenous technological change in the DICE model of global warming. *Journal of Environmental Economics and Management*. 2004;48(1): 742-768.
 17. Rosendahl KE. Cost-effective environmental policy: Implications of induced technological change. *Journal of Environmental Economics and Management*. 2004;48(3):1099-1121.
 18. Golombek R, Hoel M. Unilateral emission reductions and cross-country technology spillovers. *Advances in Economic Analysis & Policy*. (2004;3(2):20-34.
 19. Baker E, Adu-Bonnah K. Investment in risky R&D programs in the face of climate uncertainty. *Energy Economics*. 2008; 30(2,3):465-486.
 20. Bosetti V, Massimo T Uncertain R&D, backstop technology and GHGs stabilization. *Energy Economics*. 2009; 31(1):S18-S26.
 21. Lempert R, Steven P, Steven B. Shaping the next one hundred years: New methods for quantitative, long-term policy analysis. New York: Rand Corporation; 2003.
 22. Crosby PB. The eternally successful organization: The art of corporate wellness. New York: New American Library; 1990.
 23. Weinzimmer LG, Nysteram PE, Freeman SJ. Measuring organizational growth: Issues, consequences and guidelines. *Journal of Management*; 1998.
 24. Agba AMO, Ushee EM. Motivational incentives and staff turnover in the hospitality industry in Cross Rivers, Nigeria. *Global Journal of Management and Business Research*. 2010;10(8)18–36.
 25. Khalil T. Management of technology. The key to competitiveness and wealth creation. McGraw Hill; 2000.
 26. Hritzuk N, Jones K. Multi screen marketing: The seven things you need to know to reach your customers across TVs, computers, tablets, and mobile phones. New York: John Wiley & Sons; 2014.
 27. Matt T. Streamlining technology management to increase workplace productivity. *Journal of Workplace*. 2007;1: 18-36.
 28. Christensen C. The innovator's dilemma: When new technologies cause great firms to fail. Harvard: Business Review Press; 2013.
 29. Kao S, Kuo L, Chen LH, Wang TY. Improving productivity via technology and management. *International Journal of Systems Science*. 1996;27(3):315-322.
 30. Davenport TH. Process innovation: Reengineering work through information

- technology. Harvard: Harvard Business Press; 2013.
31. Dion H. Emerging tech trends that will impact business in 2012. Available:<http://www.dachisgroup.com/2012/01/emerging-tech-trends-that-will-impact-social-business-in-2012/> Retrieved 22 Jan, 2019.

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