

Influence of Strategic Information Systems on Performance of Commercial Banks: A Case of Nyeri County, Kenya

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Abstract

With increased competition, changing consumer needs, influence of globalization and employees' diversity, commercial banks are driven to adopt strategic information systems to enhance their competitiveness in the changing business environment. The research sought to establish the influence of Strategic Information System on performance of Commercial Banks in Nyeri County, Kenya. The specific objectives were to; determine the influence of internet banking, mobile banking and automated teller machines on performance of Commercial Banks in Nyeri County. This study adopted descriptive research design to establish strategic information systems and the performance of Commercial Banks in Nyeri County, Kenya. Descriptive research was appropriate because it explores and describes the relationship between variables in their natural settings without manipulating them. The study adopted a simple random sampling approach where information was sought from respondents (n). The entire population (N) was grouped into clusters of period of work and level of education. The respondents of the study were employees of Commercial Banks operating in Nyeri County. The study used both primary and secondary sources of data. Out of the ten Commercial Banks selected, a total of 185 from 10 commercial banks in Nyeri County were used as respondents of this study. Primary data was collected through structured questionnaires with both open-ended and close-ended questions. Secondary data was obtained from published research papers, textbooks and Journals. Questionnaires were the preferred instrument of data collection because the respondents completed the required information at their own time and the collected data was easily quantified. Reliability of the research instrument was enhanced through a pilot study that was done on two Commercial Banks operating in Nyeri County (Kenya Commercial Bank and Equity Bank) to test the validity and reliability of the research instrument. Seeking opinions of industry experts in the field of study and the researcher's supervisor also enhanced the quality of research questions. The Statistical Package of Social Sciences (Version 21) was used to process and analyze the data collected. Data was analyzed using multiple regression method to test statistical relationship between variables of the study. The analysed data was presented descriptively using tables. It was established that Commercial Banks adopted internet banking, mobile banking to improve their performance in terms of profits, customer satisfaction, minimize costs of production and compensate on return on investments. The study revealed that mobile banking services were still adopted by consumers on a larger extent due to convenience of accessing financial information ranging from electronic financial statement and accessibility of banking services. The study concluded that there was a positive relationship statistical

relationship between independent variables and dependent variables of the study. Therefore, this study recommends that Commercial Banks should allocate adequate financial resources to create maximum awareness of their e-banking services and train their staff to enhance their performance in the changing business environment.

1. BACKGROUND OF THE STUDY

Due to dynamic business environment, globalization, competition, changing consumer needs and influence of technology, modern competitive organizations adopt strategic information systems such as internet banking, mobile banking and automated teller systems to improve efficiency and effectiveness (Diez & McIntosh, 2009). The revolution in Information Systems (IS) has brought drastic changes in financial institutions in the global market. These systems have opened new horizons for business enterprises and have enabled them to carry out their commercial activities by use of advanced technologies. Ferguson, Finn and Hall, (2004) argue that SIS has been the key driver of organizational performance in the dynamic business environment. Organizational performance of competitive firms has been associated by adoption of Strategic Information Systems. Increased profits, increased efficiency and effectiveness and improved customer service are indicators of systems that adopt Strategic Information Systems (Teymouri & Ashoori, 2011).

Kudyba and Diwan (2001) assert that there is positive correlation between Strategic Information Systems and performance of organizations in the changing business environment. Bidgoli (2011) suggest that SIS can help organization reduce the cost of products and services and even assist with differentiation and focus strategies which improves performance. The era of technological development began about a decade ago when different sectors of the economy in developed countries diverted their investment preferences towards information technology tools, information processing equipment's and communication media. In the service industry, the banking sector is one of the largest investors in SIS. Muraleedharan (2014) asserts that adoption of Strategic Information Systems by organizations in the changing business environment has resulted to capabilities that give a company strategic advantages over the competitive forces it faces in the global marketplace. This creates strategic information systems, that support or shape the competitive position and strategies of an enterprise (Gheorghe, 2008). SIS plays a major role in giving an organisation a competitive edge.

SIS enhances firm performance through means such as; allowing the innovation of unique products which at times lead to first mover advantage, reduction in operation costs by increasing efficiency, developing strategic alliances with customers, suppliers, consultants and other companies, differentiation of products and services to serve a certain market, improve business process and to increase quality of products offered to customers (Alipour & Mahdi, 2010). Teymouri and Ashoori (2010) assert that there is a positive correlation between SIS and organizational performance. The benefits brought by SIS such as improved efficiency, growth in market share and expansion into new markets have seen more firms embrace these systems. It has opened new horizons allowing business enterprises to carry out commercial activities through advanced technologies. It has not only improved organizations competitive advantage but has also improved the effectiveness of risk management in these organizations by identifying, measuring, monitoring and controlling the risks faced. Further, it has been driven by huge investments in Information Technology that began about a decade ago when various industries in developed countries started making investment preferences towards information technology tools and equipment (Kudyba & Diwan, 2001).

Ferguson *et al.* (2004) posits that electronic banking practices by commercial banks has become a value addition practice which has led to reduced operational costs, improved customer experience, and also provided opportunities of product innovation and continuous improvement in the system (Muraleedharan, 2014). Kharuddin, Ashhar and Nassir, (2010) suggest that advances in IT has seen the introduction of electronic banking platforms through which customers are able to transact on their mobile phones and through the internet from the comfort of their offices or homes. Through SIS, an organization is able to increase its productivity in terms of increased market share, expanded product range, customized products and better response to client demand. Timely and accurate decision making is key to increased organization performance. Banks have embraced SIS such as electronic commerce as a means of doing business, because it as a way of improving efficiency, growing market share and expanding into new markets (Bharadwaj, 2000).The SIS that this study sought to investigate their effect on the performance of Commercial Banks were: internet banking, mobile banking and automated teller machines.

2. STATEMENT OF THE PROBLEM

A study by the KIPPRA (2015) established that 72% of the Commercial Banks in developing countries faced challenges of integrating appropriate SIS to enhance performance due to internal factors like employee resistance and lack of management support. SIS was established to be the key driver of performance among commercial banks around the globe despite the change of capacity development and change management among organizations. It was noted that SIS were likely to reduce their operational costs by 38%. Kariuki (2005) on the effect of technology adoption on agency banking among commercial banks in Kenya established that there is a positive relationship between SIS and performance despite the challenge of adopting new technologies to enhance service delivery among Commercial Banks in Kenya. Njenga (2009) on mobile phone banking on performance of Commercial Banks in Kenya revealed that a number of challenges are experienced by Commercial Banks in Kenya during adoption of SIS to gain competitiveness.

Aduda (2012) on the relationship between electronic banking and financial performance among commercial banks in Kenya established that investments in information systems has a positive relationship with the performance of Kenya Banks Commercial Banks in Kenya have been investing in SIS in order to increase efficiency and to reduce errors which are a result of insufficient or wrong data. The banks focus on embracing the latest technology in carrying out their operations efficiently and effectively and also in creating competitive products. Banks are facing challenges in several areas, but there are four that stand out in today's market: Not making enough money, consumer expectations, increasing competition from financial technology companies and regulatory pressure. These challenges continue to escalate, so traditional banks need to constantly evaluate and improve their operations in order to keep up with the fast pace of change in the banking and financial industry today. It is against this backdrop of limited empirical research that this study seeks to provide empirical evidence on the influence of Strategic Information Systems on the performance of Commercial Banks, A case of Nyeri County, Kenya.

3. RESEARCH OBJECTIVES

The general objective of the study was to determine the effect of Strategic Information Systems and performance of Commercial Banks in Nyeri County, Kenya.

Specific objectives were:

- i. To establish the influence of internet banking on the performance of Commercial Banks in Nyeri County.
- ii. To determine the influence of mobile banking on the performance of Commercial Banks in Nyeri County.
- iii. To determine the influence of Automated Teller Machines on the performance of Commercial Banks in Nyeri County.

4. THEORETICAL FOUNDATION

Theories that were adopted to inform this study included; Technological Acceptance Theory, Resource based View Theory and Dynamic Capability Theory.

4.1 Technology Acceptance Theory (TAM)

The Technology Acceptance theory was initially proposed by Davis (1989). The main elements of the theory as proposed by Davis are; perceived usefulness, perceived ease of use, attitude toward using technology, and behavioral intention. The attitude of customers toward adoption of new ideas will dictate the adopter's positive or negative behavior in the future concerning new technology. The theory suggests that perceived usefulness and perceived ease of use determine an individual's intention to use a system with intention to use serving as a mediator of actual system use. The technology acceptance theory underpinned the study through describing how Commercial Banks adopt strategic Information Systems to influence their performance. The tendency of customers accepting or rejecting an innovation launched is high or low if the innovation is perceived to be complex and difficult to be used. The perceived use of the innovation or ICT practice by Commercial Bank customers will contribute to positive or negative performance of the bank. Adequate awareness and orientation of customers with new technologies used by Commercial Bank will minimize the perceived change thus increased adoptability rates of innovation in the banking sector.

4.2 Resource Based-View Theory

The Resource based View theory of the firm was established by Penrose (1991) and it holds that a firm achieves sustainable competitive advantage if its resources and capabilities are valuable, rare and isolated from imitation or substitution. According to Petter and DeLone (2013) suggest that a resource is said to be valuable if it enables an organization to improve its market position relative to competitors while it is rare if its available in short supply relative to demand. A resource is isolated from imitation or substitution if it is costly to imitate or to replicate. Pearce and Robinson (2013) suggest that resources can be managed such that their outcomes cannot be imitated by competitors. This becomes a competitive barrier which in-turn may lead to increased organization performance. According to Kaplan (2010), even after recognizing competitors' valuable resources, a firm may not imitate due to the social context of these resources or availability of more pursuing alternatives. Some resources, like company reputation, are accumulated over time, and a competitor may not be able to perfectly imitate such resources.

This theory was applicable for this study based on the notion that SIS is a resource modern Commercial Banks are using to gain competitive edge in the changing business environment. Without appropriate SIS among Commercial Banks, performance will be an uphill task. Commercial banks are likely to succeed if they utilize modern technologies in their service

delivery. SIS has remained the only resource modern firms are using to gain competitive edge against their competitors in multiple sectors. Although many scholars have contributed to identify the mechanism of sustainable competitive advantage of the firm by means of analyzing the Resource Based View of SIS, few scholars have paid attention to the role of the entrepreneurial strategic decision process as the source of competitive advantage.

4.3 Dynamic Capability Theory

Dynamic Capability Theory founded by Teece *et al.* (1997). The theory was founded on the notion that firms are likely to remain competitive if they have the ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments. King (2009) suggests that dynamic capability is the capacity of an organization to purposefully create, extend or modify its resource base. Dynamic capabilities enable firms to enter new businesses and extend old ones through internal growth, acquisition and strategic alliances or to create new products and production processes. Hendriks, Hora, Menor and Wiedman (2012) suggest that the ability of the firm to react adequately and timely to external changes requires a combination of multiple capabilities. The dynamic capabilities are built rather than bought in the market. They are formed through routines which have become embedded in the firm over time, and are employed to reconfigure the firms' resource base by deleting decaying resources or recombining old resources in new ways. Dynamic capabilities are made up of four main processes: reconfiguration, leveraging, learning and integration.

This theory was applicable in this study based on the assumption that Commercial Banks in Kenya have shifted from the conventional practices of doing business. In the changing business environment, most of the banks are integrating new technologies to remain competitive in the local and global markets. SIS is the only capabilities that will enable the Banks sail through changing business environment. With the invention of new technologies, customers have changed ways of accessing financial services and opted to use internet enables platforms to meet their needs more conveniently. However, the Dynamic Capability Theory to date has not delivered despite intensive effort by many talented scholars. The dynamic capabilities literature has become mired in endless debates about definitions which have led to introduction of even more terminology. At the same time, it has failed to address the most important questions of practice a theory of strategy must ask. The existing dynamic capabilities literature has focused heavily on firms' generalized capacity for adaptation to change and does not provide much insight about strategic choices. Certainly, a firm with a greater capacity for change will have more strategic options than one that is more inert. Such flexibility is no doubt a good thing for an organization. Research that helps us understand organizational flexibility is certainly worthwhile. However, understanding what makes an organization flexible is different from understanding what makes it competitive.

5. CRITIQUE OF EXISTING LITERATURE

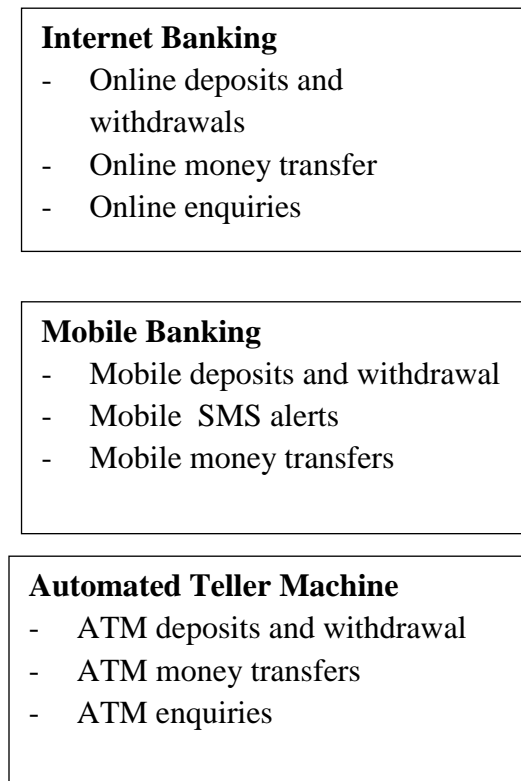
From the previous empirical studies conducted locally and internationally by; (Nakhumwa, 2013; Nakhumwa, 2013; Bhatnagar, 2012; Aduda and Kingoo 2012; Wajid, Omar, Sultan, Ehsan, 2012; Muriuki, 2011; Musangu and Kekwaletswe, 2011; Teymouri Ashoori, 2010; Salwe, Ahmed, Aloufi, Kabir, 2010; Njenga, 2009; Ratan, 2008; Kanini, 2008; Siami, 2006; Jayawardhena and Foley, 2000) it evident that conceptual, contextual and methodological gaps do exist. Firstly, most of the studies focused on different variables like Technology, efficiency, e-commerce and change management but not variables of this study.

Secondly, some of the studies were carried in different countries like Pakistan, United States and Nigeria and cannot be compared to the Kenyan context. Local studies carried out focused in different sectors and did not specifically address the influence of Strategic Information System on the performance of Commercial Banks in Nyeri County, Kenya. Thirdly, the methodologies of data analysis by different researchers varied and cannot be relied in this study. Therefore, it is for this reason this study was geared towards investigating the influence of Strategic Information System on the performance of Commercial Banks in Nyeri County, Kenya.

6. CONCEPTUAL FRAMEWORK

According to Sekeran (2011), a conceptual framework is a group of concepts that are broadly defined and systematically organized to provide a focus, a rationale, and a tool for the integration and interpretation of information. The framework describes the interrelationship between the independent variables and dependent variable using concepts of the already existing theories to solve the problem under investigation.

Independent Variables



Dependent Variable

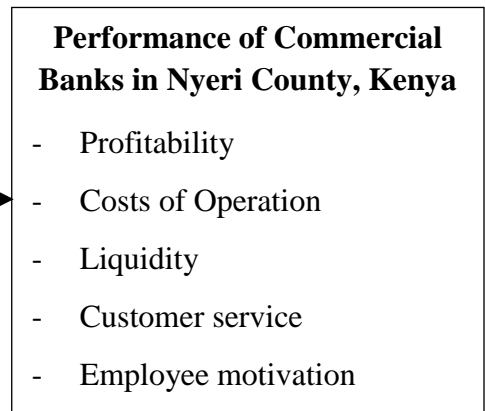


Figure 1: Conceptual Framework

It was established as shown in Figure 2.1 above that internet banking; mobile banking and ATM had a positive significant effect on performance of Commercial Banks in Nyeri County, Kenya. It was revealed that Commercial Banks are experience improved performance by embracing internet banking practices. Internet banking enhanced online deposit and withdrawals, and customer enquiries. Online banking through traditional banks enabled customers to perform all routine transactions, such as account transfers, balance inquiries, bill payments, and stop-

payment requests, and some even offered online loan applications. Customers also accessed their account information at any time, day or night, and this was done from anywhere. Mobile banking also enhanced mobile deposit and withdrawals, SMS alerts and money transfer services among customers thus efficiency and effectiveness. The scope of offered services included facilities to conduct bank and stock market transactions, administer accounts and to access customized information. Automated Teller Machines also promoted deposit and withdrawal services, money transfer services and enquiries. It significantly improved customer convenience and reducing costs and this led to improved efficiency and profitability in service delivery of the Commercial Banks.

7. RESEARCH METHODOLOGY

The study adopted a descriptive research design to establish Strategic Information Systems and Performance of Commercial Banks in Nyeri County, Kenya. A census approach was adopted where information was sought from all Commercial Banks (10) operating in Nyeri County. Respondents of the study were all 185 employees selected from 10 commercial banks operating in Nyeri County, Kenya. The respondents were employees of commercial banks which operated in Nyeri County, Kenya. Structured questionnaires that comprised of closed and open-ended questions were used to collect data from all employees who worked in 10 Commercial Banks operating in Nyeri County. Respondents of the study were employees of commercial banks which are operating in Nyeri County, Kenya. Permission to collect data from Commercial Banks was sought before data collection. The researcher sought permission from University of Eldoret. A research permit was also obtained from National Commission for Science and Technology Institute (NACOSTI-Kenya) to conduct the research from the financial institutions. Responsibility to the respondents included voluntary participation and informed consent prior to participation. To ensure the participants were not prejudiced, simple language and statements were used to describe the aim of the research and its procedures. Responsibility to the profession included accuracy in analysis, presentation and reporting of the study findings. Confidentiality and anonymity of the respondents was guaranteed.

To analyze the data, the Statistical Package for Social Sciences, (SPSS version 20) software was used. The data collected was edited, coded and classified on the basis of similarity and then tabulated. To permit quantitative analysis, data was converted into numerical codes representing attributes or measurement of variables. Correlation and Multiple regression methods were adopted to determine the statistical relationship between variables. The three independent variables were regressed against the dependent variable to determine the quantitative effect created on the dependent variable. Descriptive and inferential statistics like mean, standard deviation, frequency distributions and percentages were used to summarize and relate variables which were attained from the administered questionnaires. The analyzed data was presented in form of tables. Correlation and Regression data analysis methods were conducted at 95% confidence level ($\alpha = 0.05$).

The validity of the instrument was determined by the researcher through seeking opinions of experts in the field of study especially the researcher's supervisor and industry strategic management consultants. An appropriate inference was one that was relevant to the purpose of the study while a meaningful inference was one which said something about the meaning of the information obtained through the use of the instruments. Content, criterion, and construct related validity were measured using the research instrument. Reliability was examined by use of Cronbach's Alpha coefficient. Cronbach's Alpha is the most widely used measure of the

reliability of instruments in the social sciences. It indicates the extent to which a set of test items can be treated as measuring a single latent variable. In addition, the Cronbach Alpha coefficient has the advantage of producing a reliability estimate with only one administration. All the four study variables were reliable since reliability coefficients were more than 0.7 thresholds stipulated by Zikmund (2000).

8. DATA ANALYSIS RESULTS

8.1 Correlations Analysis

Pearson’s product moment correlation analysis was also used to assess the relationship between the variables while multiple regressions was used to determine the predictive power of the strategic information systems and performance of Commercial Banks in Nyeri County as shown in Table 1:

Table 1: Correlations Analysis

		Performance of Commercial Banks in Nyeri County	Internet Banking	Mobile Banking	Automated Teller Machine
Performance of Commercial Banks’s in Nyeri County	Pearson Correlation	1			
	Sig. (2-tailed)				
Internet Banking	Pearson Correlation	.710	1		
	Sig. (2-tailed)	.0012			
Mobile Banking	Pearson Correlation	.693	.027	1	
	Sig. (2-tailed)	.0017	.799		
Automated Teller Machines	Pearson Correlation	.579	.560	.762	1
	Sig. (2-tailed)	.0023	.000	.560	.

The data presented before on internet banking, mobile banking and automated teller machines were computed into single variables per factor by obtaining the averages of each factor. Pearson’s correlations analysis was then conducted at 95% confidence interval and 5% confidence level 2-tailed. Table 4.8 above indicates the correlation matrix between the factors (internet banking, mobile banking and automated teller machines) and performance of Commercial Banks in Nyeri County, Kenya. There is a positive relationship between performance of Commercial Banks in Nyeri County and internet banking, mobile banking and automated teller machines of magnitude 0.710, 0.693 and 0.579 respectively. The positive relationship indicates that there is a correlation between strategic information systems and performance of Commercial Banks in Nyeri County, Kenya. Internet banking having the highest value and automated teller machines having the lowest correlation value. This notwithstanding, all the factors had a significant p-value ($p < 0.05$) at 95% confidence level. The significance values for relationship between internet banking, mobile banking and automated teller machines

were 0.0012, 0.0017 and 0.0023 respectively. This implies that internet banking was the most significant factor, followed by mobile banking and automated teller machines being the least significant.

8.2 Regression Analysis

The researcher conducted a multiple regression analysis so as to test the statistical relationship among variables (independent) on performance of Commercial Banks in Nyeri County. Coefficient of determination explains the extent to which changes in the dependent variable can

Table 4.2: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.139	1.2235		1.515	0.0133
Internet Banking	0.887	0.1032	0.152	4.223	0.0122
Mobile Banking	0.752	0.3425	0.154	3.424	0.0112
Automated Teller Machines	0.645	0.2178	0.116	3.236	0.0111

From the finding in table the established regression equation was Performance of Commercial Banks in Nyeri County = 1.139+ 0.887X₁+ 0.752X₂+ 0.645X₃. From the above regression model, holding internet banking, mobile banking, automated teller machines to a constant zero, performance of Commercial Banks would be at 0.139. It was established that a unit increase in Internet Banking would cause an increase in performance of Commercial Banks by a factor of 0.887, while a unit increase in Mobile Banking would cause an increase in performance of Commercial Banks by a factor of 0.752, lastly a unit increase in automated teller machines would cause an increase in performance of Commercial Banks by a factor of 0.645. Therefore, it can be concluded that at 5% level of significance and 95% level of confidence, all the significance values were found to be less than 0.05; an indication that all the values were statistically significant to make the study conclusion. These findings corresponds with (Wajid, Omar, Sultan, Ehsan, 2012; Muriuki, 2011; Musangu & Kekwaletswe, 2011; Teymouri Ashoori, 2010; Salwe, Ahmed, Aloufi, Kabir, 2010; Njenga, 2009; Ratan, 2008; Kanini, 2008; Siami, 2006; Jayawardhena & Foley, 2000) who revealed that there was a significant statistical relationship between SIS and performance of firms in the changing business environment. They also noted that the only way companies can gain a competitive edge in the changing business environment is though integrating technology in their processes.

Table 3: Performance Measurement Outputs

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.119	1.2225		1.415	0.0123
Costs of Operation	0.737	0.1132	0.132	3.113	0.0112
Profits	0.622	0.3325	0.134	2.224	0.0122
Return on Investments	0.575	0.3278	0.196	2.136	0.0131

The study sought establish the effect of Strategic Information Systems on the performance of Commercial Banks using costs of operation, profits and return on investment as indicators of performance measurement. After correlation analysis, it was established that performance of Commercial Banks was determined by costs of operation, customer satisfaction and return on investment had a significant values be less than 0.05 and indication that all the values were statistically significant to conclude that Commercial Banks determined their performance using costs of operation, customer satisfaction and return on investments. These findings corresponds with the findings of (Nakhumwa, 2013; Nakhumwa, 2013; Bhatnagar, 2012; Aduda & Kingoo 2012) who established that performance of any enterprise was measured using financial and non-financial indicators like costs of production, profits, return on investments, employee motivation, diversification and employee adoptability to new changes.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.923	0.852	0.789	0.6273

The three independent factors that were studied, explain only 85.2% of strategic information systems and performance of Commercial in Nyeri County, Kenya as represented by the R^2 . This therefore means that other factors not studied in this research contribute 14.8% of strategic information systems and performance of Commercial Banks in Nyeri County, Kenya. Therefore, further research should be conducted to investigate the other factors (14.8%) that influence performance of Commercial Banks in Kenya.

Table 5: ANOVA Test

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	0.003	12	.001	3.867	015 ^b
Residual					
Total	0.068	173	.021		
	0.071	185			

From the ANOVA statistics in Table 5, the processed data, which is the population parameters, had a significance level of 0.015 which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value) is less than 5%. The calculated was greater than the critical value ($2.262 < 3.869$) an indication that the three variables were significantly influenced performance of Commercial Banks in Nyeri County, Kenya. The significance value was less than 0.05 an indication that the model was statistically significant and fit for forecasting purpose. These findings are supported by Kimori (2015); Mueni (2015); Muhammad, Naveed, Haider & Alamdar (2015) who established that there was a statistical relationship between internet and mobile banking and financial performance of financial institutions. In addition, these finding corresponds with the findings of studies conducted by Muriuki (2011) who concurs that internet and mobile banking were drivers of organizational competitiveness. Organizations which do not embrace modern technologies are likely to experience high costs of operation and vice versa. On the other hand, it is noted that some studies by Otiso, Simiyu & Odhiambo (2013) contradicts the acknowledged fact of this study. Their study clearly indicated that despite the adoption of mobile and internet banking, some of the costs incurred were associated with online financial fraud and thus decreased financial performance of financial institutions. However, they concluded that firms should continue to review their e-commerce strategies periodically in order to compete in the changing business environment.

9. CONCLUSIONS

Based on the findings, the study concluded that internet banking has remained a competitive drive in the banking industry. Furthermore, it can be argued that most of the bank customers preferred internet banking services due to its security, provided twenty four hour access of their accounts, accessed their accounts from virtual location and accessed a variety of information concerning loans, investments and interest rates through online. Further, it was concluded that mobile banking had resulted to drastic decline of employee costs, marketing costs and international transactions. In addition, it provided a platform of accessing financial information more efficiently and minimized costs associated to fraud cases and customer borrowing costs.

Adoption of automated teller machines platforms by commercial banks had led to reduced operational costs, increased profitability, improved customer service delivery, new product development, employee motivation and information access. The backbone of any developing or developed economy is aspects of globalization, deregulation, competition, costs of operation, changing customer trends are aspects that have contributed to adoption of strategic information systems among Commercial Banks in Kenya. Furthermore, Commercial Banks to gain competitive edge and contribute to social economic developments in a country, the Government should support research and developments activities through internet connectivity to empower

both large and small firms in the market. The Government of Kenya through the Ministry of Communication should regulate ICT policies that promote businesses in the competitive sector. Reduction of levies of electronic products by the Kenya Revenue Authority in the Kenya market will promote financial services of Commercial Banks both in the local and global markets. Therefore, it can be concluded that, for Commercial Banks to achieve their goals using SIS practices, they should conduct awareness campaign intended to change the attitude and perceptions of customers in the market with regard to new technology.

10. RECOMMENDATIONS

The study established that the extent of internet banking services was large despite the challenges of customer awareness. Therefore, this study recommends that Commercial Banks should allocate adequate financial resources to create maximum awareness of their internet banking services and training their internal and field staff. Gradual change approaches should be adopted by Commercial Banks in managing the transition of traditional banking practices to modern banking practices. Attitudes, perceptions and motivations of customers should be managed using social marketing campaigns intended to influence customers change their attitudes towards new technology. The study found that mobile banking services had a significant influence on performance of Commercial Banks despite the challenges of system accessibility by customers. Therefore, this study recommends that Commercial Banks should upgrade their systems in order to encourage customers to access their accounts using their mobiles. Customers should be encouraged through social marketing campaigns in partnership with mobile phone companies to adopt phones that will enable them to access their account information.

Furthermore, the study established that majority of the respondents preferred conducting their financial transactions using an Automated Teller Machine Services due to their convenience, security, efficiency and effectiveness. Therefore, this study recommends that Commercial Banks should improve or upgrade their debit cards to provide an opportunity of accessing a variety of services by customers. Opening more outlets in the country will enhance the penetration of electronic services and expansion of the market share. The study also established that despite satellite branches internet connectivity, it was established that customer queued for long periods due to system failure. Therefore, this study recommends that Commercial Banks should adopt the fiber optic cable internet to increase the speed of services delivery to customers thus efficiency and effectiveness. It is therefore important that Commercial Banks constantly improve and upgrade their e-banking system's security. In order to change the perception, the Commercial Banks will be required to post security provisions on their websites so as to increase confidence and improve trustworthiness of the e-banking systems. It can be concluded that Commercial Banks should invest in Information technology infrastructure for their competitive advantage in the market. With the changing business environment, the only driver of Commercial Banks against globalization and competition challenge is to institutionalize technological culture in the system to enhance efficiency and effectiveness.


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