

Service Innovation and Mental Competitiveness of Commercial Banks workers in Kenya

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Abstract

Change in business environments due to globalization, varying consumer preferences and technological advancements have immensely pressured commercial bank workers to develop new ways to interact and serve their customers in order to remain competitive. Service innovation has become crucial for bank's survival and development. This study examined the influence of service innovation on mental competitiveness of Commercial Bank workers in Kenya. The study was guided by the Creative Destruction theory. Descriptive and correlational research designs were used targeting a population of 175 respondents who consisted of directors and general managers of tier one commercial banks in Kenya. Sampling techniques utilized to select a sample size of 122 respondents were stratified and simple random sampling. Primary data was collected using closed questionnaires. Reliability was tested using cronbach alpha test where a pilot study done on Equity bank. To test validity the study used content and construct validity. For data analysis the study utilized both descriptive and inferential analysis. Descriptive analysis included the use of frequencies, percentages, mean and standard deviation while inferential statistics employed correlation and simple linear regression analysis. Results were presented in form of tables. The study established that managerial innovation positively and significantly influenced competitiveness of commercial banks in Kenya. The study thus recommends that commercial banks should embrace managerial innovation as a tool to achieve competitiveness. Service innovation practices include automation of bank processes and use of virtual personal assistant (VPA) technology.

Key Words: Commercial Banks, Competitiveness, Service Innovation

I. Introduction

Across the world banking institutions continue to face stiff competition due to changing market dynamics, consumers' socioeconomic conditions and constant technological developments. According to McKinsey Global Banking Annual Review (2022), banks can enhance their workers' mental competitiveness by implementing innovations (McKinsey Global Banking Annual Review, 2022). Locally, the Kenya Bankers Association (KBA) report of 2021 indicates that the cost-to-income ratio, measure of bank's efficiency, substantially edged upwards to 74.1 percent in 2020 from 60.2 percent in 2019. This pushed some banks into mergers/acquisitions in a bid to achieve economies of scale while others were edged out (CBK, 2016; CBK, 2022). In addition, the global banking industry is challenged due to high inflation, surging interest rates and market volatility wrought by the return of geopolitical instability coupled with lingering long-term disruptive effects from the COVID-19 pandemic (McKinsey Global Banking Annual Review, 2021).

With increased customer expectations, the ever-changing regulatory environment, and the uncertainty in the business environment, the overarching challenge to the industry is the need to build successful innovative strategies that will enhance competitiveness (The Lab, 2017). Strategic innovation in the banking industry may involve the development of new services (Palmer & Kaplan, 2017). This calls for a high level of creativity among the bank workers to enable their banks remain afloat in the ever changing market needs and dynamics.

1.1 Research Objective

The purpose of this study was to examine the influence of service innovation on competitiveness of Commercial Banks in Kenya.

1.2 Research Question

1. Does service innovation significantly influence the competitiveness of Commercial Banks in Kenya?

II. Literature Review

This chapter presents the theoretical framework, reviewed literature on service innovation, competitiveness and empirical literature review.

Theoretical Literature Review

Grant and Osanloo (2014) suggest that a theoretical framework is a conceptual model that establishes a sense of structure that guides research. It provides a study with a theory-driven approach and how it applies to researchers' study. The study was anchored on creative destruction theory.

2.1.1 Creative Destruction Theory

The study was guided by creative destruction theory first coined by Austrian economist Joseph Schumpeter. Schumpeter used the term creative destruction to refer to innovations in the manufacturing process that increased productivity. According to Schumpeter (1942), innovation is the process of industrial mutation where the old is destroyed and the new is created. These innovations include new goods, new methods, new markets, new sources of supply and new industry organizations and that they guide the flow of resources toward fulfilment of consumer needs. Schumpeter (1942) continues to advance that as opportunities arise, and when an innovating firm takes action that generates profits, competitors will respond (Schumpeter, 1942). The response results to an inability of the innovators (first movers) to sustain profits (competitiveness) due to imitation from the competitors (Mulatu, 2016). The benefit of the new creation is destroyed as market leaders lose their advantage, and profit margins decline. Imitation surges, and overall market expansion slows, moving the business cycle to equilibrium till another innovation overwhelms the status quo (Schumpeter, 1942). The thriving firm, then, must continuously be innovating to sustain competitiveness, and to avoid the perennial gale of creative destruction.

Schumpeter's contribution to creative destruction economics has been anchored on the notion of building the human innovative and entrepreneurial intellectual capacity, requiring novel ways of doing things in tandem with emerging innovations to sustain competitiveness (Kao, Pai, Lin, & Zhong, 2015; Lestari & Ardianti, 2019; Liao, Liu & Fu, 2019). Creative destruction theory handles economics as an organic and dynamic process different to the static mathematical models as explained by traditional Cambridge-tradition economics. Entrepreneurs and workers embracing novel technologies will inevitably create disequilibrium and record new profit opportunities while those clinging on outdated technology will be left stranded. The classic economic theory's ideas of perfect competition and efficient markets understate the role of the entrepreneur in market development and accumulation of profits (Najda-Janoszka, 2016). Schumpeter suggests that the entrepreneur is any decision maker who innovates. Innovation is the engine of the Schumpeterian process of creative destruction where innovative companies and entrepreneurs constantly drive allocative efficiency and productivity growth (Yasar, 2021).

This theory however has been criticised over its disequilibrium idea of innovation and the role of the entrepreneur. According to Kirzner (1997), innovation induces an equilibrating change to the status quo and not a disequilibrating status quo as argued by Schumpeter. Additionally, Schumpeter's theory emphasized the innovative functions of the entrepreneur over the risk-taking function of the entrepreneur which cannot be ignored (Kirzner, 1997). Despite the criticisms, Schumpeter's view is supported by many researchers such as Eisenhardt and Martin 2000; Teece et al. 1997; Smith et al. 2002) who suggest that markets are dynamic and that the pursuit of innovation is fundamental to firm survival. Creative destruction theory is relevant in this study as innovation occasions a situation where existing means of production are almost forced to become outdated due to continuous advancement in Research and Development (R&D) championed by ingenious entrepreneurs. Fostering innovation and entrepreneurship in the present age of transformative technologies is thus the strategy of taking lead position in the marketplace (Ardolino et al., 2018; Bhatnagar & Kumar, 2017; Tuan, Nhan, Giang and Ngoc, 2016).

Most banks are no longer relying on the ancient traditional banking medium where transactions used to happen in the brick-and-mortar space but today because of technological advancements, transactions have gone online (Central Bank of Kenya, 2018). For instance, ATMs, mobile banking and internet banking, the use of virtual personal assistants and service automation have enabled customers to transact for 24 hours resulting in increase in the number of transactions being handled per day, increased income from the transaction costs, reduced administrative costs, improved efficiency and better service delivery to customers (Central Bank of Kenya, 2018). Several writings have underscored the role of creative destruction for sustained competition (Cozzi, Pataracchia, Pfeiffer & Ratto, 2017; Jackson, 2020; Kopp, 2019; Langroodi, 2017). Mohammad (2018) further suggests that innovation ventures that integrate IT intensify competitiveness and immense outlays in

market innovation grow market share. Besides, innovation in ICT, offers strategic benefits to banks through improvements in market capability (through discovery of untapped markets), resource allocation capability, learning capability and strategic planning capability (Gathu, 2017).

2.2 Conceptual Review of Variables

2.2.1 Service Innovation

Cheng, Cham and Lee (2019) define service innovation as the creation of brand-new services and pragmatic plans to better both efficiency and effectiveness in the process of delivering service. According to Singh, Akbani, Dhir (2020), service innovation is the creation of worth for consumers, human resources, owners, allies, and society through novel and improved service products, service processes, and service business model. Service innovation can also be explained as variations in the conditions of services and as a revamping of the players and resources involved, building gains using latest structures among players and resources (Witell, Snyder, Gustafsson, Fombelle & Kristensson, 2015). Myhren, Witell, Gustafsson and Gebauer (2018) suggest that service innovation can be distinguished on the basis of variations in what is presented or in the matter of creation and conveyance of the offerings. Service innovation yields superior quality which gratifies clients' needs (Cabral and Marques, 2020). Mutuku and Wambua (2019) reveal the significance of service innovation in boosting customer fulfilment in the hospitality field. According to Yeh et al. (2019) service innovation builds long-term relationships by offering superior products and service hence competitive advantage. Rajapathirana and Hui (2018) propose a correlation between service innovation and economic growth.

Banks operate in a dynamic space as such are required to respond appropriately to clients need by embracing innovative approaches in order to survive competition (Du., Huang, Yeung & Jian, 2016). Exploring service innovation in banking means superior institutional image, better customer fulfilment and customer loyalty hence retention due to the attachment customers have with the bank (Tang, 2016). Kong and Masud (2019) suggest that because products and service offerings in banks almost look the same, it is so hard to contend on core products/service offerings. The superior course of action thus is to consider methods of developing distinctive quick fixes that are non-identical with what the rivals offer. Service innovation is intrinsically different from a product, as it usually lacks the tangible nature of product innovations (Edvardsson, Frow, Jaakkola, Keiningham, Koskela-Huotari, Mele & Tombs, 2018).

Kusumadewi and Karyono (2019) argue that service innovation is a key competitive strategy because even if a company offers a good product but lacks in good service delivery, customers can quickly shift to the competitors who render superior services. Services may be highly tailored according to the client/customer needs and include many different stakeholders (Feng & Sivakumar, 2016). Den Hertog (2000) as cited in Durst, Mention and Poutanen (2015) has presented the four-dimensional model of service innovation, which captures the idea of service innovation in a knowledge-based economy. The model consists of; Service concept, which is a new service in the market, Client interface, which touches on latest procedures which connect consumers to service production, Service delivery system, which entails current schemes by which real services are conveyed to the users and technology, which has to ensure that the services can be offered systematically. This study highlights the client interface dimension of the Den Hertog model by focusing on automation and the use of virtual personal assistant technology which is fundamental for service innovation.

Lizovskaya et al (2019) suggest that the development of novel and innovative idea such as service automation is vital in preserving a firm's continuity. For SI some of the services that have been automated by banks include cash deposits and withdrawals using ATMs, loan applications among others. Additionally, an effective and efficient service procedure could lower the fees experienced in after-sales service, thus result in increased customer satisfaction (Ahmad, 2015). Banking institutions have started to resort to transform the customer experience by enabling frictionless, 24/7 customer interactions while saving on costs. Some of the latest strategic innovations used by banks that offer proficiency in the service delivery include the use of Virtual Personal Assistants (VPA). These strategic innovations target to decrease unit costs of production while giving customers improved experiences (Cheng & Chen, 2017; Benaim, 2018; Binz & Truffer, 2017). A case in point is the use of chatbots or virtual personal assistants that allow conducting an online chat conversation via text or text-to-speech, as a cost-effective alternative to direct contact with a live human agent. This user interface can be accessed from the user device (smartphone or specific device) to perform actions, control objects, answer question and even make recommendations on its own (Ardolino et al., 2018). They further suggest that VPAs are meant to interact with an end user in a natural way, to answer questions, follow a conversation and accomplish different tasks.

2.2.2 Competitiveness

Competitiveness is a firm's ability to attract and retain customers in the conditions of competition, by providing products and services that meet high quality standards at competitive prices. In order to stay ahead of the competition and secure their market position, successful businesses are increasingly investing in innovation (Pedraza, 2014). Internal firm variables like strategy, structure, skills, innovation capacity, and other tangible and intangible resources are highlighted as crucial to a company's competitive performance (Kamasak, 2017). A company can only remain competitive by continuously innovating when it uses its own resources and seizes chances from the outside to provide higher value for clients and unmatched revenues for itself (Anning-Dorson, 2018). Non-financial performance measures have been used to suggest competitiveness (Ahmad &Zabri, 2016). These indicators include market share, productivity and efficiency, customer happiness, customer retention, and customer response. According to Porter's (1985) theory of competitive advantage, there are two main factors that contribute to a company's ability to perform at a high level: (1) a low-cost advantage, which boosts efficiency, and (2) a differentiation advantage, which can increase customer responsiveness and market share. Effectiveness, market share, and customer satisfaction were examined as facets of competition.

2.3 Empirical Literature Review on Influence of Service Innovation on Competitiveness of Firms

Cheng et al., (2019) examined how service innovation could help Malaysian universities maintain their competitive edge over time. The research surveyed 400 undergraduates from both public and private institutions in Kuala Lumpur. Students' perceptions of the institution's credibility and loyalty were found to improve when SI was implemented. Unlike the field of education where technological disruptions are few, banking is a hotbed of innovation, which is what this study focuses on. Also, Kong and Masud (2019) investigated the link between service innovation (SI) service delivery (SERVD), customer satisfaction (CSAT) and loyalty in the banking sector. The findings revealed a positive relationship between SERVD, CSAT and bank customer loyalty. The present study differs as it explored automation and the use of virtual personal assistant technology as forms of service innovation while the earlier one used indicators of service delivery and customer satisfaction.

In another study, Kyei and Bayoh (2017) confirmed that service innovation influenced customer retention in the Ghanaian telecommunication industry as it improved service delivery. The present study utilized probability sampling techniques as opposed to convenience sampling that was utilized by the former study. Probability sampling involves random selection of respondents as such reduces the chances of sampling bias which can affect a research population. Additionally, the current study was undertaken on tier 1 commercial banks and it would interest to compare findings between the two sectors on the influence of strategic innovation on competitiveness of firms. Further, Sedeyoka (2015) examined how service innovation affected the profitability of a rapidly expanding internet business in Dar es Salaam, Tanzania. The results showed that the business profits were affected by the introduction of new services. The study had limitations in that phone interviews could have created biased/subjective results. The current study however used questionnaires (a more objective instrument) to circumvent the problems associated with the subjective nature of information gleaned through phone interviews.

Lastly, Kairanya and Bett (2018) sought to establish the determinants of competitive advantage of postal corporation of Kenya. Quality service, a precursor of service innovation was found to significantly influence the performance of Postal Corporation Kenya. As opposed to the earlier study which was a case study on postal corporation of Kenya, the present study focused on commercial banks in tier one category in Kenya. The results of the current study can therefore be generalized with ease when compared to the results of the earlier study. Despite the above studies indicating significant positive influence of service innovation on firm competitiveness, Aysel and Fatma (2017) found that internet banking and ATM usage as measures of service innovation did not have a significant impact on performance.

III. Materials and methods

Design

The study finds a positivist philosophy relevant as it is concerned with assumptions that are made about what constitutes acceptable, valid and legitimate knowledge, and how we can communicate knowledge to others. The study adopted descriptive and correlational research designs.

Population and Sampling

Further, the study targeted 175 middle level management employees (directors and general managers) in the banking sector. The research focused on eight tier I banks, namely Kenya Commercial Bank (KCB), Cooperative bank, National Commercial Bank of Africa (NCBA), Standard chartered (Stanchart), Amalgamated Banks of South Africa (Absa), Stanbic bank (SBK), Diamond Trust Bank (DTB), and Investments and Mortgages (I&M). In this study the population was divided into two strata: directors level and general managers level. Thus, the study targeted 74 directors and 101 general managers totaling to 175 respondents. Simple

random sampling technique was further employed to ensure that each member of the sampled department had a known and equal chance of being selected (Zikmund, Babin & Griffin, 2013).

The study used Yamane (1967) formula to calculate sample size at 95% confidence level as follows.

$$n = \frac{N}{1 + 0.05^2 (N)}$$

Where n is the sample size,

N is the population size,

e is the level of precision.

When this formula was applied to the above population, 122 respondents were obtained.

$$\frac{175}{1 + 175(0.05)^2} = 122$$

Instruments

The main source of primary data for this research was questionnaires developed by the researcher.

Validity and Reliability

The study measured the validity of the research instrument using content and construct validity. A pilot study was done at Equity bank and cronbach Alpha was used to test reliability of the research instrument.

Statistical Treatment of data

The data was then coded and analyzed and the results presented in the form of tables.

Data Analysis

Data was analyzed using both descriptive and inferential statistics. For descriptive the study used frequency, percentage, mean and standard deviation and for inferential the study used pearsons's correlation and simple linear regression. The simple regression analysis model used is as below:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where;

Y= Competitiveness

β_0 Constant

β_1 = Slopes of regression for the independent variables

X_1 = Service innovation

ε =Error term- random variation due to other unmeasured factors

Ethical Considerations

The main objective of ethics in research is to ensure that no participant in the study suffers harmful consequences from research activities that include data collection, analysis and reporting of the findings from the study (Saunders et al., 2016). The researcher therefore regarded confidentiality such no names appeared on the questionnaires and their answer were treated as strictly confidential to ensure no one could be identified based on the answers on the questionnaires. The researcher ensured informed consent of the respondents by not putting any participants under pressure to participate. The respondent and the researcher both signed a non-disclosure agreement. The respondents were prepared and told the process to be followed while carrying out the study, how long the survey was to take, the intention of the research and the context of privacy/confidentiality. Additionally, the researcher obtained license from NACOSTI which regulates and assure quality in the science, technology, and innovation sector before proceeding for the survey.

IV. Results and Discussions

This chapter presents results of the analysis, findings and discussions based on the objective of the study which was to examine the influence of service innovation on competitiveness of Commercial Banks in Kenya. This chapter presents the findings using descriptive analysis, Pearson correlation and regression analysis.

4.1 Response Rate

This study attained a response rate of 94.3% which can be deemed as very good. Babbie (2004) also posits that a 60% return rate is good and a 70% return rate is extremely good.

4.2 Descriptive Statistics Results

Descriptive statistics was done using frequencies, percentages, mean and standard deviations for the variables under consideration.

4.2.1 Service Innovation

Respondents were asked to indicate their level of agreement or disagreement by ticking the given statements on managerial innovation. The following is the scale of mean score interpretation 4.50-5.0= strongly agree, 3.50-4.49 = agree, = 2.50-3.49 = Neutral, 1.50-2.49 = disagree and 1.00-1.49 = strongly disagree. The results are as shown in Table 4.2 below.

Table 4.2: Service Innovation

No.	Service Innovation	Percentage & frequency	5	4	3	2	1	Mean	SD
1	The bank has automated most of its processes	56.5% (65)	35.7% (41)	5.2% (6)	0.9% (1)	1.7% (2)		4.4	0.8
2	The automated services have stable network	27.8% (32)	53% (61)	15.7% (18)	1.7% (2)	1.7% (2)		4.0	0.8
3	Service automation has reduced queues in the banking hall	46.1% (53)	46.1% (53)	6.1% (7)	0% (0)	1.7% (2)		4.3	0.7
4	There are constant reviews of products and services automated by the bank	33.9% (39)	52.2% (60)	12.2% (14)	0% (0)	1.7% (2)		4.2	0.8
5	My organization utilizes virtual personal assistant (VPA) technology in delivering services	25.2% (29)	46.1% (53)	23.5% (27)	3.5% (4)	1.7% (2)		3.9	0.9
6	The VPA technology is available 24/7	20.9% (24)	35.7% (41)	34.8% (40)	5.2% (6)	3.5% (4)		3.7	1.0
7	My organization's virtual personal assistant can be accessed from any device	23.5% (27)	44.3% (51)	21.7% (25)	7.8% (9)	2.6% (3)		3.8	1.0
8	The bank's VPA can be accessed by both customers and non-customers	30.4% (35)	45.2% (52)	13.9% (16)	7% (8)	3.5% (4)		3.9	1.0
Aggregate Scores								4.03	0.88

Note: 1=Strongly Disagree, 2=Disagree, 3=Fairly Agree, 4=Agree, 5=Strongly Agree

Source: Field Data (2023)

According to the Table 4.2, 56.5% (65) of the respondents strongly agreed and a further 35.7% (41) agreed that the bank has automated most of its processes. Moreover, 5.2% (6) fairly agreed that the bank has automated most of its processes. Also, 0.9% (1) of the respondents disagreed and a further 1.7% (2) % strongly disagreed that the bank has automated most of its processes. This was further supported by a mean of 4.4 and insignificant standard deviation of 0.8. The results further revealed that, 27.8% (32) of the respondents strongly agreed that the automated services have stable network and a further 53% (61) agreed on the same assertion. Additionally, 15.7 % (18) of the respondents fairly agreed, 1.7% (2) of the respondents disagrees while 1.7% (2) strongly disagreed that the automated services have stable network. This was supported with a mean of 4.0 and an insignificant standard deviation of 0.8. Furthermore, the results showed that, 46.1% (53) of the respondents strongly agreed and another 46.1 (53) agreed that Service automation has reduced queues in the banking hall. Also, 6.1% (7) of the respondents fairly agreed that Service automation has reduced queues in the banking hall.

On the other hand, 0% (0) of the respondents disagreed while 1.7% (2) strongly disagreed that Service automation has reduced queues in the banking hall with a mean of 4.3 and an insignificant standard deviation of 0.7. According to the finding of the study, 33.9% (39) of the respondents strongly agreed that there are constant reviews of products and services automated by the bank and 52.2% (60) agreed on the same statement. On the other hand, 12.2% (14) of the respondents fairly agreed that there are constant reviews of products and services automated by the bank. Moreover, 0% (0) of the respondents disagreed and another 1.7% (2) strongly disagreed that there are constant reviews of products and services automated by the bank with a mean of 4.2 and an insignificant standard deviation of 0.8. In accordance to the organization utilizes virtual personal assistant (VPA) technology in delivering services, 25.2% (29) of the respondents strongly agreed and 46.1% (53) agreed. Also, 23.5% (27) of the respondents fairly agreed, 3.5% (4) disagreed while 1.7% (2) strongly disagreed that the organization utilizes virtual personal assistant (VPA) technology in delivering services.

This was supported with a mean of 3.9 and an insignificant standard deviation of 0.9. From the Table 4.8, 20.9% (24) of the respondents strongly agreed the VPA technology is available 24/7 and another 35.7% (41) of the respondents agreed on the same. However, 34.8% (40) of the respondents fairly agreed, 5.2% (6)

disagreed while 3.5% (4) of the respondents strongly disagreed that VPA technology is available 24/7. This was supported with a mean of 3.7 and a significant standard deviation of 1.0. Furthermore, the results revealed that 23.5% (27) of the respondents strongly agreed that the organization’s virtual personal assistant can be accessed from any device and a further 44.3% (51) of the respondents agreed on the same assertion. On the other hand, 21.7% (25) of the respondents agreed that the organization’s virtual personal assistant can be accessed from any device, while 7.8% (9) disagreed and 2.6% (3) of the respondents strongly disagreed on the same statement with a mean of 3.8 and a significant standard deviation of 1.0.

Lastly, in regard to bank’s VPA can be accessed by both customers and non-customers, 30.4% (35) of the respondents strongly agreed and 45.2% (52) agreed on the same assertion. Moreover, 13.9% (16) of the respondents fairly agreed that bank’s VPA can be accessed by both customers and non-customers. However, 7% (8) of the respondents disagreed while 3.5% (4) of the respondents strongly disagreed that bank’s VPA can be accessed by both customers and non-customers. This was supported with a mean of 3.9 and a significant standard deviation of 1.0. The aggregate mean and standard deviation (M=4.03, SD=0.88) indicated that responses were concentrated around the mean and that respondents agreed to most of the statements regarding service innovation of commercial banks in Kenya. Results show that responses did not deviate far from the mean as it was characterized by small standard deviation. This implied that majority of respondents were of the same observation about the service innovation of commercial banks.

The overall assumption from the study is that commercial banks in Kenya engage in service innovation to boost competitiveness. It was evident that commercial banks have embraced automation which is fundamental to respond to customer needs providing a solution to the customer and competitive advantage for the organization. For SI some of the services that have been automated by banks include cash deposits and withdrawal using ATMs, loan applications among others. The results further reveal that commercial banks have seized service innovation opportunities using self-service portals where clients can carry out bank transactions by themselves. Additionally, customers interact with personal assistants by way of chatbots and have the queries resolved without human intervention. Further, results from the open-ended questionnaire reveal that banks are involved in service innovation through other strategies including asking for customer feedback. The customer service departments were using customer satisfaction reports, net promoter scores among other reports to seek client feedback.

Some of the respondents though intimated that network downtime as a challenge to effective service innovation. The bank managers were however hopeful that their IT departments could resolve the issue and have clients enjoy uninterrupted online services. Cheng et al. (2019) agree with these findings as they found service innovation significant in creating a sustainable competitive advantage in higher education in Malaysia. These results are also supported by Kyei and Bayoh (2017) who argued that service innovation influenced customer retention in the Ghanaian telecommunication industry through improved service delivery. The findings however disagree with Aysel and Fatma, (2017) who found that only credit card usage had a significant positive impact on profitability while online and telephone banking had no significant on profitability. Mahmoud et al., (2018); Nwachukwu (2018) demand for more research on service innovation and firm performance, especially in Africa.

4.2.2 Firm competitiveness

Respondents were asked to indicate their level of agreement for statements on bank competitiveness. The results are as shown in Table 4.3 below.

Table 4.3: Competitiveness

No.	Competitiveness	5	4	3	2	1	Mean	STD
1	My organization has enjoyed reduced labor costs due to digitization	62.6% (72)	30.4% (35)	6.1% (7)	0.9% (1)	0% (0)	4.5	0.7
2	My company enjoys reduced production costs due to innovation	47% (54)	47% (54)	4.3% (5)	1.7% (2)	0% (0)	4.4	0.7
3	Innovation has greatly improved turnaround time for rendering services to customers	58.3% (67)	40.9% (47)	0.9% (1)	0% (0)	0% (0)	4.6	0.5
4	The organization customer base has continued to increase in the last 3 years	49.6% (57)	40% (46)	10.4% (12)	0% (0)	0% (0)	4.4	0.7
5	My bank’s branch network has grown for the past 3 years	47% (54)	44.3% (51)	5.2% (6)	0.9% (1)	2.6% (3)	4.3	0.8
6	The use of artificial intelligence in gathering customer purchasing behavior has brought more clients to my organization	33% (38)	46.1% (53)	19.1% (22)	1.7% (2)	0% (0)	4.1	0.8
7	New products are designed from customer suggestions	41.7% (48)	37.4% (43)	18.3% (21)	2.6% (3)	0% (0)	4.2	0.8

Aggregate Scores

4.38

0.7

Note: 1=Strongly Disagree, 2=Disagree, 3=Fairly Agree, 4=Agree, 5=Strongly Agree

Source: Field Data (2023)

According to the Table 4.3, 62.6% (72) of the respondents strongly agreed and a further 30.4% (35) agreed that the organization has enjoyed reduced labor costs due to digitization. The results further revealed that, 47% (54) of the respondents strongly agreed that the company enjoys reduced production costs due to strategic innovation and a further 47% (54) agreed on the same. Furthermore, the results showed that, 58.3% (67) of the respondents strongly agreed and another 40.9 (47) agreed that strategic innovation has greatly improved turnaround time for rendering services to customers. 40% (46) of the respondents agreed that the organization customer base has continued to increase in the last 3 years. 33% (53) of the respondents strongly agreed the use of artificial intelligence in gathering customer purchasing behavior has brought more clients to my organization and another 46.1% (53) of the respondents agreed on the same. Furthermore, the results revealed that 41.7% (48) of the respondents strongly agreed that new products are designed from customer suggestions.

4.3 Inferential Statistics Results

The effect of potential confounding factors on the dependent variable was examined through regression analysis. R, the coefficient of correlation, and R squared, the coefficient of determination, were calculated as part of this study. The Significance level (P-value), B coefficients, and F statistics were also of relevance. The hypothesis was examined through the application of the correlation r (Beta, β). The test criteria are designed so that the study rejects the null hypothesis if β is significant and fails to do so if β is insignificant based on the t-statistics (Carolyne, Robert, and Ayub, 2020).

4.3.1 Pearson Correlation

H_{01} : There is no significant influence of service innovation on competitiveness of Commercial Banks in Kenya.

Pearson correlation analysis test was used to determine the influence of service innovation on competitiveness of Commercial Banks in Kenya and the results are presented in Table 4.4 below.

Table 4.4: Correlation Analysis results

		Service innovation	Competitiveness
Service innovation	Pearson Correlation	1	.500**
	Sig. (2-tailed)		.000
	N	115	115
Competitiveness	Pearson Correlation	.500**	1
	Sig. (2-tailed)	.000	
	N	115	115

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

Source: Field Data (2023)

As shown table 4.14, it evident that $r = 0.500$, $P=0.000$ which suggested that there was positive moderate relation between service innovation and competitiveness of Commercial Banks in Kenya. This implies that increase in service innovation would result to increase in competitiveness of Commercial Banks in Kenya.

V. Conclusions

5.1 Conclusions

Based on the empirical evidence, the study concluded that service innovation has significant positive influence on competitiveness of commercial banks in Kenya. Service innovation practices include automation of bank processes, constant reviews of automated products and services, use of virtual personal assistant (VPA) technology, provision of stable network for automated services and accessibility of services using VPA technology.

5.2 Recommendations

The study also recommends that commercial banks consider service innovation as part of its strategic innovation to enhance competitiveness. Service innovation practices include automation of bank processes, constant reviews of automated products and services, use of virtual personal assistant (VPA) technology, provision of stable network for automated services and accessibility of services using VPA technology to enhance competitive advantage.

5.3 Areas for Further Study

Further research can be done on other types of innovation such as market, process and technological innovation. Further studies can be done in other sectors such as the manufacturing and hospitality sectors.

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