Effect of Knowledge Generation on Innovation in Commercial Banks in Kenya.

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ABSTRACT

The business environment in which organizations including commercial banks are operating in is characterized by cut-throat competition and changing customer needs. Commercial banks need to be innovative to achieve customer satisfaction and competitive advantage. The ever-changing business environment has made enterprises to realize that knowledge is their key asset in enhancing innovation. This study sought to examine the effect of knowledge Generation on innovation in commercial banks in Kenya. The specific objective of the study was to determine the effect of knowledge generation on innovation. The study was guided by Resource-Based view, knowledge-based view and dynamic capabilities theories. The study adopted an explanatory research design and cross-sectional survey research design. The target population comprised of commercial banks licensed by the Central Bank of Kenya. The study employed a census survey method of all the 38 commercial banks in Kenya. The study used primary data which was collected using structured questionnaires. Descriptive statistics such as frequencies and percentages, means and standard deviation were used to summarize the data. Pearson's correlation was used to examine the relationship between knowledge management practices and innovation. To test the research hypothesis, simple regression analysis was used. Findings showed that knowledge generation has significant and positive effect on innovation in commercial banks in Kenya. The study concludes that knowledge generation demonstrate a positive impact on innovation in commercial banks in Kenya. This suggests that effective management of knowledge generation enhances the ability of banks to innovate. The study recommends organizations to work towards recognizing their staff appropriately so that they can exhibit improved employee output in terms of knowledge management. Also, Banks ought to customize their training activities to enable employees to perform their duties better.

Keywords: Knowledge Generation, Innovation, Commercial Banks, Automated Teller Machine, Kenya.

INTRODUCTION

The business environment in which firms are currently operating in is characterized as volatile, uncertain, unstable and dynamic. Consequently, firms are supposed to innovate and improve their performance continuously in order to catch up with the market changes and be at par with the competitors (Brix, 2017). Organizations have realized that the only asset they have to enable them to cope in the ever dynamic business environment is to innovate (Mutuku, 2014). Knowledge and knowledge workers are the most crucial assets of the 21st century enterprise. The ability of organizations to make use of their intangible assets has become far more decisive than their ability to invest and manage their physical assets (Zhao, Jiang, Peng, & Hong, 2020). Hence, to remain competitive, organizations must have the capacity to retain, develop, organize, and utilize their employee competencies (Wawira, 2013).

Knowledge Generation play a very crucial role in organizational change and development. In the ever-changing business environment, organizations need to introduce change successfully through their knowledge resources and capabilities that define their knowledge strategy and reduce the knowledge gaps (Demircioglu, 2016). Organizations that apply knowledge management in the processing of their intellectual assets are able to achieve sustainability and higher organizational performance. Maintaining a good knowledge of the organization is the only effective tool used by organizations to create competitive advantage (Alosaimi, 2016; Haradhan, 2017).

Innovation involves the discovery, experimentation, and development of new technologies, new products and/or services, new production processes, and new organizational structures. Innovation is about implementing new ideas (Borghini, 2005). Literature describes innovation in terms of its nature; as an element, a new structure or administrative system, a policy, a new plan or program, a new production process, a product or service new to the company, which has been acquired or generated internally (Petkova, 2015). Innovation can be achieved by providing efficient and effective administrative efforts, better employee work relations, work place satisfaction through the provision of a conducive working environment and proper compensation. Employees play a very crucial role in the company's success or failure. Employees have tacit knowledge and skills that firms need to create competitive advantage. Tacit knowledge is improved through trainings and mentorship programs and is considered as an organizational innovation strategy that is important for a firm's success (Wanyoike, 2016). Innovation involves product, process, marketing and organizational innovations (Ganzer et. al, 2017).

Knowledge generation is the process involving creating internal knowledge, and acquiring external knowledge (Khalil et al., 2020). Firms with high innovation potential employ benchmarking to identify gaps and problems and give information for best practices for internal use, to make change decision in effective way (Ongus et al., 2016). Higher levels of knowledge strategy in form of exploration and acquisition result in higher organizational innovation influencing the overall performance (Kombo et al., 2015).

Statement of the Problem

Following the rapidly changing and competitive nature of the business environment, innovation has become one of the most important elements for survival. Firms are increasingly adopting innovation to enhance customer satisfaction and overall performance in a competitive environment. Knowledge Generation are crucial in generating new insights to enhance innovation, customer satisfaction and performance. Literature suggests that one of the key drivers of innovation is knowledge hence the need to adopt appropriate Knowledge Generation that enhance innovation. The competitive scenario of the domestic and global market heads up with the emergent need for smart management of knowledge in all aspects either within or outside the organization. Knowledge Generation play a key role on innovative performance within organizations. In order for innovation to take place, firms need to have the necessary knowledge on the internal and external forces that affect the firm. Competition in the banking industry is stiff and the industry is highly changing with the passing of time. Stiffer competition from large tech platform companies has steadily encroached the traditional banking arena due to changing customer tastes, expectations and behaviors. Banks must find a way of surviving and succeeding in the competitive environment through Knowledge Generation to enhance innovation by developing new products, new processes, and new markets for products as well as synchronizing the organization structure.

Studies examining the influence of Knowledge Generation on innovation (Abdi & Senin, 2017; Danish et al., 2012; Torabi & El-den, 2017) have been conducted in developed countries. The influence of Knowledge Generation on innovation in developing countries, however, has been given scanty attention. Studies that have been conducted in Kenya on Knowledge management have focused on parameters such as organizational performance (Ongus et al., 2016). Other studies (Kanyundo et al., 2023; Kiptalam et al., 2016) focused on knowledge management and competitive advantage in the telecommunication industry with focus on Safaricom, and firm competitiveness in small and medium enterprises, respectively. In their study, Kombo et al. (2016) focused on knowledge strategy in terms of knowledge exploration and knowledge exploitation in manufacturing firms. Further, most of these studies in developing countries have adopted a limited conceptualization of Knowledge Generation in terms of either knowledge storage and retrieval (Koech et al., 2015) who focused on employee performance in public technical institutions in rift valley or knowledge creation and knowledge dissemination (Mutinda, 2017).

These prior studies have not fully examined the effect of Knowledge Generation on innovation particularly in the banking industry. Therefore, the main purpose of this project is to determine the effect of Knowledge Generation on innovation in commercial banks in Kenya.

Objective of the Study

To determine the effect of Knowledge Generation on innovation in commercial banks in Kenya.

LITERATURE REVIEW

Theoretical Background

Several theories exist that explain the association between Knowledge Generation and innovation. These theories include Resource Based View (RBV), Knowledge Based View (KBV) and Dynamic Capabilities (DC). A summary of these theories and their implications to this study were discussed in the sections that follow.

Resource Based View

The Resource Based View (RBV) dates back to the year 1959 when Penrose viewed organizations as a pool of resources and articulation of the same. The RBV consider the resources of a firm as being a fundamental predictor of a firm's competitive advantage and performance. The resources of the firm may remain dormant until the firm employs capabilities which contribute to sustained competitive advantage (Mweru & Muya, 2016). Resources can be categorized in different ways, that is, tangible and intangible. Tangible resources facilitate execution of business processes while the intangible resources are the ones that might result in competitive advantage by allowing organizations to incorporate unique and valuable practices. RBV is based on two assumptions of resources being heterogeneously distributed across organizations and the non-transferability of productive resources from one organization to another without incurring cost (Gupta, 2017).

Thus, given the two assumptions, RBV holds that only an intangible resource that is valuable, rare, hard to imitate and without strategically equivalent substitutes is critical in sustaining a firm's competitiveness. Within projects, RBV is critical in that project management practices are based on tangible and intangible resources (Almarri & Gardiner, 2014). For instance, resources that are tangible include the use of codified methodologies, templates, tools and techniques that are readily available across the discipline. On the other hand, intangible resources include leadership, teamwork, knowledge etc. that might contribute towards competitive advantage. Thus, given that leadership, knowledge and teamwork are valuable, rare, and imperfectly imitable resources, these resources are expected to have an effect on organizational innovation performance. In terms of applicability, RBV is criticized due to lack of consensus in the uses of various definitional terms such as capabilities, assets, resources and competences. In addition, RBV is criticized on the basis of whether it can be tested due to lack of methodology to measure intangible resources (Salazar & Armando, 2017).

Resource based view theory is relevant for the current research on influence of Knowledge Generation on innovation since knowledge can be a unique resource that must be managed efficiently and effectively to contribute to organizational innovation. The knowledge resources identified by the Resource-Based view theory should be organized and managed efficiently and effectively to ensure achievement of innovation and competitive advantage of the commercial banks. Resource-Based theorists consider intellectual capital to be a firm's strategic resource. Knowledge Generation that includes knowledge generation, knowledge sharing, knowledge storage and knowledge application, if properly managed, will increase innovation, enhance firm performance and sustain competitive advantages (Laura & Crook, 2021). The theory is thus appropriate for this study as it suggests that the management of knowledge as a key resource would enhance innovation.

Knowledge Based View

The knowledge-based theory of the firm (KBV) is an extension of the Resource Based View theory of the firm that considers knowledge as the most important strategic resource of the firm for competitiveness (Centobelli, 2022). This theory presents that the major determinants of sustained competitive advantage and superior corporate performance are knowledge-based resources that are difficult to imitate and socially complex, heterogeneous knowledge bases and capabilities among firms (Leal-rodríguez et al., 2013). The theory proposes that an enterprise should act as intelligently as possible to secure its capability through Knowledge Generation and position the firm for long-term success through innovation.

According to KBV, knowledge is one of the special strategic resources that do not lose value in the way traditional economic productive factors do. Most knowledge-based resources are mainly intangible and dynamic, thus allowing for idiosyncratic development through path dependency and causal ambiguity, which form the

basis of the mechanism for economic rent creation in the Knowledge-Based View (KBV) of the firm (Silvia & Rajshekhar, 2019). KBV argue that knowledge is the key resource in new value creation, heterogeneity and competitive advantage in strategy for firms

The capability to transform resources enables firms to gain a competitive advantage. In a strategic knowledge-based theory of the firm, knowledge should be included as a multi-level concept. Knowledge based resources are difficult to imitate, transmit and have social complexities hence making an organization to achieve sustainable knowledge based competitive edge. Sustainability of such knowledge-based advantages depends on the type of knowledge involved, and consequently of the learning processes necessary to develop and maintain it (Pereira & Bamel, 2021).

According to RBV, the Resource-Based approach triggers innovation which is vital for organization because the essence of knowledge management regarding innovation is that it delivers a framework for management in their endeavor to develop and improve their organizational capability to innovate. If knowledge management as an intangible asset is implemented effectively in different levels of the organization, it leads to some unique capabilities and capacities which in turn lead to superior performance through innovation (Kull & Mena, 2016).

In the current study, the knowledge-based view is adopted in appreciating the value of knowledge in management and understanding Knowledge Generation. Knowledge is distinctive and difficult to imitate capabilities that must be managed efficiently and effectively to contribute to innovation which will in turn lead to firm competitiveness. The theory creates understanding of how applying knowledge management in innovation can significantly enable an organization to enhance its performance, achieve strategic goals and hence create competitive advantage in the information era (Olayinka & Nkemdilim, 2018).

Dynamic Capabilities Theory

Dynamic capabilities theory was coined in 1994 by Teece and Pisano as an alternative approach to deal with the weaknesses of RBV theory (Galvin et al., 2014). Dynamic capabilities theory provides path-dependent processes that enable firms to adapt to rapidly changing business environments by building, integrating and reconfiguring their resource and capabilities portfolio (Denrell & Powell, 2015). Dynamic capabilities theory was derived from RBV theory to address the theory's shortcomings in explaining how to create sustainable competitive advantage and superior performance in the ever-changing business environment.

Dynamic Capabilities theory view is relevant for the current research on the effect of Knowledge Generation on innovation since as knowledge is created and disseminated throughout the firm, there is the potential to contribute to the firm's innovation and competitiveness.

Empirical Review

Knowledge creation is an important asset as it is seen as one of the drivers for innovation and in order to enhance knowledge creation, there is need by the organization to adopt the right strategy for knowledge management that will support the organization's business strategy. Further, it is important to uphold a learning culture in the organization and practice exemplary leadership (Barua, 2020).

Alcorta et al. (2009) investigated knowledge creation and innovation among Chinese manufacturing companies. The study's main goal was to clarify how knowledge production's personal, managerial, and cognitive aspects interact and affect the development of new products. Using exploratory factor analysis, the study found that an individual's level of expertise, loyalty to the firm, and intellectual prowess influenced the individual and managerial variables. The cognitive components, on the other hand, included using imitative, embodied, and/or minimalist learning strategies and developing local and global knowledge bases. Furthermore, the research found substantial relationships between an individual's knowledge depth and their capacity to construct a world-wide knowledge base, as well as between the use of a minimalist learning technique and the presence of an indigenous knowledge base.

Khalil et al (2020) did extensive reviews of the theoretical frameworks underpinning innovation and knowledge

with the aim to highlight the primary similarities and differences, and the link between a firm and the knowledge basis a firm and innovation. If-so models were then utilized in delineating the individual elements and then the policy level implication in the firms explored. The outcome of the study was that innovation and knowledge generation have a strong relationship hence developing a company's capabilities on the basis of social norms and values of the company. This in turn determines how the company develops and applies the knowledge to influence innovation strategies that enable the company to create competitive advantage.

To better understand the connection between organizational learning and the process of knowledge generation, Brix (2017) carried out a longitudinal case study in Denmark. The study was centered on a public innovation initiative and found that team interactions with outside consultants helped to generate new ideas and insights. Before being recorded in a management system, the whole team first discussed and agreed upon these notions. However, the study showed that organizational learning is not always a result of the simple act of knowledge generation at the individual and group levels. A formal choice must be taken on the usage, adaptation, or rejection of the newly created knowledge for real organizational learning to take place. The study also discovered a gap between organizational learning and knowledge generation that may be closed by repurposing existing knowledge to support organizational strategy renewal. In the end, a significant association between knowledge production and organizational learning was found, highlighting the critical part that the context plays in influencing those involved in the learning and knowledge creation processes

In a different research Yu et al. (2017) explored the link between knowledge creation and technological innovation capabilities, also the effect knowledge creation and technological innovation had on a business' sustainable competitive advantage. This research was grounded on knowledge based theoretical framework and through a structural equation modeling, survey data from 315 Chinese industrial firms was analyzed. The analysis returned an outcome contradictory to prior research whereby it was noted that the knowledge creation process does not have a direct effect on sustainable competitive advantage but can only influence the sustainable competitive advantage through the effect of technological innovation capabilities of the organization which in turn favors the development of technological innovation capabilities for processes and products leading to a sustainable competitive advantage.

Knowledge Generation and Innovation

According to Barua (2020) knowledge creation is an important asset as it is seen as one of the drivers for innovation and in order to enhance knowledge creation, there is need by the organization to adopt the right strategy for knowledge management that will support the organization's business strategy. Further, it is important to uphold a learning culture in the organization and practice exemplary leadership.

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Summary of Literature and Knowledge Gaps

Despite various studies conducted globally and locally on the relationship between Knowledge Generation and innovation, there is a significant gap in the literature. Existing studies have predominantly focused on manufacturing firms and small medium enterprises, with limited attention given to the banking sector. A plethora of research has studied the combined impact of knowledge management, innovation and organizational performance. An indirect, but significant effect was established between knowledge management and organizational performance, with innovation being enhanced (Nawab et al., 2015; Valdez-juarez et al. 2016).

A positive and significant association was found between knowledge management, innovation, and firm performance (Young, 2016). Upon applying organizational learning as a mediating variable in their research that evaluated the effect of knowledge management on organizational innovation, Nouri and Soltani (2017) established that there is a positive effect of knowledge management and organizational learning. Besides, the analysis returned a positive relationship between organizational learning and innovation thus, the conclusion that learning is the extraneous variable between knowledge management and organizational innovation.

RESEARCH METHODOLOGY

The study population in this study comprised of commercial banks in Kenya (see appendix III). According to Central Bank of Kenya Bank Supervision Annual Report, there are 38 commercial banks registered in Kenya as at August 2023 (Central Bank of Kenya, 2023). Given the small number of the banks, the study adopted a census survey.

Data Collection

This study used primary data which was collected using a questionnaire (see Appendix II). The questionnaire contained closed ended questions that provided for more structured responses. According to Bryman and Bell (2011) a questionnaire has high reliability making it to receive the same response over and over again. A five-point Likert scale was used to collect data. The questionnaire comprised of three sections. Section I collected data on the profile of the banks, section II was on Knowledge Generation and section III was on innovation. The study targeted one respondent from each of the 38 commercial banks in Kenya. The respondents included the executive officers in the bank who are deemed to have an understanding of Knowledge Generation and innovation in the organization. The unit of analysis in this study was the bank. The researcher administered one questionnaire to each bank. The mode of administering the questionnaire was the drop and pick method.

The validity review was carried out to assess the appropriateness, length and structure of the questions that was used and necessary adjustments were made before the questionnaire is administered to the respondents. Assessment of validity of the research instrument was done through the guidance of academic staff at the Faculty of Commerce.

To measure reliability, the Cronbach's alpha coefficient was used using data from all the respondents (Bolo, 2011). The values of the reliability coefficients range from 0 to 1. A value closer to 1 indicates higher internal reliability of the research items while values close to zero indicate that the research instrument is not reliable (Rovai et al., 2004). Nunnally and Bernstein (1994) indicated a minimum acceptable reliability coefficient measure of 0.7 (Bolo, 2011). Thus, a threshold of 0.7 and above was used to assess reliability.

Data was then analyzed using the Statistical Package for Social Science (SPSS version 22) software. Descriptive statistics in the form of percentages, frequencies, mean and standard deviation was employed to describe profile of the firms and the research variables. Pearson correlation analysis was used to assess how knowledge management strategies are related with innovation before testing the hypotheses. Simple regression analysis was used to test Hypothesis.

To test the the hypothesis (H_{01}), which states that knowledge generation has no significant effect on innovation in commercial banks in Kenya, the following model (Equation 3.1) was used:

$$Y = \beta_o + \beta_1 x_1 + \varepsilon \quad \ldots\ldots 1$$

Where:

Y = Innovation

β_0 = constant/ Y-intercept

β_1 = regression coefficient

x_1 = knowledge generation

Ɛ= Error term

FINDINGS AND DISCUSSIONS

A simple linear regression analysis was used to establish the effect of knowledge generation on innovation in commercial banks in Kenya. The regression analysis test was used, including a model summary, ANOVA for the goodness of fit and Coefficient of Estimates as presented in Table 1

Table 1: Multiple Regression Results for Effect of Knowledge Generation on Innovation in Commercial Banks in Kenya

Model Summary[c]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.616[a]	.379	.359	.43340

ANOVA[c]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.552	1	3.552	18.912	.000[b]
	Residual	5.823	31	.188		
	Total	9.375	32			

Coefficients[c]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.897	.407		4.665	.000
	Knowledge generation	.406	.093	.616	4.349	.000

a. Dependent Variable: Innovation

b. Predictors: (Constant), Knowledge generation

Dependent Variable: Innovation

The results presented in Table 1 show the regression model summary of knowledge generation as a predictor innovation in commercial banks in Kenya. The model's R squared value is 0.379, which indicates that approximately 37.9% of the variation innovation in commercial banks in Kenya can be explained by knowledge generation.

Table 1 presents the results of a linear regression ANOVA that aimed to assess the goodness of fit in a model analyzing the influence of knowledge generation on innovation in commercial banks in Kenya. The F-statistic for the Regression was calculated to be 18.912, and the associated p-value (Sig.) was reported as 0.000. This implies that knowledge generation significantly explains the variation on innovation in commercial banks in Kenya.

The regression analysis indicates that knowledge generation was found to be statistically significant, with a standardized coefficient (Beta) of 0.616 and a p-value of 0.000, which less than the significance level of 0.05 is. This implies that knowledge generation has a significant positive effect on innovation in commercial banks in Kenya thus hypothesis H_{O1} was rejected.

The unstandardized coefficient (B) for knowledge generation is 0.406, with a standard error of 0.093. This coefficient represents the change in the dependent variable (innovation in commercial banks in Kenya) for a one-unit change in the independent variable (knowledge generation) while holding other variables constant. In this case, the coefficient of 0.406 suggests that for each unit increase in knowledge generation, there is an expected increase of 0.406 units in innovation in commercial banks in Kenya.

The regression equation derived from the model is:

$Y = 1.897 + 0.406X_1 + \varepsilon$ ……………………………………………………………………….1

The model provides evidence that knowledge generation has a significant positive influence on in innovation in commercial banks in Kenya. This aligns with the literature on knowledge generation, which emphasizes on creating internal knowledge and acquiring external knowledge. According to Brix (2017) organizational learning is not always a result of the simple act of knowledge generation at the individual and group levels. A formal choice must be taken on the usage, adaptation, or rejection of the newly created knowledge for real organizational learning to take place. Khalil et al (2020) expresses that innovation and knowledge generation have a strong relationship hence developing a company's capabilities on the basis of social norms and values of the company. This in turn determines how the company develops and applies the knowledge to influence innovation strategies that enable the company to create competitive advantage.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The overall objective of this study was to establish the effect of Knowledge Generation on innovation in commercial banks in Kenya.

The mean scores highlight that knowledge generation is perceived as a key driver of innovation in Kenya's commercial banks, encouraging banks to prioritize knowledge-related activities as a means to boost their innovative capabilities and competitiveness. The level of agreement underscores a collective recognition of knowledge generation, through acquiring knowledge from sources like competitors, employees, business partners and customers. Benchmarking with the best, conducting external trainings, investing in research & development and tasking certain employees to identify best knowledge generation practices.

The standardized coefficient (Beta) coupled with a p-value (below the significance threshold of 0.05), indicates a statistically significant and positive impact of knowledge generation on innovation in commercial banks in Kenya. This implies that the knowledge generation plays a crucial role in influencing and contributing to the innovation in commercial banks in Kenya.

Conclusion

Based on the findings, Knowledge Generation demonstrate a positive impact on innovation in commercial banks

in Kenya. This suggests that effective management of these knowledge processes enhances the ability of banks to innovate. Specifically, the generation and application of new knowledge play critical roles, while sharing and storing knowledge also contribute meaningfully, though to a lesser extent. Collectively, these Knowledge Generation foster a culture of innovation, enabling commercial banks to remain competitive and responsive to changes in the dynamic banking industry.

The data reveals a consensus on key aspects of knowledge generation, such as bank generating and acquiring knowledge, benchmarking, external trainings, research & development designed and a shared recognition of the value of innovation.

One of the limitations in this study is that out of the 38 Commercial Banks that were studied only 33 filled and returned the research instrument making it difficult to generalize the findings. Future research could examine the impact of emerging technologies on Knowledge generation.

Recommendations

Based on the findings of this study, we recommendations are made:

Managers should consider adopting a knowledge sharing approach, aligning their problem-solving methods with employee expectations. This involves sending employees for external trainings on knowledge generation. Additionally, tasking certain employees to identify best knowledge generation practices in the industry and share with management.

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