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Study of Effect of Technological Change on the Performance of Commercial Banks in Nairobi County of Kenya

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ABSTRACT

The use of technological breakthroughs has made it possible for organizations to operate more effectively and efficiently. In order to provide banking services to its consumers, Kenya's banking sector has implemented several technological developments. Automated Teller Machines, Agency Banking, Electronic Funds Transfers, Real-Time Gross Settlements, and Mobile Banking are examples of these innovations. The general objective of this study was to establish how technological change affects the performance of commercial banks in Nairobi County in Kenya. A descriptive research design was adopted in this study. All management persons or their equivalents in all branches of commercial banks in Nairobi County were the target respondent. All of the commercial banks have a total of 126 managerial personnel. Closed-ended questions were used to acquire primary data. The study instrument was pre-tested to guarantee its validity and reliability. The data were analyzed using descriptive statistics such as frequencies and percentages. The study discovered that technological changes have an impact on commercial bank performance. The researcher also established that most product changes occur due to technological changes. There is, therefore, a need for technology to ensure the changes is sustained and is not wasted.

Key Words: Technological Change, *Financial Performance*, *Strategic Change Management.*

I. INTRODUCTION

Globally, banking has experienced a lot of changes in the last few decades. One of the major reasons for these changes has been the deregulation of the sector and the adoption of technological tools. According to Brob (2021), the advent of technology has changed the way banks distribute products and services to their customers. Today, many banks offer their customers a variety of channels of distribution, such as ATMs, online banking, mobile banking, and direct marketing. As a result, the use of technology has improved the speed and efficiency with which a bank can deliver products and services to its customers.

The quick shift from a retail-focused to a corporate and investment banking model has been one of the most significant transformations in the Kenyan banking industry over the last decade (Kenya Bankers Association, 2020). The rising interconnection of the global economy, as well as regulatory constraints requiring banks to strengthen their capital buffers and decrease their risk exposure, has fueled this transition (Anagnostopoulos, 2018). One key result of this shift has been a decrease in the relevance of traditional branches in delivering banking products and services to the public. This has been compounded by the introduction of less expensive, faster, and more convenient technology, like as ATMs and the internet, which have reduced the need to conduct banking in person.

According to Erik et al. (2021), the desire to provide tailored services, improve accountability, decrease expenses associated with existing banking systems, and grow markets drives banking industry innovation. Banking innovations are critical because they help banks compete in a particular economy (Kenya Bankers Association, 2020). Agency banking, online banking, ATM use, debit cards, and electronic payments transfers are among the financial technologies that have been embraced in Kenya. The use of these technologies in service delivery enhances client happiness, lowers bank costs, boosts convenience, and allows for quick and safe money transactions (Kenya Bankers Association, 2020).

Because banks exist to create profits for their shareholders through efficient resource utilization, their performance is critical. As a result, bank executives are encouraged to adopt new technology with the goal of streamlining operations, lowering costs, and eventually increasing profitability (Borgogno & Colangelo, 2020). According to Buchak, et al., (2018) banks can gain a competitive edge and improve performance by adopting branchless banking platforms. Perhaps this is related to the fact that branchless platforms are less expensive to operate because they do not require as much labor as typical banking halls. Agency banking, in particular, lowers bank startup costs because it is owned by other investors rather than the banks.

Today, though, many banks are looking to innovate their service delivery models in order to improve customer experience and, as a result, profitability (Braggion, Manconi, & Zhu, 2018). One such approach that has been adopted by a number of banks is the introduction of digital channels, such as mobile and online banking, in order to improve customer experience and reduce the cost of distribution. This has in turn led to a decline in the use of physical branches as a distribution channel, with some banks in Australia, such as Commonwealth Bank and Westpac, ceasing the distribution of cash through branches altogether (Simon, 2019). Rather than providing the full range of products and services that a customer may need, banks are now tailoring their offerings to meet the specific needs of the customer, with the goal of improving the customer experience and ultimately

According to Gutu (2014), the usage of technologically enabled solutions in Romania's banking sector has helped lower company expenses. This means that banks can save money by adopting innovative service delivery mechanisms. It's crucial to remember that cost-cutting tactics are intended to increase a company's profitability. Innovations tend to lessen dependency on manual labor while establishing a platform for account holders to conduct self-service transactions.

Africa is home to almost 40% of the world's population, yet represents only 9.5% of the world's GDP. Africa is the world's second most populous continent but it's also the second most underdeveloped. Even though Africa has experienced rapid economic growth over the last two decades, its poverty levels have remained stagnant. This is largely due to the fact that only 1% of Africa's population has access to a bank account. Therefore, technology is key needed to unlock financial inclusion but the lack of investment in technology has hindered the growth of the industry. This is because financial sector is often viewed as a non-tradable sector as it is seen as too risky due to the lack of available capital funding (Thouraya & Issa, 2013).

1.1 Research Problem

In the banking industry, technology has been sluggish to catch on. However, the number of new products and services entering the market has been steadily increasing, with the number of new financial innovations predicted to double (OECD, 2020). Social networking platforms, mobile phones, and cloud computing are all used in many of these emerging technologies. In order to make the banking experience more convenient and appealing to customers, new products are being developed.

One of the most disruptive technological changes is the internet. The internet has been a significant development in the last two decades, and the World Bank has recognized the opportunities and benefits of internet banking in Africa (Erik et al., 2021). This is because internet banking offers the potential to reduce the cost of financial services, increase access to financial services and ultimately lift people out of poverty in Africa.

Despite the adoption of financial innovations by Kenyan commercial banks, some have reported declining financial performance (CBK, 2014). Technology has led to new ways for banks to deliver services, such as Stanbic's "Digibank," Equity Bank's "Eazzy pay," CBA's cooperation with Safaricom to create "M-Shwari," a digital bank branch, and Commercial Bank of Africa's "Loop," an online banking platform. There is, however, no conclusive proof that any of these financial advances increase bank profitability and shareholder wealth. Financial innovations have, in fact, been implemented by banks with the goal of improving performance. The usage of ATMs, EFTs, RTGS, cheque transaction systems, agency banking, mobile banking, and online banking are among the advancements. At least one of these is found in almost every commercial bank.

In their study on the impact of technology on bank performance, Gakure and Ngumi (2014) analyzed the impact of financial innovations in the financial markets and found that technologies were beneficial to banks. On the other hand, Muiruri and Ngari (2014) found that various financial innovations, such as mobile transactions, transacting through agents, and executing banking transactions using cards, were ineffective in boosting bank profits. As a result, this study fills a gap by examining the impact of technology on commercial bank financial performance in Nairobi, Kenya.

1.2 Research Objective

To establish how technological change affects the performance of commercial banks in Nairobi County

II. LITERATURE REVIEW

2.1 Diffusion of Change Theory

The study was guided by the diffusion of change theory progressed by Everett Rogers in 1962. The hypothesis brings up the how, why, and at what rate new thought and change spread. Rogers contends that diffusion is the procedure by which advancement is imparted after some time among the members in a social framework (Rogers, 1962). Rogers additionally attests that four primary

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components impact the spread of another thought the development itself, correspondence channels, time, and a social framework and this procedure depend intensely on human capital. The change must be widely applied in order to be sustainable. The classes of adopters are innovators, early adopters, early majority, late majority, and laggards.

Rogers contends that the qualities and attributes of the advancement itself are critical in deciding the way of its dissemination and the rate of its implementation (Rogers, 1962). In regard to technological change and all advancements examined fall into this class and the rate of its use is imperative for authoritative development and improvement. Rogers (1962) traces two elements to be regarded. Rogers illustrates five essential qualities of an advancement which, he contends, influence its diffusion relative favorable position, similarity, multifaceted nature, trainability and perceptibility (Kunreuther & Pauly, 2012).

In the current study, the theory was used to explain the importance of technological change on performance of commercial banks in Kenya. This is in line with Rogers diffusion theory that technological change the rate of its usage is important for organizational growth and development. Therefore, the diffusion theory will be used to support objective number two, which is technological change and performance of organizations.

2.2 Empirical Review

Technological change is defined as the adoption of systems such as ERP systems that provide capabilities that support and enhance processes associated with producing. The systems should also help improve firm activities by automating routine tasks such as order management. Further, change technology is defined by Tornatzky, Fleischer and Chakrabarti (1990) as new invention derived from research developments, technical knowledge and tools independent of product and service initiatives. With reference to the foregoing definition, this study regards technological change as the adoption of new systems derived from research and development and technical knowledge in order to support and enhance processes within the cement manufacturing industries.

Technological change is a key factor in a firm's competitiveness. It is unavoidable for firms which want to develop and maintain a competitive advantage and gain entry into new markets (Becheikh et al. 2006). The success of most firms majorly depends on efficient operational processes which result from more investments in technologies that enhance firm internal efficiencies. Therefore, technological change adopted by firms should help to identify and explore new revenue opportunities and improve customer satisfaction through reliable delivery. Technological change can be attributed to new technological change, automation of routine tasks and adoption of new systems (Zwass, 2013).

Claudio, Teresa and Cristina (2013) examined the effect of technological change efficiency on firm performance among Spanish manufacturing firms. The research used the Survey of Business Strategy (SBS), which is a firm-level panel data set of Spanish manufacturing firms covering the period from 1990 to 2005. The study found that the use of the innovation outputs without considering the effort needed to achieve them might be overestimating their effect on firm performance. The results show that there are few efficient firms in the Spanish manufacturing sector indicating that there is much room for improving the efficiency of the technological change process. The results also show the importance of measuring the technological change efficiency as determinants of firm performance rather than the merely inclusion of change inputs or outputs. The study recommends that it is of a major importance to know the importance of technological change in order to evaluate how firms are developing the most important activities that are central for business success, the technological changes. Nonetheless, this study used a panel data set while the current study will use a cross-sectional data set. This presents methodological differences between the two studies.

Odhiambo (2014), evaluated change strategies adopted by Standard Chartered Bank. The study revealed that Standard Chartered Bank in Kenya has adopted Technological Change Strategies to help in the advent of globalization and to enhance their methods for working together keeping in mind the end goal to draw in and keep up existing clients. The techniques were received since they concentrate on all parts of the business operations extending from client mind, mechanical progression to better items in the market. Similarly, Wason and Bichanga (2014) assessed the change practices embraced by small and medium venture of Nairobi Region because of worldwide rivalry and established that SMEs in Nairobi County use technological change as a strategy in global entrepreneurship to a moderate extent. The study by Wason and Bichanga (2014) also established that the SMEs in Nairobi use technology management as a strategy in global entrepreneurship. However, these studies did not focus on commercial banks whose dynamics and intensities of competition differ significantly.

Didier and Olsson (2014) in a study on micro insurance and the importance of an inclusive approach in service change, understood the important role of process improvements with the help of technology to achieve service change by analyzing the change by first observing the endogenous and exogenous drivers that lead to change. The findings enabled the articulation of the main advantage of technological change, which is, that stakeholders and employees are trained so that they do not start from zero,

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they do not start with nothing. Every firm has its own base of knowledge, which they share to achieve a common goal. In the case of micro insurance for instance, a success factor was the ability to reuse an existing platform of payment. The high penetration of mobile technology on emerging markets was particularly important here due to the lack of infrastructure and the search for cost reduction. The study also observed that each stage of change mean threats, challenges and opportunities for the firms, which need to adapt and clearly define their strategies.

Nidumolu, Prahalad, and Rangaswami (2009) observed that the European cements industry is continuously researching ways to improve the quality of its products and reducing its environmental impact. It dedicates significant time and resources to change projects across a broad range of areas. The aim of the change projects is to improve their environmental performance, reduce CO_2 emissions and improve energy efficiency. The projects range from carbon capture and reuse in clinker manufacturing development of low carbon cements, new binders and change in both concrete production and applications. The focus on change is because the cement industry strongly believes that change drives competitiveness and contributes to sustainable growth and job creation.

Mutua and Kiruthu (2014) examined the QMP adopted by financial industries in Kenya and their impact on profitability. The research used cross sectional design. The results indicated that firms that used QMP registered high sales volume leading to increased profitability. Mutua and Kiruthu study focused on quality management practices with an aim of improving organizational financial performance through increased sales. Technological change is however not practices part of quality management and therefore does not address the role of technological change in enhancing performance. In the current study, technological change is considered as one of the factors that influences performance of commercial banks in Kenya.

III. RESEARCH METHODOLOGY

3.1 Research Design

The study adopted a descriptive research design. According to Mugenda (2003), descriptive research is used when the problem has been well designed. It involves fact finding and enquiries of different types (Baker, 2010). This method is suitable since it allows flexible data collection and the respondents are not manipulated. Walter (2009) argues that descriptive research design is used when the problem is known and well designed. This is the research design that was used to establish the change management on performance of commercial bank.

3.2 Research site and rationale

The research was carried out in Nairobi county among all the commercial banks with exception of those under receivership, this provided a sound understanding of the effects of strategic change management practices on performance of commercial banks in Nairobi county. The commercial banks in Nairobi represent the entire commercial banks in Kenya since all commercial banks headquarters are in Nairobi County.

3.3 Target Population

The total population was 126 commercial bank management staffs that operate in Nairobi County. There are 42 registered banks in Nairobi County, according to the Central Bank of Kenya as at January 2018. The respondents consists of the management employees in the banks namely; branch manager, operations manager, customer service managers, as these are the users of change and interacted with customers.

3.3 Data Collection Methods

The study employed both qualitative and quantitative processes of data gathering. Primary data was collected through questionnaires and in-depth interview. Questionnaires were the principal tool of quantitative data collection. Questionnaires had both structured and unstructured questions which aided in gathering standardized answers. Open ended questionnaires, gave the respondents a chance to express their views, experiences and attitude on the research problem, while closed ended questionnaires allowed the respondent to give precise information on the study. However, in-depth interviews were conducted between the researcher and the respondents in a confidential and secure ways using an interview guide which had identical questions.

IV. FINDINGS & DISCUSSIONS

4.1. FINDINGS

The study sought to investigate the influence of technological change on the performance of the commercial banks.

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Table 4.7 Effect of Technological Change on Performance of Commercial Banks

	1 (SD)		2 (D)		3 (N)		4 (A)		5 (SA)			
Technological Change	**F**	**%**	**F**	**%**	**N**	**%**	**A**	**%**	**SA**	**%**	**Total Responses**	**Weighted Mean**
1. Our bank has adopted new innovative technology	12	11.2	24	22.4	7	6.5	50	46.7	14	13.1	107	3
2. Our bank has invested heavily in innovative technology	7	6.5	19	17.8	7	6.5	53	49.5	21	19.6	107	4
3. Our bank enjoys inter-organizational processes and collaboration	6	5.6	25	23.4	11	10.3	47	43.9	18	16.8	107	3
4. Our organization has invested in training our staff on technical skills to be able to embrace technological innovation	36	33.6	37	34.6	6	5.6	18	16.8	10	9.3	107	2
5. Our bank has acquired integrated transactional management information system	9	8.4	11	10.3	9	8.4	57	53.3	21	19.6	107	4
Mean of Weighted Means												**3**

Source: Survey Data (2018)

The results indicated from 59.8% of the respondents agreed that banks have adopted new innovative technology in order to enhance performance while only 33.6% of the respondents who disagreed that banks have adopted new innovative technology. This means that banks have adopted new innovative technology to enhance performance. These findings agree with those of Obiero (2008) who analyzed the competitive strategies applied by financial industries in Kenya. The study took on a case study design aimed at gathering qualitative data ad found that bank was reported to have adopted competitive strategies in order to maintain their vision and enhance performance. To achieve their vision, bank is innovative in its product brand choice as a competitive strategy. It also uses recent technology in banks which is cost effective.

The results indicated from 68.1% of the respondents agreed that banks have invested heavily in innovative technology while 24.3% of the respondents disagreed that banks have invested heavily in innovative technology. This means that banks have invested heavily in innovative technology. This finding agrees with those of Zwass (2013) who found that the success of most firms majorly depends on efficient operational processes which result from more investments in technologies that enhance firm internal efficiencies. Therefore, technological change adopted by firms should help to identify and explore new revenue opportunities and improve customer satisfaction through reliable delivery.

The results indicate from 60.7% that banks enjoy inter-organizational processes and collaboration while only 29% of the respondents disagreed that banks enjoys inter-organizational processes and collaboration. This means that banks enjoys inter-organizational processes and collaboration. These findings are supported by those of Claudio, Teresa and Cristina (2013) who examined the effect of technological change efficiency on firm performance among Spanish manufacturing firms. The research used the Survey of Business Strategy (SBS), which is a firm-level panel data set of Spanish manufacturing firms covering the period from 1990 to 2005. The study found that the use of the innovation outputs without considering the effort needed to achieve them might be overestimating their effect on firm performance.

The results revealed from 68.2% of the respondents that commercial banks have not invested in training of staff on technical skills to be able to embrace technological changes while only 26.1% of the respondent who agreed that commercial banks have invested in training our staff on technical skills to be able to embrace technological changes. This means that commercial banks have not invested in training of staff on technical skills to be able to embrace technological changes. This findings disagrees with those of Didier and Olsson (2014), in a study on micro insurance and the importance of an inclusive approach in service change, understood the important role of process improvements with the help of technology to achieve service change by analyzing the change by first observing the endogenous and exogenous drivers that lead to change. The findings enabled the articulation of the

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main advantage of technological change, which is, that stakeholders and employees are trained so that they do not start from zero, they do not start with nothing. Every firm has its own base of knowledge, which they share to achieve a common goal.

The results revealed from majority of the respondents 72.9% that banks have acquired integrated transactional management information system while 18.7% of the respondents disagreed that banks have acquired integrated transactional management information system. This means that banks have acquired integrated transactional management information system. This finding agrees with those of Odhiambo (2014), evaluated change strategies adopted by Standard Chartered Bank. The study revealed that Standard Chartered Bank in Kenya has adopted Technological Change Strategies to help in the advent of globalization and to enhance their methods for working together keeping in mind the end goal to draw in and keep up existing clients. The techniques were received since they concentrate on all parts of the business operations extending from client mind, mechanical progression to better items in the market.

4.2 Discussion

This objective of the study was to establish the influence of technological changes on performance of commercial banks in Nairobi County. The results showed that technological changes had a positive influence on performance of commercial. The analysis produced a variation of 0. 551 and a p-Value of 0.002 which is less than the acceptable significance level (α) and hence the null hypothesis was rejected. Majority of the respondents agreed that technological changes had a positive influence on the performance of commercial banks in Nairobi County.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 CONCLUSIONS

Based on the findings of the study, the study discovered that technological changes have an impact on commercial bank performance. The researcher also established that most of the product changes occur due to technological changes. There is therefore a need of the technology to ensure the changes is sustained and is not wasted.

5.2 Recommendations

Technological changes have its set of challenges especially related to security threat which can lead to reputation risk among banks and loss of confidence by the customers. The main users of bank changes are depositors. Without deposits and depositors the sustainability of banks would be at risk. This therefore calls for better technology changes in a manner that boosts depositors' confidence. Technology should therefore need to create enhanced and effective technology security systems which can detect, control, prevent and manage fraud incidents on the various changes channels. This recommendation is derived from the growing threat of system intrusion by hackers which can erode the desired gains of bank changes.

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