

Factors Influencing Adoption of Emerging Technology of the Banking Sector of Kenya: A Case Study of Commercial Banks in Meru County

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Abstract

The general objective of this research was to find out the factors influencing adoption of emerging technology in the banking sector among Commercial Banks in Meru town. The objectives were to determine whether banking regulation, Competition, Security concerns, Management and cost influences adoption of technology in the banking sector. The target population was 22 Branch managers, 22 IT managers and 22 Operational Managers. Research adopted descriptive research design methodology strategy so as to enable researcher to describe the state of affairs as they were. The data was analyzed using both quantitative data and qualitative data whereby, the quantitative data collected was analyzed by the use of descriptive statistics using SPSS version 22. Qualitative data was arranged into topics that were similar and was presented by use of narration and tables. Multiple Linear Regression analysis was used to show the relationship between the independent variables and the dependent variable and to test the hypotheses. Research revealed that there was a significant relationship between banking regulation and adoption of technology but there was no relationship between, security concerns, competitions, cost and management in banking sector. The study recommends banks should regularly respond to issues arising from banking regulations, competitions, security, cost and management on adoption of technology in order for their function to serve its purpose.

1.0. INTRODUCTION

1.1. Background of the Study

According to CBK (2015) Central Bank of Kenya a took over all bank activities in 1966 and begun to regulate the formulation and implementation of monetary and fiscal policies. Central Bank is the lender of last resort in Kenya and is the banker to all other banks. According to Hilary (2011) the CBK ensures the proper functioning of the Kenyan financial system, the liquidity in the country and the Solvency of the Kenya shilling where the Ministry of finance fall. Ongige (2005) in her book on 'effect of e-banking' that the banking industry in Kenya has involved itself in automation, moving from the traditional banking to emerging technologies, so as to be able to meet the growing complex needs of their customer and globalization challenge. Competition has been considered to promote efficiency. Based on the industrial organization (IO) Rhoades (2007), competition is often thought to minimize costs and in such a way that resources are allocated efficiently. Security has been widely recognized as one of the obstacle to the adoption of electronic banking. It is considered an important aspect in the debate over challenges facing internet banking (feinman, 2006). **According to Magretta Joan (2006)** Management refers to the individuals who set the strategy of the organization and coordinate the efforts of employees to accomplish objective by using available human, financial and other resources efficiently and effectively (**Drucker, Peter 2007**). It is important for Bank Managers to understand how trust for e-banking develops. According to Gan (2006) e-banking is necessary for banks to stay profitable in the future; however, trust gap is a barrier to growth in the adoption of e-banking services If trust for e-banking is developed over time, then the customer is more likely to adopt it as a complementary service delivery channel. This adoption, in turn, raises defection costs and the customer will become more committed to the bank. (Mukherjee and Nath, 2003; Vatanasombut et al., 2008). Technology refers to a particular method, materials, or devices used to solve real practical problems in life (Omondi, 2005). Technology adoption has transformed systems of the banking sector in Kenya. It is transforming every aspects of a banking activity. (IMF conference 2005).

1.2 Statement of the Problem

The Banking sector worldwide has adopted the use of modern technology. Introduction of technology has not been without its own challenges in the banking sector where by , adoption of this technology in the banking sector has increased insecurities among the bank's customers, such as hankering of customers information, competition to overtake each other in service delivery to customers, increased mismanagement of the customers, information thus introduction of banking regulations that hindered smooth operation of the banks, leading to raise of cost of implementing technology (Rhodes, 2006).

1.3 Objectives of the Study

The general objective of this study was to find out factors that influence use of technology in banking sector with

special focus on banks within Meru town.

1.3.1 Specific Objectives

- i) To determine the outcome of banking regulation on the adoption of technology by banks.
- ii) To examine ramifications of competition on adoption of technology by the banking sector.
- iii) To assess the outcome of security concerns on the adoption of technology in the banking sector.
- iv) To establish management dominance in adoption of technology in the banking sector
- v) To determine the outcome of cost on the technology adoption in the banking sector.

2.0 LITERATURE REVIEW

2.1 Theoretical Review

Literature was reviewed on theories that underpin my Study; Diffusion innovation theory that explained process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2006). Rogers defines an innovation as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (Rogers, 2006). The theory of reasoned action which was concerned with the determinants of consciously intended behavior, Fishbein and Ajzen, 2006). It is composed of attitudinal, social influence, and intention variables to predict behaviour. It is hypothesized by Theory of reasoned action that the individual's behavioural Intention to perform a behaviour is jointly determined by the individual's Attitude toward performing the Behaviour and Subjective Norm which is the overall perception of what relevant others think the individual should or should not do

The theory of planned behaviour which is concerned with predicting the performance of behaviour and its intentions (Madden et al., 2005). Attitude toward Behaviour is defined as “a person's general feeling of favourableness or unfavourableness for that behaviour” (Ajzen and Fishbein, 2007). Subjective Norm is defined as a person's perception that most people who are important to him/her think he/she should or should not perform the behaviour in question. (Ajzen and Fishbein, 2006). Attitude toward behaviour is a function of the product of one's salient beliefs that performing the behaviour will lead to certain outcomes, and an evaluation of the outcomes. Perceived Behavioural Control is a function of control beliefs and perceived facilitation. Control belief is the perception of the presence or absence of requisite resources and opportunities needed to carry out the behaviour. Perceived facilitation is one's assessment of the importance of those resources to the achievement of the outcomes (Ajzen and Madden, 2007). Perceived Behavioural Control is included as an exogenous variable that has both a direct effect on actual behaviour and an indirect effect on actual behaviour through intentions. (Ajzen and Madden, 2007)

Michael Porter's theory of Firm Strategy, Structure and Rivalry which dealt with emphasis that the strategies and structures of firms depended heavily on the national environment and that there were systematic differences in the business sectors in different countries that determined the way in which firms competed in each country and ultimately their competitive advantage (Porter, 2005). Theory explains the international competitiveness of countries: “It is the multilevel theory to realistically connect firms, industries and nations, whereas previous theories only work on one or two dimensions”. Hill (2009) proclaims that “although much of the theory sounds true, it has never been subjected to rigorous testing”. However, thus far the Diamond ‘Theory’ is conspicuously absent from the international economics textbooks. (Dunning 2007 et al). International competition at the firm level has changed over the last decade because of the changing patterns of world trade, globalization of the world economy, rapid dissemination of technology and information, and the rise of the transnational organization. It is this emphasis on competition among firms in world markets that has renewed intellectual interest in international competitiveness at a country level (Porter 2005, Ketels, 2006).

2.2 Empirical Review

Empirical literature reviewed adoption of technology in banking sector globally, in Africa and regionally, Malhotra, (2005) says that India has a wider array of financial products and services that have become available over the Internet which has thus become an important distribution channel for a number of banks. Singh, (2006) in his research on technology adopted by Indian banks found out that banks boost technology investment spending strongly to address revenue, cost and competitiveness. Other investments are motivated more by a desire to establish a competitive position or avoid falling behind the competition (Malhotra, 2005; Singh, 2006). Sathye (2005) finds and states that the partial privatization of Indian banks really helped improve their efficiency and performance. Weng, et al. (2006) states that recent information on technology developments have forced companies to face stiff competition. Gupta, et al (2007) states that the Indian banking sector, which was predominantly controlled by the government, was liberalized in early 1990s. The resultant competitive forces, coupled with more stringent regulatory framework, have created pressure on the banks to perform. Efficiency has become critical for banks' survival and growth. Safeena, et al. (2011) states that, information technology services is considered as the key driver for the changes taking place around the world.

According to Ovia (2005) Nigeria's banking scene has witnessed phenomenal changes, especially in the

mid 1980s and these have manifested in the enormous volume and complexity in product or service delivery, financial liberalization and business process re-engineering. The effectiveness of deploying information Technology in banks therefore cannot be put to doubt. The fact remains that the reality of using IT in banks is necessitated by the huge amount of information being handled by these banks on a daily basis (Ovia, 2005). According to Adesina and Ayo,(2010) the finding on technological adoptions in Nigerians banking sector shows that union of technology and finance has recorded huge success and has impacted on financial transactions in Nigeria. Information and communication technology have in particular brought about a paradigm shift in banking operations. In a bid to catch up with global development, improve the quality of customer service delivery, and reduce transaction cost, Nigerian banks have invested heavily in Information and communication technology. Adopted Information and communication technology networks for delivering a wide range of value-added products and services. Information and communication technology system is used because it is convenient, easy to use, saves time and meets their transaction needs (Adeoti, 2005; Adeyemi, 2006).

The study in Uganda as illustrated by Sonja (2010) shows that on the effects of computerization on banks, Technology is likely to increase the efficiency, outreach and sustainability of banking institutions. Ayo (2006) says that ICT's has been found to promote the dual objectives of banks and - sustainability and outreach to people and noted that Management information systems are essential in order for banking institutions to operate efficiently Ayo (2006) says in the study several managers stated that they are not able to use all the functions the system offers such as backup systems or different financial reports, the study found out that technology has positively influenced banks by asking daily work easier and quicker (Sonja,2010). Sonja (2010) researched on the effects of computerization in banking sector in Uganda and found out that Technology is likely to increase the efficiency, outreach and sustainability in banking sector. ICT's has been found to promote the dual objectives of banks sustainability and outreach to the poor people and noted that Management information systems are essential in order for a banking institution to operate efficiently. The study found out that technology has positively influenced banking sector by making daily work easier and quick (Sonja, 2010).

3.0 Methodology

3.1 Study Design

The study design was descriptive in nature which helped to describe the state of affairs as they were. Descriptive research according to Mugenda and Mugenda (2006) is a process of collecting data in order to answer questions concerning the status of the subjects in the study. The study aimed to collect information from the respondents in relation to their access to banking technology services in Kenya banking system. The descriptive research design also assisted the researcher gather both qualitative and quantitative data on how study variables such as banking regulations, competitions, security, cost and management influence adoption of technology among commercial banks in Meru town. The design was therefore appropriate for this study as the research aimed in establishing the factors influencing adoption of technology in commercial banks. Multiple Linear Regression analysis enabled to show the relationship between the independent variables and the dependent variable and to test the hypotheses.

3.2 Target Population

The target populations were 66 employees working in 22 commercial banks in Meru town which included branch managers, IT managers and operation. It is these respondents that were used to collect data for the study because they were familiar with variables for the study and how they influence adoption of technology in the banking sector

3.3 Sample and Sampling Procedure

According to Kothari (2013), at least 30% of the total population is representative of the total population. For this study, a sample 30% (44 respondents) were considered adequate using purposive sampling. The size was distributed into three strata, branch managers 22, IT managers 11 and operational managers 11.

3.4 Reliability and Validity

Cronbach's alpha coefficient was used to provide an overall reliability of internal consistency and it determined consistency of the likert scale questions, based on the pilot study conducted prior to data collection, the instrument had a value of 0.773 which lies within the acceptable range of 0.7 to 1.0 and therefore this shows that the instrument was reliable.

3.5 Data Analysis and Presentation

Data analysis involved quantitative data and qualitative data whereby, the quantitative data collected was analyzed by the use of descriptive statistics aided by SPSS version 22 and it was presented by use of tables, pie charts and bar graphs also aided by Microsoft excel spread sheet. Multiple Linear Regression analysis was used

to show the relationship between the independent variables (banking regulation, competition, security, management and cost) and the dependent variable (adoption of technology).

3.6 Research Findings

The finding on banking regulation showed that the mean of the responses on banking regulations from the three cadres of responses were 2.583, 2.682 and 2.447 for the bank managers, operations managers and IT managers respectively. From an initial look, it showed that the responses were homogeneous for the three cadres of responses albeit skewed to the left (Skewness coefficient of -0.476). The Z scores from Table 4.5 were less than critical Z at 5% significance level ($Z = \pm 1.96$) hence showing that the mean responses from each of the three groups are not significantly different from the overall mean. The finding indicate that the data from the three groups can be analysed together given that the respondents had significantly consistent views on banking regulations. Finding indicate that operation managers thought that there were more banking regulations followed by bank managers and finally IT managers which could affect the adoption of technology. It was found out that the p-value for banking regulations was 0.036 which was less than 5% significance level set by the researcher. Therefore, this research rejects the null hypothesis that there is no significant relationship between banking regulations and the adoption of the technology in the banking sector and concludes that banking regulations significantly and positively influences the adoption of technology in the banking sector. It can also be observed that a marginal change in banking regulation leads to change in adoption of technology by 0.254 in the same direction while holding all other factors constant. It was found out that banking regulation had a moderate correlation with adoption of technology in the banking sector at 25.8%. Banking regulations also had a coefficient of determination of 6.7% which means that it was able to account for 6.7% of the variations in adoption of technology. Nevertheless, this accountability was found to be significant given that the null hypothesis on banking regulation was rejected.

According to the finding it was observed out that the mean of the responses on competition from the three cadres of responses were 2.432, 2.561 and 2.462 for the bank managers, operations managers and IT managers respectively. The finding showed that the responses for the three cadres of responses skewed to the right (Skewness coefficient of +1.346). The Z scores from Table 4.7 were less than critical Z at 5% significance level ($Z = \pm 1.96$) hence showing that the mean responses from each of the three groups are not significantly different from the overall mean. Therefore, it indicated that the respondents had significantly consistent views on competition. Research finding showed that operation managers thought that there was more competition which could affect the adoption of technology; followed by IT managers and finally bank managers From Table 4.17, it was observed that the p-value for banking regulations was 0.182 which was more than 5% significance level set by the researcher. Therefore, this research fails to rejects the null hypothesis that there is no significant relationship between competition and the adoption of the technology in the banking sector and concludes that competition in significantly but positively influencds the adoption of technology in the banking sector. It was further found out that a marginal change in competition leads to change in adoption of technology by 0.128 in the same direction while holding all other factors constant. Findings indicated that competition had a weak correlation with adoption of technology in the banking sector at 12.8%. Competition also had a coefficient of determination of 2.8% which means that it was able to account for 2.8% of the variations in adoption of technology which has already been found to be insignificant by the study.

The research indicated that the mean of the responses on security from the three cadres of responses were 2.265, 2.205 and 2.295 for the bank managers, operations managers and IT managers respectively. Finding showed Skewness coefficient (-0.935) among the responses skewed towards the left. The Z scores were less than critical Z at 5% significance level ($Z = \pm 1.96$) hence showing that the mean responses from each of the three groups are not significantly different from the overall mean. From reserch finding it showed that the respondents had significantly consistent views on security. However in absolute terms, IT managers thought that there were more security issues which could affect the adoption of technology; followed by Bank managers and finally operation managers. Finding indicate security had a p-value of 0.170 which was more than 5% or 0.05 significance level set by the researcher. Therefore, this research faild to reject the null hypothesis that there is no significant relationship between security and the adoption of the technology in the banking sector and concludes that security insignificantly but positively influences the adoption of technology in the banking sector. It was further observed that a marginal change in security leads to change in adoption of technology by 0.174 in the same direction while holding all other factors constant. From the finding Security had a weak correlation with adoption of technology in the banking sector at 17.1%. It also had a coefficient of determination of 2.9% which means that it was able to account for 2.9% of the variations in adoption of technology which has already been found to be insignificant by the study.

The finding on management show ed that the responses for the three cadres of responses on management skewed to the left (Skewness coefficient of -1.167). The Z scores were less than critical Z at 5% significance level ($Z = \pm 1.96$) hence showing that the mean responses from each of the three groups are not significantly

different from the overall mean. Therefore, it shows that the respondents had significantly consistent views on management. As indicated by the research finding operation managers thought that there were more management issues which could affect the adoption of technology; followed by IT managers and finally bank managers. The research finding further showed that management had a p-value of 0.092 which was more than 5% or 0.05 significance level set by the researcher. Therefore, this research failed to reject the null hypothesis that there is no significant relationship between management and the adoption of the technology in the banking sector and concluded that management insignificantly but positively influenced the adoption of technology in the banking sector. The finding showed that a marginal change in management leads to change in adoption of technology by 0.215 in the same direction while holding all other factors constant. Management had a weak correlation with adoption of technology in the banking sector at 20.9%. It also had a coefficient of determination of 4.4% which means that it was able to account for 4.4% of the variations in adoption of technology which has already been found to be insignificant by the study.

The finding indicate that the mean of the responses on cost from the three cadres of responses were 1.780, 2.242 and 2.871 for the bank managers, operations managers and IT managers respectively. Finding showed that the responses for the three cadres of responses are skewed to the right (Skewness coefficient of 0.452). The Z scores from were less than critical Z at 5% significance level ($Z = \pm 1.96$) hence showing that the mean responses from each of the three groups are not significantly different from the overall mean. The study showed the respondents had significantly consistent views on cost. However in absolute terms, IT managers rated cost as a higher factor in relation to adoption of technology; followed by IT managers and finally bank managers. Further study showed that cost had a p-value of 0.406 which was more than 5% or 0.05 significance level set by the researcher. Therefore, this research failed to reject the null hypothesis that there is no significant relationship between cost and the adoption of the technology in the banking sector and concluded that cost insignificantly but positively influenced the adoption of technology in the banking sector. It was further found that a marginal change in cost leads to change in adoption of technology by 0.119 in the same direction while holding all other factors constant. Cost had a weak correlation with adoption of technology in the banking sector at 10.4%. It also had a coefficient of determination of 1.1% which means that it was able to account for 1.1% of the variations in adoption of technology which has already been found to be insignificant by the study.

The finding indicated that the mean of the responses on adoption of technology from the three cadres of responses were 2.068, 2.341 and 2.194 for the bank managers, operations managers and IT managers respectively. Further research showed that the responses for the three cadres of responses skewed to the right (Skewness coefficient of 0.232). The Z scores from were less than critical Z at 5% significance level ($Z = \pm 1.96$) hence showing that the mean responses from each of the three groups are not significantly different from the overall mean. Therefore, it showed that the respondents had significantly consistent views on adoption of technology. However in absolute terms, operation managers thought that there was higher adoption of technology in banks; followed by IT managers and finally bank managers.

Finding on the joint effect of all the five independent variables on the adoption of technology showed that correlation of the joint effect model is 36% which was moderate and higher than the correlation of the independent variables severally with the dependent variable. It was also seen that the coefficient of determination is 13% which means that the model was able to account for 13% of the variations in adoption of technology. From the multiple linear regression, it can be observed that banking regulation was the only significant variable with a p-value of 0.047 which was less than 5% or 0.05 significance level set by the researcher. Therefore, this research only rejects the null hypothesis that there is no significant relationship between banking regulations and the adoption of the technology in the banking sector and concludes that banking regulation significantly and positively influenced the adoption of technology in the banking sector. It can be further observed that cost had a negative influence on the adoption of technology with a beta coefficient of -0.177. However, its influence was insignificant with a p-value of 0.336 which was more than the set significance level of 0.05 for all the hypotheses for this. The whole model as a joint effect had higher correlation coefficient than when the independent variables are regressed severally. Therefore, the translation is that the five independent variables in the study were all important albeit four of them were found insignificant.

5.3 Conclusions

This study greatly contributes to understanding of the factors that influence the adoption of technology in the banking sector. From the results, it was evident that banking regulation on the adoption of technology by banks affect banking activities and can lead to adopted technology failure in the banking sector. The banking regulations significantly affects adoption of technology of the banking sector while cost decreases the adoption of technology in the banking sector. Some of respondents disagreed that government regulations affect competition in the banking sector while others strongly disagreed that organization structures promote competition in banking sector if adopted technology is not applied in advance. Majority of the respondents seem to agree to the fact that government regulations affect the adopted technology if no training done to employees. It

also important to note that security concerns on the adoption of technology in the banking sector, provides security measures that adds a positive impact to the banking sector.

Therefore the investors in banking sector should be aware, of the negative impact of insecurity to the banking sector. Majority of the respondents felt that availability of the security measures can control fraud in the banking sector if adopted technology is applied. Finally, it should be noted that Management influences adoption of technology in banking sector and therefore management is critical for the adopted technology work efficiently in the banking sector. Therefore, people in management should understand their importance in promoting the technology adoption in the banking sector by responding to management factors such as managerial and technical skills, other recommendations, providing sufficient resources required for technology implementation in the banking sector and communicating the importance of that adopted technology to the banking institutions. This will go a long way in increasing effectiveness and efficiency of the banking sector leading to better performance and improved management.

5.4 Recommendations

Research recommended that branch managers, IT managers and operations managers, should discuss importance of competition in adoption of technology by the banking sector, Security important on the adopted technology in the banking sector, Management value of adopted technology in banking sector before undertaking any step towards technology adoption in banking sector in order to avoid failure or break down of that technology within the banking sector.

Research recommended also that banks should regularly respond to issues arising from banking regulations, competitions, security and management on adoption of technology in order for their function to serve its purpose.

The research further recommended that technology adoption in the banking sector should be considered equally important to banking regulations, management, competition, cost and security concerns and that it should be retained and be made a continuous process; it should be enhanced in all banking institutions as a strategy to improve performance and efficiency

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