

Technological Innovation and Performance of Deposit Money Bank in Port Harcourt

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Abstract: *This study examines the nexus between technological innovations and performance of deposit money banks in Port Harcourt. The cross-sectional survey design was adopted to study a population of 416 employees across 15 selected branches of the studied banks and the census was adopted. Data were generated using a structured questionnaire and hypotheses were tested using Kendall tau b and Partial Correlation. Findings revealed that dimension of technological innovations influenced significantly the measures of performance and that culture moderated the nexus between these variables. It therefore concluded that technological innovation is a good precursor of performance and the study recommends that for customers to obtain prompt and realistic services, IT personnel should be conversant about new key success factors that go right in this era of technologically driven world and integrate such into their operations, to expand customer base above the industrial average, new acquisitions should be quickly assimilated into IT and the legacy system should be structured in such a way as to enhance development of new product in the organization; and flexible electronic links should exist amid organization and clients as this will make customers trust the organization and feel safe with their transactions with the firm.*

Keywords: Growth, Organizational Performance, Process Innovation, Service Quality, Technological Innovation,

Introduction

Revolution in technological developments and its utilization in banking exercises have prompted an acknowledgement of the progress of manual financial tasks framework to innovation-based banking all through the world. Innovation as of late has been perceived as the core of the banking and banking area is assuming a critical job in a strong economy (Abubakar & Tasmin, 2012). Kroeneke (2011) affirms that “innovation is the items, strategies, developments, and measures used to create data which incorporates physical hardware, programming, and information”. The aggregate specialized framework of broadcast communications, equipment, and programming, is alluded frequently to as data and interchanges innovation (ICT) and is viewed as an all-inclusive equivalent word for IT (Kimani, 2015). The parts of innovation comprise of PCs, printers, database programming bundles, working frameworks, and scanners, the human knowledge, experience, abilities and guidelines are utilized to coordinate mechanical segments into administrations that agents can comprehend and utilize (Weil and Vitale, 2002).

Innovation has been seen by numerous associations as a significant device to enhance tasks and improvement of data trades. It gives incredible vital and strategic instruments for associations, which, if appropriately applied and utilized, could acquire a more noteworthy bit of leeway advancing and fortifying their aggressiveness (Porter, 2001). Innovation helps in encouraging correspondence and the trading of data as well as encouraging information sharing between different divisions and capacities in the association. In this light, it can go about as an enhancer of joint effort and a systems administration instrument among representatives, clients and accomplices since it evacuates the boundaries to continuous correspondence and viable data sharing (Scott, 2001). With such innovation, web-based business, e-banking and money related administrations industry have progressively become a basic segment of business aggressive methodology and a solid facilitator for financial advancement over the world. Among different components, e-banking is the most conspicuous and well-known one (Salehi and Alipour, 2014). In this current foundation, innovation can't be disregarded by chiefs since they assume a basic job (Certo and Peter, 2007) as it has progressively become a fundamental and ground-breaking instrument driving improvement, supporting development, advancing advancement, and upgrading aggressiveness among store cash banks. It has improved productivity and adequacy of banks' tasks, empowered inventive items and administrations, improving assistance conveyance channels, empower clients to make exchanges rapidly and adequately, guaranteeing advantageous business hour, quicker administrations and by and large upgrade of hierarchical execution (Cole, 2004). The activities of associations today, have seen an incredible increment in multifaceted nature and vulnerability and all things considered, board of firms are concerned with how to conform to ever unique and unpredictable condition just to stay pertinent, improve productivity and quality, decrease personal time, and increase clients' fulfilment to help their exhibition. The commitment offered by the innovation can never be disregarded. This kind of circumstance can be prevented if the management of banks completely executes forward-thinking innovation through development.

Specifically, the objectives include to: ascertain the nexus existing between process innovation and growth and the relationship between process innovation and service quality of deposit money banks in Port Harcourt. The following hypotheses were stated as follows:

H0₁: Process innovation does not significantly correlate with growth of deposit money banks in Port Harcourt.

H0₂: There is no significant correlation between process innovation and service quality of deposit money banks in Port Harcourt. To survive in competitive business environment, firm must operate in conditions of performance as performance in strategic management research, has become a pertinent concept used frequently as a criterion variable (Omar, & Zineb, 2019). Although as a

common conception in the academe literature, there is hardly a consensus about its definition and measurement. Owing to the absence of operational definition of firm performance upon which the majority of agreement of scholars is based, there would naturally be diverse interpretations suggested by various people according to their personal proposition. Definitions of this concept may be “abstract”, or “general”, “less” or “clearly” defined.

Defining performance should be made through items such as piloting, effectiveness, evaluation, quality, and efficiency (Bartoli & Blatrix, 2015). Colase (2009) views performance as a “bag-word” as it shields several and diverse viewpoints (e.g. growth, return, profitability, productivity, competitiveness, and efficiency). Siminica (2008) holds that a firm is performing when the firm is efficient and at the same time effective. Hence, the performance of a firm is a function of two variables: “efficiency and efficacy”. In the opinion of Lebens and Euske (2006) an organisational performance could differently be understood contingent on the persons involved in the assessment of firm performance. Therefore, its rudiments or responsibility areas must be known (Lebens & Euske, 2006). Performance therefore, is understood as a set of financial and nonfinancial indicators that offer information on the level of accomplishment of objectives and results; a dynamic, requiring judgment and interpretation that use a causal model to describe how future results can be affected by current actions (Lebens & Euske, 2006). Verboncu and Zalman as cited in Omar and Zineb (2019) recognised that performance is a precise outcome attained in management, economics, and marketing that gives features of effectiveness, competitiveness, and efficiency, to the organisation and its structural and procedural components. Peterson, Gijbers and Wilks (2003) assert that organisational performance principally emphasises the capability and ability of organisation to efficiently exploit the available resources to achieve targets consistent with premeditated company’s objectives, while considering their relevance to its users.

It is essential that banks maximize their available resources efficiently to be at par in the system. This is why Odemba (2013) asserts that performance is how well a firm is able to utilize its available resources in accomplishing its set targets. For this study, emphasis was placed on growth and service quality aspects of performance.

While studying the growth of a firm, it is essential to understand the concept of ‘the firm’ also. The understanding of the growth of an enterprise depends on the definition of what the firm is, how much has it grown, and what it offers to the market? What assets it controls and what is its legal form (Priya, Gupta, Guha, & Subramanian, 2013). It is critical to study how an enterprise manages its growth transitions and what pattern they follow. Growth is one of the most prominent business objectives of many firms. In recent years it has become almost self-evident that a company has to grow in order to be successful. No matter what firm or business, there always seems to be a need for further expansion. In other words, growth has become an imperative (Zeder, 2017). Most widely used framework for studying the growth of an enterprise has been the life cycle analysis. In life cycle models, an enterprise’s growth is considered as organic, and these assumed that this growth happens over a period of time in a linear phase. However, there are many researches suggesting that it may not be the case with every enterprise. Many firms do not take the linear path because it is not possible for each of those to progress through each stage. They can grow, stagnate, and decline in any order. In addition, these things can happen more than once and there is a possibility to reverse their steps. Growth is the increase in size, or an improvement in quality resulting from developmental process in which an interacting series of internal changes leads to increases in size accompanied by changes in the characteristics in the growing object” (Penrose as cited in Absanto & Nnko, 2013). An organisation development theory given by Larry E. Greiner is useful when investigating the problems linked with growth on organisation and the contact of change on employee. An organisation success depends largely on the abilities to make new products, thoughts and processes or get innovations rapidly (Canton, 2006) and only those organisations that bring creativity in their process will be able to stay alive in the long run. Growth of an organisation is the process of improvement which aims to develop the performance of an organisation. Growth has various connotations, for example, it can be perceived in terms of revenue generation, value addition, and expansion in terms of volume of the business or can be measured in the form of qualitative features like market position, quality of product, and goodwill of the customers (Kruger 2004).

Technology is one of the key elements that define a society or civilization which refers to the process through which advances in technology are produced (Goh, 2002). The critical role of technological innovation in the development of a company and its contribution on the economic growth of firms has been widely documented. According to Abernathy and Utterback, (2005) the primary role of technological innovation is to assure the survival of the entity, as well as the business ecosystem, which in turn is based on achieving sustainable financial performance. Technological innovation has enormous influence on employee performance (Nohria and Gulati, 1996). However, technological innovation is the process of combining and reorganizing knowledge to generate new ideas.

Dauda & Akingbade, (2011) argue that technologies can only lead to increased productivity or improve performance when combined with other resources effectively by human resources. Employee can rapidly acquire new knowledge and further advancement competencies through training (Chi et al., 1989). Employee’s performance is closely linked with technological advancement. Technological advancement can be managed effectively through employees. Resource-based theory suggests that a firm’s resources

are extremely important for the firm's development, and that human capital is a key resource of a firm. 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 (Taylor, 1958). Shrivastava (1984) regards technology innovation as changes in technology that significantly improve the performance of organization. Technological Innovation deals with the Physical devices and software that link various computer hardware components and transfer data from one physical location to another (Laudon & Laudon; 2001 & 2010). ICT products in use in the banking industry include Automated Teller Machine, Smart Cards, Telephone Banking, MICR, Electronic Funds Transfer, Electronic Data Interchange, Electronic Home and Office Banking. Electronic Banking has tremendously improved the services of banks to their customers (Agboola, 2001).

Innovations could be classified based on their impact on behaviour and social structure as: continuous; dynamically continuous; and discontinuous (Robertson as cited in Kimingi, 2008). Moore (1999) avers that technological innovations fall into the discontinuous innovation category most likely which can consequently be considered as knowledge intensive innovations. The knowledge needed for technological innovation comprehension is likely to be contingent upon the aspects of technology. The innovation process includes a set of activities that contribute to implement new forms of production (process innovations) or to increase in the capacity to produce new goods and services (product innovations) (Goh, 2002). Therefore, the concept of technological innovation is associated with the idea of a flow – generation, application, dissemination – of technologies. For the purpose of this study, IT innovation was viewed from the perspective of process and product innovations.

A process innovation is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software (e.g. installation of new or improved manufacturing technology, such as automation equipment or real-time sensors that can adjust processes, computer-aided product development). Process Innovation can be described as improving or changing current procedures and techniques used in the production of products. Any improvement to current manufacturing, delivery, packaging, marketing, project management can be considered a process innovation. Process innovation means improving the production and logistic methods significantly or bringing significant improvements in the supporting activities such as purchasing, accounting, maintenance and computing (Polder et al., 2010). The firm can develop new process either by itself or with the help of another firm (Polder et al., 2010). Firms bring process innovation to produce innovative products and amendments are also brought in the processes to produce the new products (Adner & Levinthal, 2001).

Firms adopt new process to compete with other firms; they have to bring the process innovation to satisfy their customers. The process innovation, especially in the manufacturing organizations, can have significant impact on the productivity of the firms. The historical case studies showed that bringing automation in the production methods has increased the efficiency and productivity of the organizations (Ettlie & Reza, 1992).

Dauda and Akingbade (2011) examine “customer's and employee's responses to technology innovation, and their effects on the performance of the Nigerian banks”. They selected 15 major banks in Nigeria. Two null hypotheses based on two different sets of questionnaires distributed to selected banks employees and customers were formulated to test whether there is significant nexus between technology innovation and customer's satisfaction; and between technological innovation and Nigerian banks employee's performance. 1912 questionnaires were distributed to customers to test the first hypothesis out of which 1634 were collected which is 85% of the distributed questionnaires, 1458 questionnaires were distributed to selected banks employees to test the second hypothesis, 1223 questionnaires were collected making 84% response rate. Pearson correlation co-efficient was used to analyse the hypotheses. Findings revealed that technological innovation influenced banks employee's performance, customer's satisfaction and improvement in banks profitability. The study recommends effective management of technological innovation for improved employees' performance, customer's satisfaction, sustainable profit, increased return on investment, returns on equity, and to promote competitiveness in the Nigerian banking industry.

ICT integration in organisational system result to improved performance of an organisation. ICT integration in customer service delivery enables commercial banks to minimize costs of operation and maximize profits in the long run. Business Performance incorporates financial and non-financial success of an entity. Every business has to put in place a system of measuring performance where set goals are compared to feedback from agreed upon indicators. A typical performance measurement helps businesses in periodically setting business goals and then providing feedback to managers on progress towards those goals. The time horizon for these goals can typically be about a year or less for short-term goals or span several years for long-term goals (Simmons, 2000). Financial performance measures are derived from or directly related to the chart of accounts and found in a company's financial statements. Non-financial performance measures such as customer satisfaction scores or product quality measures are outside the chart of accounts. The balanced scorecard and financial ratios are some of the widely used approaches in business performance measurement (Mason, 2007). Balanced scorecard emphasizes the need to provide management with a set of information which covers all areas of performance in an objective and unbiased fashion. This approach to performance focuses on both financial and non-financial information and covers areas such as profitability, customer satisfaction, internal efficiency and innovation (Kaplan &

Norton, 1992). The balanced scorecard focuses on the four different perspectives to give managers and other stakeholders a more “balanced” view of organisational performance.

Ruey-Jer, Rudolf and Daekwan (2008) examined “Information technology and organisational performance within international business to business relationships: A review and an integrated conceptual framework”. This literature develops a conceptual model of IT-mediated relationships in international supply chain relationships. The framework integrates transaction cost economics and resource-based theory perspectives and argues that IT capabilities facilitate supply chain performance, deter partner’s opportunism and this process is mediated by business-to-business processes. Findings revealed that IT capabilities contribute directly to improved organisational process such as coordination, transaction specific investment, absorptive capacity and monitoring. These in turn contribute to strategic and operational performance outcomes. Against a resource-based as well as a transaction-cost theory background it is suggested that partner interdependence and environmental, country and cultural factors moderate the process of IT contribution on performance.

Siddik, Sun, Kabiraj, Shanmugan, and Yanjuan (2016) assert that e-banking is one of the most popular IT application used in the banking sector, has expanded considerable during the last few years which is gaining acceptance in Bangladesh. In their empirical survey of the “Impacts of e-banking on performance of banks in a developing economy: Empirical evidence from Bangladesh” drawing panel data from 13 banks for the period of 2003 to 2013, they measured performance based on return on equity (ROE), return on assets (ROA) and net interest margin (NIM). Using the ordinary least square analytical tool, results show that e-banking started its positive contribution to banks’ ROE with a two year time lag while in the first year of adoption, a negative impact was seen. The study concluded that the findings is of greater importance for the emerging countries like Bangladesh, and will raise the attention of the management and policy makers of banks to pursue such policies to enlarge e-banking.

Hernando and Nieto (2007) in a bid to find out if internet delivery channels have transformed banks’ performance used a sample of 72 Spanish commercial banks. Data were drawn from 1994 to 2002 and analyses reveal that the impact of adopting of e-banking system takes time to contribute to performance of banks though a significant and positive impact was found after three years of adoption of e-banking system of a transactional web site on financial measures with respect to ROE and ROA of the banks.

Research Methods

This study adopted a cross sectional survey. The population of this study comprised of the deposit money banks in Rivers State with international and national authorisation, which according to CBN (2018) are 18 in number following the merger of Access/Diamond. However, the accessible population for this study include the employees of 15 branches one for each of 15 deposit money banks operating in Port Harcourt, Rivers State, Nigeria totaling 416 elements. Though the study elements are large, the census study that is where all the elements are considered was adopted. For the purpose of this study, data were generated from primary sources. Therefore, structured questionnaire aided in eliciting data from the respondents. Test of hypotheses, the bivariate and the multivariate (more than one independent variable) analyses were carried out using Kendall tau b and Partial correlations respectively.

Results

As earlier mentioned, data were generated by using questionnaire administered by the researcher. A total of 465 copies of questionnaire were administered on the elements and a total of 307 (73.8%) were validly filled and used for the analyses.

H0₁: Process innovation does not significantly correlate with growth of deposit money banks in Port Harcourt.

Table 4.1 Correlations Process Innovation and Growth

		Process Innovation	Growth
Kendall's tau_b	Process Innovation	Correlation Coefficient	1.000
		Sig. (2-tailed)	.217**
		N	.000
Growth		Correlation Coefficient	.217**
		Sig. (2-tailed)	.000
		N	.000

** . Correlation is significant at the 0.05 level (2-tailed).

Table 4.1 shows the Kendall’s tau-b correlation coefficient result for hypotheses one. The table reveals a positive, modest and significant nexus between process innovation and growth as follows ($\tau_b = 0.217$; $n = 307$; $p\text{-value} = 0.000 < 0.05$). Since the $p = 0.000$

<0.05, the null hypotheses which state that there is no significant relationship between process innovation and growth in the banking firms in Port Harcourt is not retained.

H0₂: There is no significant correlation between process innovation and service quality of deposit money banks in Port Harcourt.

Table 4.2 Correlations Process Innovation and Service Quality

		Process Innovation	Service Quality
Kendall's tau_b	Process Innovation	Correlation Coefficient	1.000
		Sig. (2-tailed)	.000
		N	307
Service Quality	Service Quality	Correlation Coefficient	.463**
		Sig. (2-tailed)	.000
		N	307

** . Correlation is significant at the 0.05 level (2-tailed).

Table 4.2 shows the Kendall's tau-b correlation coefficient result for hypotheses two. The table reveals a positive, modest and significant nexus between process innovation and service quality as follows ($\tau_b = 0.463$; $n = 307$; $p\text{-value} = 0.000 < 0.05$).

Since the $p = 0.000 < 0.05$, the null hypotheses which state that there is no significant relationship between process innovation and service quality in the banking firms in Port Harcourt is not retained.

Discussion

These results which were expected evidenced the presence of a significant positive association between technological innovation and organisational performance corroborate Porter (2001) as he asserts that innovation in technology has been perceived as an important tool to optimize operations as technology provides powerful strategic and tactical tools for organisations and as well brings greater advantage in promoting and strengthening their competitiveness and general performance level. Certo and Peter (2007); Cole (2004) acknowledged that technology has increasingly become a vital and powerful instrument driving development, supporting growth, promoting innovation, enhancing competitiveness, improved efficiency and effectiveness of banks' operations, enabled innovative products and services, improving service delivery channels, enable customers to make transactions quickly and effectively, ensuring convenient business hour, faster services and overall enhancement of organisational performance among deposit money banks and innovation as postulated by OECD (2010), drives growth and helps address social challenges. Dauda and Akingbade (2011) study finds support from this work as their findings revealed that technological innovation influenced banks employee's performance, customer's satisfaction and improvement in banks profitability and recommends effective management of technological innovation for improved employees performance, customer's satisfaction, sustainable profit, increased return on investment, returns on equity, and to promote competitiveness in the Nigerian banking industry. More so, Ankrah (2012) in the study of technology and service quality in the banking industry in Ghana, stresses that it is vital for banks to combine their knowledge of the customer base with the technology available as this can make their service offerings more qualitative.

In their study, Ogbonna and Harris (2000) affirm certain organisational cultures lead to superior organisational performance and that the degree to which positive and strong values of culture widely shared by the members of the organisation, influences the performance of that organisation (Denison, 1990; Kotter & Heskett, 1992). Hence, an organisation's performance will be boosted greatly if the cultural values are compatible with the desired belief and values of its employees (Boxx, Odom, & Dunn, 1991). Again, Maina (2016) found that when employees believe that their organisation has a culture that determined how things are done, they will have like-minds and hold similar beliefs and values and will be guided by values of consistency, adaptability, effective communication system, employees' sense of identity which eventually will increase their commitment to work. Nelson and Quick (2011) state that besides increasing employee's commitment, organisational culture gives workers a sense of identity, reinforces work-based values and serves as a control mechanism for work-based ethics to increase performance.

Conclusions

The outcome of the analysis of the stated nexus showed a positive, modest and significant nexus between process innovation and growth. Thus, this study concludes that process innovation is a precursor of growth. The analysis result of the stated relationship showed that a significant modest and positive nexus exists between process innovation and growth. Thus, this study infers that process innovation is a good determinant of service quality.

Based on the findings and conclusions reached, the study recommends the following;

For customers to obtain prompt and realistic services, IT personnel should be knowledgeable about new key success factors that go right in this era of technologically driven world and integrate such into their operations and to expand the customer base above the industrial average, new acquisitions should be quickly assimilated into IT and the legacy system should be structured in such a way as not to restrict the development of a new product in the organisation. Again, flexible electronic links should exist between the organisation and the customers as this will make the customers trust the organization and feel safe with their transactions with the firm.

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