

EFFECT OF TECHNOLOGICAL INNOVATIONS ON FINANCIAL INCLUSION INITIATIVES BY BANKS IN NAKURU TOWN, NAKURU COUNTY

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Abstract

The quest for financial inclusion in the Kenyan banking industry has led banks to innovate in order to reach more customers. The main objective of this study was to examine the effects of technological innovations on financial inclusion initiatives by banks within Nakuru town in Kenya. The study examined the effect of agency banking on financial inclusion initiatives by banks in Nakuru County. The study adopted descriptive research design. The target population was commercial banks within Nakuru town. The study used two questionnaires to collect primary data. All 29 bank questionnaires were filled thus 100% response rate. From 140 customer questionnaires only 120 were filled represented by 87.5% response rate. The study found that technological innovations increase sales, they lead to profit increment; they provide better, increase quality of service and assure the survival of the bank. The study concludes that the banks had employed various technological innovations. The study recommends adoption of new technological innovations to provide constant access to certain core services reducing the need to interact with bank staff for many people. The study also recommends that another study be done to investigate the factors influencing technological innovations in the financial institutions and other sectors in Kenya.

Keywords: Technology, Innovations, Financial Inclusion, Agency Banking, Banking

INTRODUCTION

Financial inclusion is the process of ensuring access to appropriate financial products and services needed by all sections of the society in general and vulnerable groups such as weaker sections & low income groups in particular at an affordable cost in a fair and transparent manner by mainstream institutional players. Financial inclusion is an economic agent that facilitates the growth of the financial sector (Karmakar, 2007).

Financial inclusion fosters a state in which all people have access to appropriate, desired financial products and services in order to manage their money effectively. Financial inclusion refers to simply the concerted efforts by institutions towards extending basic banking services at affordable prices to the low income and disadvantaged groups in the economy with a view & purpose to connect the excluded with the formal banking system in order to help them obtain an understanding of the financial services available and equipping them with the confidence to make informed financial decisions (Hill, 2009).

Commercial banks in Kenya have developed new technological innovations that have influenced their financial inclusion. This includes mobile banking technologies, electronic money transfer, internet banking transactions, ATM deposits and withdrawals, online account opening among others. All these technological innovations contribute heavily in building customer base, capital base as well as enhancing their profitability which results to influence on their financial performance (CBK report, 2010).

Among the key trends is what appears to be strong emergence of technology driven banking services in Kenya. Banking is edging away from over reliance on traditional banking halls to other platforms supported by technology and in particular telecommunications. This is emerging as threat to the banks because it has enabled non-bank competitors like Safaricom short circuit banks by offering cheap money transfer (CBK report, 2010)

Banking institutions must play a catalytic function to develop technological innovation-driven economy. The experience of developed countries has evidently demonstrated that a shift of government's industrial policy-making towards a technological innovation-driven economic strategy is absolutely critical. Allegedly successful industrial policy performs an important function in fostering firms to inculcate a culture-based spirit of innovation and addresses firms' concerns in the realm of innovation pursuits (Goh, 2002)

Technological innovation is used to refer to the process through which technological advances are produced (Ayres, 2008). The innovation process includes a set of activities that contribute to increase in the capacity to produce new goods and services (product innovations) or to implement new forms of production (process innovations). Therefore, the concept of

technological innovation is associated with the idea of a flow – generation, application, dissemination – of technologies.

Hill and Utterback (2009) identified technological innovation as a major agent of development and change in societies which has been linked to rising productivity, employment growth and a strong position in export markets, trade and improved quality of life. However, the inherent complexity of the process of technological innovation and its involvement in interaction with different environments as well as industry specific factors, made studies of the characteristics of technological innovation seem difficult to carry out.

Financial Inclusion in Kenya

AfDB's 2012 survey on financial inclusion in Africa found that 42% of Kenya's adult population has an account with a formal financial institution, the highest in the region. In Uganda, the proportion of adult population with a formal account stood at 20 per cent, Tanzania (17 per cent), Rwanda (33 per cent) and Burundi (7 per cent). The report says that the rapid uptake of M-Pesa, run by Safaricom, has been the main catalyst in getting Kenyans to open accounts with banks, SACCOs and other formal institutions. This success prompted development finance institutions (DFIs) to invest in the mobile banking sector and grasp the huge opportunity to improve financial inclusion throughout the continent.

Kenyans transferred Sh1.9 trillion on their mobile phones last year, or an equivalent of Sh5.2 billion every day, a new report by the Central Bank of Kenya (CBK) has shown. There were 732 million mobile phone transactions last year, which has replaced most transactions that were previously done in cash. As at September last year the number of users subscribed on mobile money services was 25.1 million, far more than account holders in commercial banks. The number of agents contracted by telecommunication firms offering mobile money services increased by 33,218 last year to stand at 113,130 (BD 54). FinAccess indicates that mobile phone financial services have helped in widening financial inclusion, with the proportion of adults roped into the formal financial system rising to 66.7 per cent in 2013 from 27.4 per cent in 2006 (CBK report, 2010).

Importance of Financial Inclusion

Financial inclusion will help the entire nation by greater inclusion, through higher savings pooled from the vast segment of the bottom of the pyramid of population, by providing access to formal savings arrangement resulting in expansion in credit and investment by banks as well as saving mobilization when the weaker sections are provided with the facility of banking services. Secondly social objectives of poverty eradication is considered to be the main

objective of the financial inclusion scheme since they bridge up the gap between the weaker section of society and the sources of livelihood and the means of income which can be generated for them if they get loans and advances which in turn leads to sustainable livelihood Hastings and Lydia (2008). This is because the weaker section of society can get some money in form of loans which they can use to start up their own business or they can support their education. Financial inclusion is important for improving the living conditions of poor farmers, rural non -farm enterprises and other vulnerable groups. Financial inclusion is a multi-dimensional, pro-client concept, encompassing better access, better products and services, and better use.

Technological innovations in the Banking sector

Waves of technological change happen in all industries. Technology goes through periods of incremental change followed by radical technological breakthroughs, and thus the innovation response must vary to suit the environment. Technology is one of the key elements that define a society or civilization. The critical role of technological innovation in the development of a company and its contribution on the economic growth of firms has been widely documented. (Ayres, 2008) identified technology as the wealth of companies.

According to Abernathy and Utterback, (2005) the primary role of technological innovation is to assure the survival of the entity, as well as the business ecosystem, which in turn is based on achieving sustainable financial performance. Innovation has been identified as an important factor in firm survival. Companies in high technology industries, such as Sony, are often discussed as examples of firms that depend critically on the continued succession of new product innovations for survival. This continuous innovation is difficult to achieve; to survive, the firm must meet customer demands for rapid incremental improvement.

Technological innovations are bringing both new customers, potentially including millions of unbanked cell phone owners, and new service providers –a diverse array of retail outlets, telecoms and others into the market. Diversification of products and services has already resulted in rich, and complex, choices for consumers, especially compared to the early days of one-size-fits all working capital loans. Yet, increased access and better choices do not automatically translate into effective use. The path from uptake (i.e. opening an account) to usage is still an uncharted course (Kelly, 2008).

Technological innovations in the Banking industry include mobile banking technologies, electronic money transfer, internet banking transactions, ATM deposits and withdrawals, online account opening among others. All these technological innovations contribute heavily in building

customer base, capital base as well as enhancing their profitability which results to influence on their financial performance (Hill, 2009).

Research Problem

The banking sector in Kenya is one of the fastest growing sectors of the economy having registered significance growth in the past two decades. However, very few studies have been done to examine the key drivers of growth for commercial banks in Kenya. This notwithstanding, it is important to note that the sector is one of the leading sectors in country when it comes to innovation (Muasya, 2009).

There are a number of innovations which have taken place in the banking industry ranging from products such as M-KESHO and a variety of mobile banking to distribution innovations such as agency banking. Technological innovations have also been seen such as use of credit cards and debit cards, real time processing of transactions as well as ATMs. Indeed, the banking industry is one of the major consumers of information technology and software products in Kenya (Abdullahi, 2010).

A number of local studies on the role of innovation on the growth of commercial banks exist. For instance, Kihumba (2008) conducted a study on the determinants of financial innovation and its effects on banks performance in Kenya. The study focused on financial innovations as a strategy and thus did not cover technological innovations.

Kimingi (2010) did a study on the effects of technological innovations and financial performance of banks and depicted that organizational structure, technological infrastructure and technical feedback with other organizations affect the adoption of technological innovations. The study also depicted that technological innovations affect financial performance through increased sales and competitive positioning. The study focused on financial performance and did not cover financial inclusion.

None of these studies have focused on the effect of technological innovation on the financial inclusion initiatives by banks. This study therefore sought to fill this lacuna in knowledge by investigating the effects of technological innovation on financial inclusion initiatives by banks in Kenya.

Research Objective

The general objective for the study was to examine the effect of technological innovations on financial inclusion initiatives by banks in Nakuru county, Kenya. The specific objective was to examine the effect of agency banking on financial inclusion initiatives by banks in Nakuru County Kenya.

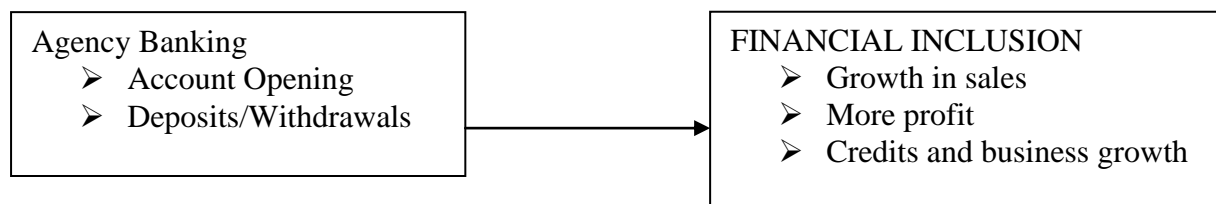
Research Question

1. What is the effect of agency banking on financial inclusion initiatives by banks in Nakuru County?

Conceptual Frameworks

A conceptual framework explains relationships between interlinked concepts and explains the connections between the variables under study (Ravitch & Riggan, 2012). The conceptual framework for this study has been developed based on the literature and empirical reviews. It provides a link between agency banking and financial inclusion. As illustrated in figure 1, the independent variable agent banking while the dependent variable was financial inclusion.

Figure 1: Conceptual Framework



LITERATURE REVIEW

Theoretical Review

The study was guided by diffusion of innovation theory.

Diffusion of Innovation Theory

Innovations diffusion theory was coined by E.M Rogers in 1962. It is a widely used theory in social science disciplines. The theory has its basis in communications and seeks to explain how an idea or product gains momentum and spreads through a specific population or social system. The result of this diffusion is that users take up the new idea or innovation. Adoption as brought out in the theory assumes that users react differently to an innovation compared to previous products or innovations. This facilitates the diffusion process. Diffusion of Innovations Theory posits that theoretically, 49%-87% of the variance of an innovator's rate of adoption is explained by its perceived attributes, type of innovation decision, and nature of social system which the innovation is diffusing and the extent of the agents' promotion efforts in diffusing the innovation (Hart, 2007).

The diffusion model is a conceptual paradigm with relevance to many disciplines; thus the diffusion approach provides common conceptual ground for technological innovation.

Rogers (1995) further suggests that social scientists are interested in social change and the diffusion research offers a particularly useful means of gaining and understanding of change, since innovations are a type of communication message whose effects are relatively easy to isolate. Thus when studying technological innovation one is dealing with change in human behavior.

One of the key concepts in diffusion research is that change in consumer behaviour is affected by different forces, which can be driving or inhibiting, and which can lead to the adoption or non-adoption of a particular innovation. While guided by the diffusion of innovation theory, the researcher sought to establish the effects of technological innovations on financial inclusion initiatives by banks in Nakuru County.

Empirical Review

A number of researchers have carried out studies on the effects of innovation on performance of Commercial banks. For instance, Kihumba (2008) conducted a study on the determinants of financial innovation and its effects on banks performance in Kenya. This study concluded that technological innovations influence the structural aspects of banks in Kenya particularly on financial innovation as a strategy. Use of various aspects of technological innovations is thus expected to have great effects on the financial performance of an organization.

Effect of Agency Banking

One of the primary challenges to providing financial services to the poor through branches and other bank-based delivery channels is the high costs of these traditional banking methods. In order for commercial banks to serve poor customers with a small balance and conducting small transactions, it costs way too much to make them viable. But on the other hand, when banks do not have branches that are close to the customer, the customer will be more reluctant to use and transact with their service. In some countries, like in Brazil, banks have successfully expanded their outreach by hiring local “agents” or “correspondents” to offer their services. By using retail points as cash merchants (agent banking), banks, telecom companies, and other providers can offer saving services in a commercially viable way and at the same time, reduce fixed costs and encourage customers to use the service more often, thus providing access to additional revenue sources (Beck et al. , 2007).

The use of bank agents has the potential to significantly increase financial access by poor and underserved populations to a range of formal financial services, including savings, payments and transfers, and insurance (Bold, 2011). Agents may engage in different activities, depending on applicable regulation and the terms of the agency agreement. Some agents

provide only cash-in/cash-out services (these agents are often called “cash merchants”). Some agents also enroll customers and provide a wider array of banking services.

According to Flaming (2011), generally the services by bank agents can be divided roughly into four categories: transmitting information, processing information, cash handling and Electronic Funds Transfer. Information transmission consists primarily of providing the customer with account information (e.g., balance inquiries and bank statements) and receiving account and loan applications, including transmitting know-your-customer (KYC) information. Information processing includes processing account and loan applications (and in some cases, opening accounts), analyzing the credit and other personal information of loan applicants, conducting KYC procedures (i.e., verification) for account opening applications and transactions, record keeping, and selling micro insurance. Cash handling refers to deposits (or “cash in”) and withdrawals (or “cash out”), often limited to small values, to or from a customer’s own account. Finally, electronic funds transfer may involve making bill payments, disbursing government benefits, and effecting payments. Some countries permit agents to engage in all such activities; other countries are more restrictive.

Waihenya (2012) conducted a study of the effect of agent banking on Financial Inclusion in Kenya. Secondary data was used for this study since it is easily accessible, cheaper and accurate for this case due to the regulations around submissions by Central Bank of Kenya. 15 Secondary data from existing theories and researchers done on mobile money transfer and financial inclusion from finance books, journals, periodicals and internet was also relied upon. The study concluded that agency banking has the effect of increased financial inclusion in the country significantly. The research found that the levels of financial inclusion are low and that there is notable gap not bridged by formal banking framework. It further notes that agency banking is facing a lot of challenges from the increasing mobile penetration in the country and mobile money transactions increasing at the same rate.

Wambugu (2011), in his study on factors influencing the adoption of agency banking by commercial banks in Kenya. The objective of the study was to explain the factors influencing Kenyan commercial banks to have agents. The research adopted a descriptive study approach focusing on the commercial banks in Kenya that were operating agency banking model. The population of the study consisted of four (4) commercial banks, with a target respondent of 45(staff) members. The study indicated that the factors that influenced the adoption of agency banking included; increasing customer coverage, enhancing revenue, expanding customer base outside the existing branch network high penetration to the unbanked and diverting customers from the crowded banking halls. This was inferred by the researcher to mean that, the major driving forces of commercial banks while adopting agency banking is increasing the banks

operational capacity, while increasing revenues but at the same time reducing the operation cost.

Financial Inclusion

Financial inclusion, of late, has become the buzzword in academic research, public policy meetings and seminars drawing wider attention in view of its important role in aiding economic development of the resource poor developing economies (Agarwa, 2010). The size of the financially excluded population in the world is enormous according to the United Nations, approximately three billion people around the globe lack access to formal financial services- such as bank account, credit, insurance, a safe place to keep saving and a secure and efficient means to receive social benefit payments- through a registered financial institution (Chibba, 2008). This sizeable population of the world particularly poor, low income and vulnerable group remain excluded from the most basic financial services provided by financial sector. It has been universally accepted that developing financial sector and improving access to financial services accelerate economic growth and helps to achieve inclusiveness growth.

Sharma (2008), through cross country empirical study examined a close relationship between financial inclusion and development. Further, the study found a positive relation between financial inclusion and different socio-economic variables like income, inequality, literacy, physical infrastructures. Beck et.al, (2000), in their paper tried to evaluate empirically the relationship between level of financial intermediary development and economic growth. They observed a positive impact of financial intermediary development on the growth of total factor productivity which will lead to economic development. A study by Halwe (2010) to understand the saving pattern and credit needs of the tribal families of Maharashtra and Gujarat State of India revealed that indeed the poor take financial intermediation seriously and devote considerable effort to finding workable solutions. The study revealed that the poor persistently engage in number of multifaceted financial transactions mostly outside the formal financial system which offers convenience and flexibility in terms of service and products unmatched by formal intermediaries.

Burgess and Pandey (2007) provide further evidence that by opening branches of commercial banks through state-led policies was associated with poverty reduction in rural unbanked locations of India. This study despite being insightful did not look at the usage of the products or services but merely the presence of bank branches which studies have shown does not give a complete picture of financial inclusion. The study does not depict the channel through which increased bank presence reduced poverty. Currently other models of financial inclusion

like non-governmental organizations (NGOs) and private financial institutions are applied. Studies can be done to establish their efficacy so as to know the best model.

Sahoo et.al, (2008), had attempted to develop index of financial inclusion to examine the progress of financial inclusion and various determinants of financial inclusion using secondary data from various sources. In their study, they observed a positive impact of infrastructure development, education; self-help group formation on financial inclusion both from financial widening and deepening perspectives.

Rangarajan Committee (2008) on financial inclusion stated that: “Financial inclusion may be defined as the process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups such as weaker sections and low income groups at an affordable cost.” The financial services include the entire gamut of savings, loans, insurance, credit, payments, etc. The financial system is expected to provide its function of transferring resources from surplus to deficit units, but both deficit and surplus units are those with low incomes, poor background, etc. By providing these services, the aim is to help them come out of poverty. One common measure of financial inclusion that is by and large accepted universally is the percentage of adult population having bank accounts. The number of savings accounts as percent of number of households is considered to be a better indicator of banking penetration than other deposit accounts as percent of number of households, (Agarwal, 2008). In understanding the extent of financial inclusion, it is imperative to know the coverage of population by bank offices in both rural and urban areas. Greater financial inclusion by itself does not imply greater welfare. The underlying assumption is that access to formal financial services is less taxing on vulnerable groups who have to pay much higher cost for informal services – this is something that could be tested.

According to Kempson et al. (2004), financial inclusion can be measured through three basic dimensions; banking penetration, and availability of the banking services and usage of banking system. The variables include; the size of the, banked population, i.e. the proportion of people having a bank account is a measure of the banking penetration of the system, number of branch per 1000 km², number of bank ATM per 1000km², average size of loan to GDP per capita, number of deposits per 1000 people, average size of deposits to GDP per capita and total deposits as a percentage of GDP. In the present index, they have provided the following weights–1 for the index of banking penetration, 0.5 for the index of availability and 0.5 for the index of usage. Financial inclusion should also be measured not only by the number of bank accounts held by the weaker sections, but also by the amounts borrowed by them.

RESEARCH METHODOLOGY

Research Design

Descriptive research design was adopted as it seeks to determine effects of technological innovations on financial inclusion by banks in Nakuru County. Descriptive research design determines and reports the way things are. This type of design attempts to describe such things as possible behavior, attitudes, values and characteristics (Mugenda & Mugenda, 1999).

Target Population

The target population of the study was Nakuru Town residents who are bank account holders and branch managers of the banks in Nakuru Town. There are 29 commercial bank branches in the county.

Sampling Technique

Stratified random sampling was used in the study; this technique ensured that all levels of the residents were represented. According to Mugenda and Mugenda (1999), a sample of 10% of the accessible population is quite representative. The study adopted stratified random sampling technique, where subjects were selected in such a way that the existing sub-groups in the population were more or less reproduced in the sample. The aim of stratified random sampling was to achieve the desired representation from various sub-groups in the population. This sampling technique allowed the use of different sampling techniques for different sub-populations, thereby improving the accuracy of presentation. A sample size of 140 respondents to represent account holders and 29 Bank branches was taken from the sampling frame. The selection of the sample size was based on Krejcie and Morgan's (1970) table for determining sample size. Table 1 illustrates how sampling was done.

Table 1: Sample Size

Category	Frequency	Sample
Account holders	3,123	140
Branch managers	29	29
Total	3,152	169

Data Collection

The study used primary data collected from semi structured questionnaires. The questionnaire had both open and closed ended questions. The structured questions facilitated easier analysis as they are in immediate usable form and easily analyzed using quantitative measures; the unstructured questions were used to encourage the respondent to furnish an in-depth

response without feeling held back in disclosing information thereby providing data that is qualitative in nature. Questionnaires were adopted by the study as they are useful in obtaining objective data since the respondents are not manipulated in any way by the researcher. The questionnaires were administered on a 'drop and pick later' technique.

Data Analysis Approach

Data collected was edited for completeness and consistency. Quantitative data was analyzed using descriptive statistics while qualitative data was analyzed using content analysis. Quantitative data was coded and entered into Statistical Packages for Social Scientists (SPSS). Analysis was based on descriptive statistics. Descriptive statistics involves the use of absolute and relative (percentages) frequencies, measures of central tendency and dispersion (mean and standard deviation respectively).

ANALYSIS AND FINDINGS

From the 29 questionnaires distributed to the banks and 116 questionnaires presented to customers in these banks, all were filled and returned and thus used in the study. This shows that the response rate was 100%. The findings are based on these responses as presented in this chapter. First, the sample characteristics are shown.

Effect of Agency Banking on Financial Inclusion

Majority of the banks in the study have been operating in the Kenyan banking industry for more than 20 years. The study found that 44.8% of the banks are local private commercial banks. The study also found that 27.6% of the banks were local public owned commercial banks and another 27.6% of the banks were foreign commercial banks. The study found that 41.3% of the banks have 1-20 branches around the Kenyan market.

Table 2: Bank Ownership Status

Ownership	Frequency	Percentage
Local public commercial bank	8	27.6
Local private commercial bank	13	44.8
Foreign commercial bank	8	27.6
Total	29	100

The study found that technological innovations increase sales, they lead to profit increment; they provide better competitive competition, increase quality of service and assure the survival of the bank.

Table 3: Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.227	.011		1.096	.005
	Agency banking	1.213	.004	2.611	1.498	.014

a. Dependent Variable: Financial inclusion

The study findings indicated that, agency banking and financial inclusion of the banks have positive and strong correlation which is also significant tested at 5% level. This was indicated by the coefficient value of 1.213 which implied that variation in agency banking would lead to an equivalent variation in financial inclusion by a factor of 1.213 units. Thus, the findings indicate that there is a strong positive association between agency banking and financial inclusion.

CONCLUSION

The study concludes that innovations are not only adopted to increase their market coverage but also to improve the liquidity and also remain competitive in the market in the current turbulent business environment. The study further concludes that technological innovations have led to improved financial inclusion of commercial banks in Kenya. These were through increased bank sales, profits increment and return on equity. Technological innovation may be linked to performance and growth through improvements in efficiency, productivity, quality, competitive positioning and market share, among others. The study also found that technological innovation is positively related with performance.

The study recommends that commercial banks in Kenya should adopt new technological innovations such as agency banking, since this provides the benefit of constant access to certain core services reducing the need to interact with bank staff for many people. Adoption of Technological innovations by the banks have prompted agreements to share systems between banks and the development of agents points installed in non-branch locations such as supermarkets to increase on bank customer deposits, earn interest charges on financial service delivery and earning of non-funded interests such as withdrawals charge interest. Hence there is need to adopt technological innovations to improve liquidity in banks.

LIMITATIONS OF THE STUDY

The study was limited in scope since it was carried out in banks in Nakuru county. As a result, the findings could not be generalized to a large area. Further, the researcher faced the challenge of gathering data as some respondents were not ready to volunteer information freely

for fear it may be used for other purpose apart from academic work. The researcher had to assure the respondents that the information provided would be treated with utmost confidentiality and that it would purely be used for academic purpose.

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