Digital Innovation And Organizational Performance Of Kenya Commercial Bank Branches In Nairobi City County, Kenya

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Abstract- The Kenyan banking sector is characterized by rapid changes and demanding markets and customers leading to fluctuations in performance like high non-performance of loans, reduced profits and more customer accounts going dormant or customers closing their bank accounts. These changes call on the leaders to readjust and reconfigure plans. The study focused on determining the effect of digital innovation on organizational performance of Kenya Commercial Bank Branches in Nairobi City County, Kenya. The study was grounded on technology acceptance model. The study adopted descriptive design and targeted 24 KCB branches within Nairobi City County and sample size list had 96 respondents who helped fill the semi-structured questionnaires. The response rate was 77.08% from the 74 out of 96 questionnaires were filled and returned. Results revealed that digital innovation (r=.849) positively and significantly improved performance of the KCB Bank Branches. The study established that digital innovation at (β=8.101, $p<0.05$) had significant effect to performance at KCB bank and 79.8% of performance in the KCB bank branches was as a result of elements of digital innovation. The study concluded that performance of the KCB bank branches in Nairobi City County depended on use of digital systems where there was alternative banking platform (internet, bank agents and mobile banking) that increased revenue streams and cut off expenses. The study thus recommends that during any changes in the market and business environment, the bank and other financial institutions should employ digital systems to improve performances.

Index Terms- Digital Innovation, Process innovation, Internet banking, Mobile banking, Performance

I. Introduction

The banking and financial sector is one of the important industry that builds the economy of a nation. Despite its importance, issues facing the sector have had negative effects to performance outcomes with cases of bankruptcy and scaling down operations. According to Chipwatanga and Benjamin (2019) the sector faces a lot of competition from other financial service providers and the consumers have increased their demand for high quality service delivery. The turbulence experienced in the sector calls for modification of strategies and it take the of response strategies, which Lui, Bartosiak, Piccoli and Sadhya (2018) define as aligning the organizational strategies to respond to the turbulent environment and changes in the market these firms operate in. Response strategy is well planned and coordinated actions to counter the changes present in the environment, these changes may include technological advancement, globalization and crisis like covid-19.

Response strategies may also take the form of adoption and use of modern technological systems, training staff of the organization, shifting in operations, employing competitive strategies, expansion and cost management strategies. The point of re-align the organizational strategies is for responding to the changes in the environment, guaranteeing enhanced performance even in future and gaining competitive edge (Kipchumba, 2018). On digital innovation, Ekong, Chukwu and Chukwu (2020) shares that it is one of the strategies the organization used as a response to Covid-19 pandemic. Through use of digital tools, the national and local government could contact and trace patients that have contracted the corona virus. The accuracy and speed of digital contact tracing is useful to organizations that face a similar scenario, and the digital tools are used to share information that help in making informed decisions that can address the issues that a firm is going through.

Chege, Wang and Suntu (2020) noted that small and medium-sized enterprises have adopted the use of information communication technology (ICT) and adoption of technology innovation strategy led these enterprises to improve their performance. Use of ICT allowed the SMEs to easily interact and network with suppliers, clients and other SME owners which improved their productivity. Gathungu and Baariu (2018) shared that the SMEs in the manufacturing sector had adopted the digital processing system that helped improve performance outcomes and quality of the products they delivered to the markets.

Digital innovation is about organizations using digital systems and processes to handle the work tasks. Using the digital systems can make handling tasks faster, more efficient and effectiveness with minimal costs (Markus & Nan, 2020). One system or digital application can accurately do the work that would have been handled by several people. In the banking sector, automating the processes can improve customer satisfaction with the services delivered. Again, the invention and use of mobile banking and internet banking has seen an increase of the number of people served by the banks, increase in revenue streams for the banks through deposits and interests charged on loans dispensed through the mobile applications. Nemoto and Koreen (2019) noted that many commercial banks have invested heavily in digital systems and applications to better serve the clients and keep in line with the developing techno-world.

Adoption of digital innovation in organizations helps to improve service quality and performance outcome. Performance measurement in the past was done through only two elements financial and non-financial elements. In the recent days, measuring performance was expanded to cover efficiency of service delivery that mostly applies for service-based organizations and rating the quality of direct goods production capacity for product-based manufacturing organizations (Chipwatanga & Benjamin, 2019). Furthermore, organizations measure their performance using sector-specific elements. In the banking sector, performance measurement consists of using financial and non-financial terms, with concepts like profit margins, returns on investment, return on asset, market share and customer satisfaction (Ontita & Kinyua, 2020). For the case of this study, organizational performance will be measured using customer deposits and the more there are deposits made by the different customer categories, like business customers and executive customers; will be an indication of high performance of the bank branch (Asiligwa & Rennox, 2017). It will also involve loan book, earnings made from interests charged on loan, teller transactions and total number of accounts opened and active.

Kenya commercial bank is one of the premier banks in the Kenyan financial sector, dating back to its inception in 1896. It has grown its asset base, branches, market presence, deposits and profitability, but the constant changes in the operating markets has had negative impact on its performance. According to Wandia and Ismail (2019), the bank has had strategic alliances and strategically aligned with technological firms like Kenswitch to increase ATMs and telecoms like Safaricom for KCB-Mpesa app but these alliances have not been very successful due to highly competitive markets. The bank report of 2019 showed that the bank has invested heavily in technology since 2007 and this led to invention of internet and mobile banking; however there have been gaps in aligning innovation and technological systems to the bank structure, its goals and strategy and how it can be used to improve the performance. Intense competition, knowledgeable and choosy clients, globalization effects and growth of the digital world and even the covid-19 pandemic have negatively impacted the performance of the bank. The bank showed decline in earnings from bank loan interest, such non-performing loans increased to Ksh.97 Billion on 2019 up from Ksh.42 Billion in the financial year 2018 and profitability index went down in 2020 from Ksh.19 Billion to Ksh.10 Billion (KCB annual report for FY 2019/20).

The focus is in addressing the challenges that KCB bank group has with its performance and concentrating on digital innovation.

II. Statement of the Problem

In the era of high competitiveness, globalization and knowledgeable customers, the banking sector has experienced a decline in its performance. The performance has further suffered because of the covid-19 pandemic and reduction in incomes and business operating hours (Kamau, Aosa & Pokhariyal, 2018). The Kenyan banking sector has seen increase in n-performance of loans, reduced profits and more customer accounts going dormant. Thus, the need to consider digital innovation to make changes and reverse the bad effects by improving customer deposits, increase teller transactions, raise loan book and increase number of customer accounts. KCB Group Plc. has seen an increase in NPLs from Shs.42.6 billion in 2018 to Shs.97 billion in 2019, increase in losses from loans and credits Shs.20 billion from Shs.5.8 billion in the 2017/18 FY. The overall profitability index also went down in the 3rd quarter of 2020 to Shs.10.9 billion from Shs.19.2 billion in quarter three of 2019. In the FY 2019/20 the adopted response strategy focusing on shifting operations to digital systems has seen an increment, such as mobile banking was 45% in 2018 and it went up to 78% in 2019, while teller transactions dropped from 12% in 2018 to 4% in 2019. Thus, at digital innovation as a response and tool to be deployed for improvement of performance at branch level.

Research Objective

To determine the effect of digital innovation on organizational performance of Kenya Commercial Bank Branches in Nairobi City County, Kenya

III. Literature Review

Theoretical Review

Technology Acceptance Model

The model was first suggested by Davis (1986) and used to explain how organizations behave when technology is introduced. TAM focuses on the ideology on what makes one technology to be either accepted or rejected and as such evaluates the usage and performance of technologies in organizations. The TAM model operates on two key factors; the intention by individuals to use the new technology and first, the perception of ease of using the technological applications and systems and secondly, perception of its usefulness and benefits that individuals and organizations gain (Rauniar, Rawski, Yang & Johnson, 2014).

According to Taherdoost (2018) technology adoption and usage is dependent on the attitudes of the consumers in the market and the expectations that its acquisition and ease in its usage. The framework dictates that the two aspects, ease of usage and expected usefulness of digitally innovated products in banking sector including mobile banking, internet banking and other alternative banking options as response to the changing operational and market environments. Bank customers can only adopt any of the digital banking innovations based on ease of use and expected usefulness and benefits of the technologies in terms of comfort and operational efficiency.

The theory is relevant in explaining how digital innovation that responses to the customer needs and demands for efficiency and fast banking operations. The customers perceived usefulness and ease of using the digital systems makes them embrace digital innovation. This is done through process innovations, mobile and internet banking systems for improvement of performance outcomes in the bank in terms of increased volume of transactions, higher amounts of loans accessed on digital platforms, increased customer numbers and market base.

Empirical Literature

Mutie (2018) conducted a study on technological innovations and how they affect the organizational performance in the Kenyan government agencies. The focus of the study was adoption of technological innovations including elements like system development enhancements, information technology (IT)-based innovations, digital tools and systems and process integration and how they affect the performance in the government agencies. The researcher collected primary data from the employees working in the government agencies. The results show that elements of technological innovations - adoption of technological innovations including elements like system development enhancements, information technology (IT)-based innovations, digital tools and systems and process integration; accounted for 75.9% of the organizational performance in the government agencies. The study concluded that performance in the Kenyan government agencies was due to technological innovations including technological innovation enhancement, system development IT-based innovations, digital tools and systems and process integration. There was need to set more funds for advancing technology and digitalization efforts for improved service delivery.

Scott, Van Reenen and Zachariadis (2017) investigation of digital innovation and its long-term effects to the performance of banks and the focus was the SWIFT innovative financial services. The researchers looked at effect of SWIFT innovations which is a network – based technological infrastructure that allows inter-bank communication for banks across the globe. The researchers collected secondary data and constructed a longitudinal dataset from 6,848 banks in 29 European countries and the America. The banks were purposively selected because they have adopted the SWIFT innovation for the operations since its invention in 1977. The study concluded that digital innovation adoption in the banking industries has a large and positive long-term effect to performance of the banks. The study therefore suggests that all banks should embrace digital innovation to improve its performance and maintain the same for long periods.

Ouma and Ndede (2020) study was digital banking technology innovation adoption and its effect on financial performance of Kenyan commercial banks. The researchers noted that the commercially based banks play a significant role in economic development and hence the need to employ digital banking technological innovations to improve financial performance of the sector players. Adoption of digital banking will help the commercial banks serve its retail customers that are widely spread geographically and address the issue of network. The commercial banks that have adopted the digital banking innovations have seen an improvement in the deposits, withdrawals and other bank activities and transactions across their networks, but some banks face some challenges. The results show that ease of accessing digital banking technology innovations and influence of turnaround time and lower cost implication of using digital banking technology positive and noteworthy influence the financial performance of the banks.

Izadi, Ziyadin, Palazzo and Sidhu (2020) evaluated the impact that innovation and managing its capacity had on organization performance. The focus of the study was to measure the extent to which intellectual and emotional assets influenced the marketing capacity and how these elements reflected in the organizational performance. The researchers collected data from 35 managers and academicians in multinational companies using in-depth interviews. The study findings showed that adoption of digital technology, knowledge and competence of the people and reputation of the firm had a big effect to performance of the companies. The study explains the increased role of digital innovation and its impact on sustainable outcomes. The more organizations and small and medium-sized enterprises employed innovation and digital technology, the higher their knowledge base, competencies and reputation that led to improved performance.

Chege, Wang and Suntu (2020) did a study on information technology innovation and the impact it has on performances of Kenyan firms. ICT has helped in creating modern employment options for people through networking sites such that people can easily interact through the innovation. ICT up-take and its implementation is different based on entrepreneurs innovativeness that affects the technological innovations which impacted on the performances of these firms. The study examined the link of technology innovation and firm performance by looking at 240 enterprises and findings showed that technology innovation significantly influenced firm performance. Entrepreneurs are thus encouraged into developing innovative strategies and products, the government to improve ICT infrastructure that will promote SMEs ease of adoption of technological innovations that will improve their performance.

Conceptual Framework

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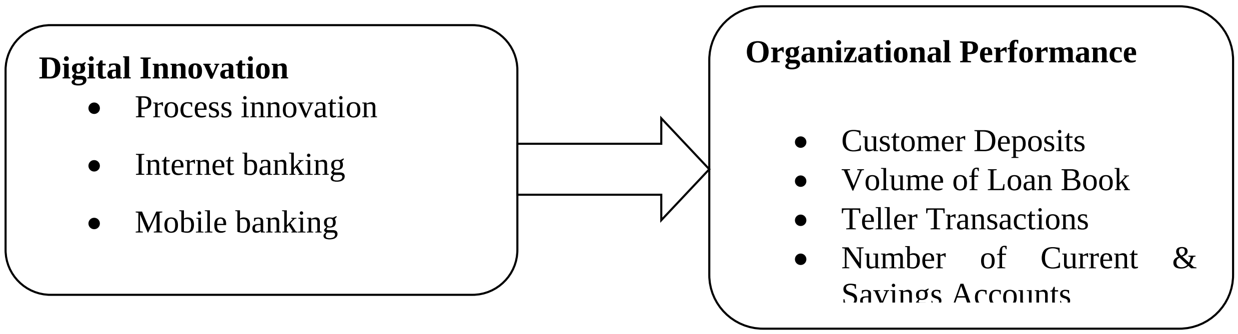

Figure 1: Conceptual Framework

IV. Research Methodology

The study adopted descriptive research design and according to Turner, Cardinal and Burton (2017), it focuses on seeking answers about the research phenomenon on questions like what, when, where and why of elements. The design was ideal to be used in describing how digital innovation influences performance at the Kenyan Commercial Bank (KCB) Nairobi County branches. All the 24 KCB bank branches located in Nairobi City County were included in the study and the respondents included the bank managers, operational managers, customer service executives and back office officials. Total respondents making the sample size of the study were 96 people. Census sampling of all bank branches and purposive sampling of the specific polled study participants were adopted in the study.
Primary data was collected using semi-structured questionnaires such that data was qualitative and quantitative. The instrument was pilot tested using 8 respondents working KCB bank branches in Kiambu County. The assessment found that the research tool was both valid and reliable as all the Cronbach Alpha test results were above the 0.7 threshold. All the collected data was entered into SPSS version 25.0 and Ms. Excel for analysis of quantitative data that was done through description to get means, frequencies and standard deviation; correlation analysis to show the relation between variables and regression analysis. Findings were presented in tables, figures and discussions. The qualitative data was analyzed through the use content analysis in such a manner that the data was arranged thematically and grouped as per the study variables and presented in prose form.
The regression analysis model format is:

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \varepsilon}$$

Where:
Y = Organizational Performance
$\beta_{1,}$ = Coefficients of Response Strategies
X_1 = Digital Innovation
ε = Error term

V. Research Findings and Discussion

The response rate was 77.08% realized from the 74 questionnaires that were filed and returned out of the 96 distributed ones. In abiding by the stipulation of Mugenda (2012) on response rate, where the researchers stated that any response rate for research that is 70% and above is fit and representative of the study.

Descriptive Analysis Results

Table 1: Digital Innovation

Digital Innovation	**Mean**	**Std. Dev.**
The bank use of digital systems eases the work tasks	4.047	.793
The digital systems allow banks to offer fast services to the clients	4.416	.497
Adoption of internet banking helps the bank minimize its operational costs	4.327	.759
Automating bank processes enables quality services delivered to the clients	4.291	.639
The clients can access bank services using mobile banking	4.333	.751
Mobile banking is another revenue stream for the bank	4.256	.807
The digital systems has enable the bank to serve more clients	4.325	.709
Overall Score	**4.285**	**.707**

The results on digital innovation as applied in the KCB bank branches in Nairobi County and the overall average scores at M= 4.285 and SD =0.707. This implies that many of the respondents agreed on the fact that their performance at branch level had been strongly influenced by digital innovation. The findings in the table are echoed by researchers such as Ouma and Ndede (2020) who noted that adoption of digital banking technologies improved the turnaround time for services delivery. At the same time, Mutie (2018) such that technological innovation, system development, digital tools and systems enhance production and lead to improved outcomes. Chege, *et al.* (2020) also confirms that ICT allows networking across many sites and in that many clients can be reached. This is means that through ICT the revenue is increased for the organization. While, Markus and Nan (2020) argue that digital systems improve efficiency and effectiveness and minimize operational costs. Scott, *et al.* (2017) revealed that use of digital innovation enable the banks reach more customers, earn more from transactions; it also resulted in increased knowledge base (Izadi, *et al.*, 2020). In addition, Nemoto and Koreen (2019) shared that use of mobile and internet banking can increases revenue lines and eases functions in commercial banks.

Table 2: Organizational Performance

Organizational Performance	Mean	Std. Dev.
The bank branch has increased its daily teller transactions	3.869	.824
The branch has strong loan book realizing higher interest earnings	4.204	.585
There is an increase in customer deposits at the bank branch	3.651	1.053
The bank's number of current and savings account is high	4.016	.706
Overall Score	**3.935**	**.792**

The results on organizational performance from the conducted descriptive analysis, showing the overall score at 3.935 and variation of the responses was at 0.792. In echoing these findings, Azmi, *et al.* (2021) noted that increased outputs enhance shareholders' and investor's value; it also about strong loan books such that increased advanced loans and credits mean more earnings for the bank through interest rate charges. Opening new accounts that remain functional increase performance outcomes of the bank (Alawattegama, 2018), transactions done by each teller inform on their contribution to performance of the bank (Asiligwa & Rennox, 2017) and Ontita and Kinyua (2020) noted that performance in terms of financial elements included customer deposits and more deposits imply higher outcomes for the organization.

Correlation Analysis Results

Table 3: Correlation Analysis

		Organizational Performance	Digital Innovation
Organizational Performance	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	74	
Digital Innovation	Pearson Correlation	.849	1
	Sig. (2-tailed)	.000	
	N	74	74

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Digital innovation was strongly correlated to performance of the KCB branches in Nairobi City County, since the r values obtained were at a high (r= .849 and p-values=0.000).

Regression Analysis
Model Summary

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.518[a]	.633	.798	3.42406

a. Predictors: (Constant), Cost Management, Digital Innovation, Strategic Partner Management, Human Resource Response

The coefficient of determination found from the adjusted R squared is at 0.798 which means that performance at the KCB bank branches in Nairobi City County can be traced to elements of the digital innovation. Thus, 79.8% of performance in the KCB bank branches was linked to digital innovation.

Analysis of Variance

Table 5: Analysis of Variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	273.369	1	273.369	64. 261	.001b
	Residual	306.312	72	4.254		
	Total	**589.681**	**73**			

a. Dependent Variable: Organizational Performance
b. Predictors: (Constant), Digital Innovation

The analysis of variance (ANOVA) was calculated at a significance level of 0.05. The findings show that the F calculated is greater than the F-critical such that 64.261 > 3.974, implying that the model adopted in the study is a good fit and ideal for use.

Regression Coefficient

Table 6: Regression Coefficient

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	18.274	2.262		8.078	.000
Digital Innovation	8.101	1.296	.856	6.250	.000

$Y = 18.274\ 8.101X_1$
Where: Y = Organizational Performance; X_1 = Digital Innovation

The results show that when all aspects of response strategies are held constant, the organizational performance of KCB bank branches in Nairobi City County will be 18.274. When all factors are held constant but there is a single unit increment in digital innovation while other elements are held constant results in performance at these KCB bank branches to stand at 8.101. The study established that digital innovation (β=8.101, p = 0.000<0.05) had significant, positive effects to performance in the banks. The results are also shared by Ouma and Ndede (2020) noting that digital banking technology had significant effect to bank's financial performance. Mutie (2018) also discovered that elements of technological innovation positive and significantly affected organizational performance.

On the theme of digital innovation, the study found it was based on mobile and internet banking and digitalization of bank processes. Participants shared that there was frequently automated systems, use of online platforms for engaging the customers, answering online inquiries, adoption of point of sale (POS) machines by merchants, use of cloud computing, self-service portals at the banking hall like doing deposits at the ATM, chatbots and micro-services. Other digital innovations include Fin-tech innovations and block-chain technologies, use of ATMs for cash deposits and withdrawal, electronic funds transfers, real time gross settlement of funds, accessing statements on email, agency banking and processing cheques in a span of one day. The digital innovations improved performance of the KCB bank branches.

VI. Conclusions

The study concluded that digital innovation had improved performance of the KCB bank branches by expanding revenue streams, offering fast, quality and efficient services that had attracted many customers. The respondents agreed that through the alternative banking options (internet banking and mobile banking) the bank has minimized operational costs, reduced staff workload and increased the number of customers served. The regression and correlation results indicate positive and significant influences of digital innovation to performance and hence the conclusion is there is an association between the two variables.

VII. Recommendations

The implication of the findings and drawn conclusions is such that digital innovation had improved performance of the KCB bank branches. Thus, the study recommends to practitioners that when introducing new systems and digital technologies, the banks should inform the general public, customers and staffs on the changes. These stakeholders must be informed on the use and advantages of digital systems such as alternative banking platforms. The digital systems must be user-friendly to accommodate different users and they need to be constantly updated to protect customer information from fraudsters. Anytime organizations and enterprises encounter changes in the economy, the social and technological environments; management team must assess the situation and re-configure the strategic plans. There is also need to adjust the recruitment policy and framework such as to attract candidates that are tech savvy so as to push forward the digital innovation agenda.

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