

# Application of E-Banking Technological Innovations as a Strategic Approach for Performance Improvement among Banks and Financial Institutions in Kenya.

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## Abstract

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*The purpose of this study was to investigate the use of e-banking technology as a strategic approach to improve performance of banks and financial institutions in Kenya. The study sought to investigate the effect of mobile banking, internet banking and automated teller machine banking, on bank and financial institutions profitability, secondly the effect of mobile banking internet banking and automated teller machine banking on banks market share. The study adopted descriptive survey design. The main findings of the study reveal that adoption of technology by banks positively affects profitability, as well as their market share. However, the effect of mobile banking is higher than internet banking. This could be attributed to the increased mobile telephony coverage among Kenyans and the popularity of M-pesa platform among all households in Kenya. The study recommends that banks and financial institutions stand to gain more in terms of profitability, and increased market share by adopting mobile banking technology.*

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**Keywords:** e-banking technology, mobile banking, internet banking, innovation diffusion, and disruptive innovation.

## 1.0 Introduction

Banks and Financial institutions remain at the centre of any economy given the role they play in facilitating efficient financial resources allocation. The last two decades has seen a paradigm shift in the banking sector especially with regard to the environment within which banks operate. Both external and domestic factors have affected its structure and performance (Panayiotis et al, 2008). Today's banking environment is very dynamic and has experienced rapid changes as a result of technological innovation, increased awareness and demands from customers. The banking industry operates in a complex and competitive environment characterized by these changing conditions and highly unpredictable economic climate.

Laudon and Laudon (2001) contend that managers cannot ignore information technology because they play a critical role in contemporary organization. Information technology (IT) is increasingly becoming an invaluable and powerful tool driving development, supporting growth, promoting innovation, and enhancing competitiveness among business firms. Examples of information technology applications in the banking sector that have helped build competitive advantage include, automated teller machines (ATM), mobile Banking, Internet Banking, Plastic cards, Agency Banking, Computerized credit rating and cheque truncation. (Roberts and Amit 2003). Rajput and Gupta (2011) in their study reported a significant and improved trend in the performance of the banks that adopted the information technology.

Harold and Jeff (1995) contend that financial service providers should modify their traditional operating practices to remain viable in near future and decades that follow. Woherem (2000) posits only banks that overhaul the whole of their payment and delivery systems and apply ICT to their operations are likely to survive and prosper in the new millennium. He advises banks to re-examine their service and delivery systems in order to properly position them within the frame work of the dictates of the dynamism of information and communication technology.

This study is anchored on innovation diffusion theory. According to Clarke (1995), innovation diffusion theory seeks to explain how internet and mobile banking innovations can be successfully adopted and integrated in banking operations. The study is supported by disruptive innovation theory which has proved to be important in shedding more light on the type of technology that banks should adopt. The theory asserts that banking technology is disruptive given that its adoption tends to trade-off traditional banking.

Banking systems in Kenya remain undeveloped as compared with other developing countries. However, gradual financial deepening is gaining momentum with the aim of improving financial sector development. However, there exist challenges to the development of information systems which include markets size constraint, low income levels and weak legal enforcement systems. By December 2015, Kenya had 1475 bank branches operating in different parts of the country and 2374 Automatic teller machines spread in urban centers in Kenya. Tremendous growth in the banking sectors was also realized through provision of e-banking platforms.

The environment, within which banking institutions operates calls for the change from the traditional role of financial intermediation. Edwards et al (1995) posits that there has been a substantial decline in the sources of funds; that financial institutions rely on mainly the demand deposits from the public. From corporate strategy point of view, this has triggered the increased adoption of new banking models that leverage on technology, if banks must maintain their profitable position and competitiveness. Further, Edwards et al (1995) posits that the economic forces have bolstered the technological innovations in the banking industry that has seen innovations in terms of new products amid increased competition in the industry. However high concentration of bank branches in urban centres, has also exhibited the cost inefficient banking and service fee levels are comparatively high.

Operations of new branches take a substantial time to break even and hence overall profitability of the bank is curtailed. It is against this backdrop that banking institutions have begun to diversify into new and more cost-effective banking practices that bring higher returns at lower cost. The banking industries have therefore resulted into application of technology as a strategic approach to counter the environment challenges facing their operations. In Kenya, one of the main application of technology by commercial banks as a strategic tool is evidenced in e-banking models. More specifically, these are mobile banking, internet banking and automatic machine teller banking. This therefore call for technology and how they have impacted on banking institutions profitability and market share, a task which this study seeks to investigate.

### **Concept of Technology**

Technology refers to the tools, materials, processes and techniques that assist in problem solving (Afuah, 2003). Technology consists of software which is a set of guidelines and instructions that enable the hardware to perform its tasks. It also Consists of brain ware which are human capabilities (Husain and Sushil, 1997). Technological innovations leads to the introduction of new products and processes that affects ways of achieving goals in an organizations. Mokyr (1990) posits that innovation of technology can enable organizations enhance their effectiveness and thus meet their objectives in new ways. Technological innovations can speed up production processes, cut costs of production and enable an organization to diversify its products and broaden its market if well implemented. The key steps of adopting technological innovations as identified by Schilling (2013) are identifying sources and types of innovation, formulating a strategy and implementing the strategy.

The economic environment, within which banks operates in modern days, calls for a shift from the traditional financial intermediation role to modern banking that is in tandem with the reality in addition for cutting costs (Edward et al 1995). According to Neil and Leishman (2010), policy makers and regulators are showing attention toward technology in banking and financial institutions. However in most countries, regulations have contributed immensely to dampening the growth of e banking models. In attempt to bank the unbanked, financial service providers have continued to develop sought for new ways to offer financial services such as agency banking, mobile banking, internet banking, automatic teller machine banking, postal and retail outlets among others non-bank avenues.

### **Technological Innovation**

Innovation like many business functions is a management process that require specific tools, rules and discipline (Danila et al 2006). Innovation is the successful introduction of a new thing or method. It is the embodiment, combination of synthesis of knowledge in original, relevant, valued new products, processes or services (Luecke and Katz 2003). There are various levels of innovations based on uniqueness of the idea such as ordinary innovation, breakthrough innovation and technological innovation.

This study focused on technological innovation used by banks and financial institutions to improve their performance. In order for an organization to be competitive in an industry, technological innovation needs to be integrated into an organization's management strategy (Husain and Sushil, 1997).

Paton and McCalman (2008) posits that new markets have been created due to rapid technological innovations. Schillings (2013) contend that the most important driver of competitiveness for firms in this era is technological innovation. Abernathy and Clark (1984) posited that a firm's innovativeness can make it gain competitive advantage over its rivals. This can be achieved by increasing its capacity of resources, skills and knowledge. However, an organization's willingness to adopt innovative processes and operations is often influenced by internal and external environmental factors.

Damapour and Schneider (2006) posited that the key factor that influences innovation are the organizational characteristics and the attitude portrayed by managers towards innovation. Kenya; technological innovation has made its mark on world digital map after the impact of the revolutionary M-pesa concept. The innovation, success and profitability of M-pesa have triggered a technological revolution not just in Kenya but across sub-Saharan region. Mobile banking, buying and payments for goods and services via paybill functionality, payment for government services via e citizen and micro-loan facilities are very popular courtesy of the M-pesa architecture (Linna 2012; Herman, 2012; Marchant, 2015).

### **E-Banking Models**

Many banks and financial institutions have shifted from traditional banking towards modern banking in their attempt to increase their market share by targeting the low income and rural households. Rosen (2013) posits that Bank and financial institutions have widened their customer base by adopting alternative delivery channels such as mobile banking platforms and internet banking platforms. Nyangosi and Arora (2008) posited that majority of banks in Kenya have introduced, mobile banking and other e-banking facilities to enhance delivery channels to customers with the intent to enhance accessibility and affordable financial services to the unbanked population.

Banks are now moving from the traditional product delivery channels to new and more cost efficient methods. These include internet banking, mobile banking, agency banking, Automatic Teller Machines and POS channels. Out of the five e-banking models, it's clear that only agency banking model is not technology reliant. Mobile banking service has been the most focused e-banking model within the banking sector in Kenya since the invention of the successful mobile-based money transferring system M-pesa, provided by Safaricom. According to CBK (2013) mobile money was pioneered in 2007 as a platform of increasing financial service provision and access at cost efficient terms. Some of the Kenyan financial institutions have integrated M-pesa into their mobile banking platforms. Mobile banking in Kenya has significantly grown with the total transaction averaging approximately 35 percent of the total GDP as at the end of 2017. Internet banking is also one of the recent innovations in the banking sector. According to Malhotra (2009), Internet banking has been mostly used by banks for achieving efficiency in terms of reducing costs as well as speed up service provision hence translating into increased profitability of banking institutions machotra (2009). Further marchant posits that internet banking will in the long run influence the diversification and composition of financial products and services offered by banks and financial institutions. According to Breton woods institutions and European investment Bank, Kenya has posted impressive performance with regard to development in the financial sector regionally. In terms of ranking, Kenya comes at position one in East and Central African and four in sub-Saharan Africa.

### **Firm Performance**

Performance is the measurement of business efficiency and effectiveness (daft 2000). Firm performance is defined as a continuous process of identifying, measuring and developing the performance of individuals and teams and aligning performance with the strategic goals of the organization (Aguinis, 2013). According to Ricardo (2001) Firm performance is the ability of an organization to achieve its goals and objectives. Performance is not static and depends on several factors that include environment, culture and time (Capelli and Little 2007).

Growth in revenue and profitability are good financial indicators that represent performance (Farjoun 2002). Verweire and Berghe (2004), Identified several measures of performance in an organization. These include profitability measures, shareholder and market share. Both financial and non-financial indicators constitute excellent methods of performance measurement. However, challenges have been reported in availability of data for both methods (Biske and Oakley 2004).

## **Kenya Banking Industry**

The Banking industry in Kenya is governed by the companies Act, the Banking Act, the central Bank of Kenya Act and the various prudential guidelines issued by the central Bank of Kenya (CBK). The banking sector was liberalized in 1995 and exchange controls lifted. The Kenyan banking and financial institutions has posted remarkable developments with fifty two financial institutions comprising forty three commercial banks, one mortgage finance company and eight authorized non-operating bank holding companies (CBK 2016). Among the forty three commercial banks in Kenya, twenty-five are locally owned. An in depth review of the financial sector in Kenya, reveals that the sector is bank-dominated by the banking sector with asset base of over kshs. 1.7 trillion as at end of 2016. Kenyan banking sector asset base has been rising steadily over years. Due to increased competition for limited market share, banks are now moving from the traditional product delivery channels to new and more cost efficient methods. These include mobile banking internet banking, agency banking, ATMS and POS platforms.

## **2.0 Literature Review**

Edwards at al., (1995) posits that the economic forces have bolstered the technological innovations in the banking sector. Innovations in terms of new products services have increased. A number of theories have been used by scholars to explain the role of technology as a tool of strategic management.

### **Disruptive Innovation Theory**

Disruptive innovation theory which was pioneered by Christensen (1998) explains the type of technology an organization chooses to adopt. It is based the fact that technological advancement within the banking industry tends to trade-off traditional banking. According to disruptive innovative theory, any uptake of new technology tends to disrupt the old ways of doing business by banking institutions. Such disruption tends to bring about a shift in terms of efficiency in service delivery, the speed of offering banking services, reaching more clients who were unable to access financial services in the past and eventually increased profitability.

### **Innovation Diffusion Theory**

Diffusion of innovation theory explains the mechanisms of how new inventions are adopted and becomes successful Clarke (1995). Mahajan and Peterson (1985) defined diffusion of innovation as the process by which the innovation is communicated through certain channels over time among members of social systems. Sevcik (2004) contends that it may take a long time for an innovation to be adopted. He contends that resistance to change may be a hindrance to diffusion of innovation although it might not stop the innovation but it will slow it down.

### **Strategic Change and E-Banking Models**

Strategy involves making choices of one's priorities in the organization hence filling the gap existing in the organization. Strategy development and implementation leads to change that requires to be managed successfully. (Nauheimer, 2010). Strategic change managers actualize their intentions strategically, (Hardy, 2010). It enables firms to attain their highest competence and avoid negative impact as possible. According to Hardy (2010), management of the strategic change involve non-linear processes that are very dynamic during the effective implementation of strategies. It involves change or alignment of the systems and leadership styles. Hardy, (2010) posits that for any organization to remain competitive in the market, it should maintain uniqueness and highest level of superiority in every scope of its operations. This includes: using modern technology, changing the working environment, production of quality goods and services, changing approaches in operations, design and strategy. These changes can only be possible through cultivation of culture of creativity and innovativeness. (Nauhemier, 2010).

Rose and Lawton ,(2009) contend that changes taking place in business organizations arise as a result of the need for proving efficient service, enhancing, effectiveness in service delivery and evaluation of performance. Change is a continuous process especially to managers who have the ability to affect the organization. This makes them embrace creativity on a daily basis hence change mobilization of resources, skills and experience require service providers contribute to the economy by improving quality of service (Pendlebury et al, 2008).

Rose and Lawton (2013), posits that changes in commercial banks came up as a result of the need of the feel gaps existing in the market. These gaps include need for efficient service delivery, need for effectiveness, and need for transparency.

Regional expansion of banking organizations can also be underpinned on the technological innovation within the organization. With new technology, an organization can easily reach customers who are far away without having to set up a physical branch. This in turn helps in cutting costs and any possible risks associated with the running of physical branch office. (Cyrnak and Hannan 2000, Petersen and Rajan 2002, Wolken and Rohde 2002. According to Zeithaml (2000), internet banking is an ideal model for bringing about improved performance hence building competitive advantage for the organization. Bhuian (1997) contend that developing countries can experience rapid growth in marketing of financial services if they adopt new e-banking models.

### **Technological Innovations, Strategic Change and Performance.**

Afua and Tucci (2001), contend that firms adopt new technologies to fend off new competitors and reinforce an existing competitive advantage. Laudon and Laudon, (1996) posits that ICT plays a major role in supporting strategic objectives of an organization. According to Radecki, Wenninger, and Orlow (1997) increase in bank size maybe influenced by technological innovations. This is through the creation of new products and services hence enjoying economies of scale (Berger, Humphrey and Pulley, 1996).

Clark and Siems (1997), posits that the effects of economies of scale on bank profit efficiency fluctuate, with profit efficiency sometimes being highest for large banks. Information technology has become one of the most dominating strategic tools to create and leverage on competitive advantage within the banking fraternity. ICT has enabled banks to remove the physical barriers between banks and customers, the traditional banking required customers to visit branches but today ICT has enabled customers to enjoy financial services from the comfort of their homes through mobile banking, Automated teller machines, internet banking and agency banking, thus improving customer relation and improved service delivery to customers (Drexellus and Herzig 2001).

Improved ICT platform, has fundamentally enabled banks reduce cost of doing business, improve quality of their services, differentiate products from competitors, offered value added integration of operations both locally and internationally, thus enhancing relations with customers. (Baltzan and Philips 2010). ICT has also helped banks to store volumes and volumes of information relating to customers, products and markets in digital form virtually at zero cost and retrieve the same in any form they desire quickly and confidently. It has improved the customer monitoring and reduced the customer delinquency (Obrien and Marakas 2011). McKinsey (2014) argues that despite the possible benefits European banks have been reluctant in automating their operations, this could be attributed to security and risk concerns as justification for their slow approach. However Freedman (2000) contends that internet banking helps access to new devices as well as financial services with ease.

Bresnahn (1997) and Dabhokar (1994) contends that there was an underutilization of internet banking hence its full potential within the banking industry was unrealized. In support Joseph and Stone (2003) posit that stiff competition facing the financial institutions have led to reevaluate action by these institutions towards embracing internet banking in order to remain competitive. This argument is also supported by Ennew (1996) who contend that loss of customers is the only expected consequence for a financial institution who neglects internet banking.

In a study to determine the impact of computer automation on the banking services, Agboola (2001) posits that the quality of services to bank clients has improved with the mainstreaming of electronic banking. In a similar study, Furst, Langand Nolle (2002) found that national banks were more likely to offer transactional websites upon adoption of internet banking thus lowering fixed costs. Renko et al (2009) in a study of bio technology firms in Finland, Sweden and USA employed technology capability as a mediating factor in firm innovativeness. This is consistent with Blank (2013) assertions that in some situations customer orientation is wrong in driving creativity and innovation, the results showed that technological capability and innovativeness were highly correlated among biotech firm. Creativity and innovation, the results showed that technological capability and innovativeness were highly correlated among biotech firm. Upon using Data Envelop Analysis methodology, Rajput and Gupta (2011) concluded that bank's performance was highly attributed to mainstreaming ICT within the bank's operations.

Abdelatif et al (2014) posits that increased productivity and improving service quality in banks can be urged to be arising from adoption of ICT banks. In the Kenyan context, Gature and Ngumi (2013) did a study on how bank innovations influence profitability of commercial banks and concluded that bank innovations had a significant influence on bank profitability. While Mwanja and Muganda (2011) concluded that financial innovation had significant contribution to bank performance. Kombe and Wafula (2015) found that faster delivery of banking services and high quality services resulted from banks adopting ICT as opposed to cost cutting measures.

**Table 2:1: Summary of Empirical studies and Research Gaps**

<b>Study</b>	<b>Focus of study</b>	<b>Methodology</b>	<b>Main finding</b>	<b>Knowledge Gaps</b>
Gudda,(2015)	Effect of EO on the Relationship between clustering and product Innovativeness.	Descriptive survey	Clustering had a positive effect on innovativeness	The sampling technique used was subjective
Urban & Hydenrych,(2015)	Technology orientation	Survey research	Experimentation, Pre-commitment and Flexibility had explained performance	Statistical Analysis limitations only financial performance was measured.
Mthanti & Urban ,(2014) entrepreneurial orientation in high technology firms	Survey Research	A positive relationship between effectuation and EO was observed.	Empirical testing but not directly predicting performance.	Did not directly predict performance
Renko ,Carsrud & Brannback, (2009)	The Effect of a Market Orientation, Entrepreneurial orientation and Technological capability on innovativeness.	A meta – analysis	MO impacts innovation positively in large terms	Study could not indicate if form innovations were incremental or radical
Alegre Lapiedra & Chiva .(2006)	A measurement scale for product innovation performance	Descriptive survey	Efficacy and Efficiency constitute product innovation performance	Did not link the instrument with other organizational phenomena
Atuahene-Gima and ko,(2001)	Entrepreneurship Orientation Alignment on product Innovation	Quantitative Survey	The firms significantly differed in new product performance and with product innovation strategies .	Studied product innovation by applying established entrepreneurship theory concepts only
Im & Workman Jr .(2004)	Creativity and New product performance in High –Technology firms.	Quantitative cross-sectional survey	Market program creativity mediates NP success relationship	Objectives were subjective.
Ahmad (2014)	Technology in Organizations	Survey Research	Employees	The study only investigated at the possibilities of resistance to change by employees
Kute and Upadhyay (2014)	Impact technological changes on performance	Descriptive research	Technology changes have a direct impact on human resources	The study does not consider negative effects that technology may bring to organizations.
Damanpour and Schneider (2006)	Phases of the adoption of innovation in organizations : environment	Survey research	Managers commitment to innovation by allocating the necessary resources	The study in organizational structures and variances in character of managers
Forcadell and Guadamillas (2002)	Implementation of a knowledge management strategy oriented to innovation	Case study	Knowledge Management is strategy to enhance innovation in an organization	The study mobility of knowledge –based capabilities from a firm to its rivals.

**3.0 Methodology**

The study used descriptive quantitative research design. The study investigated how the application of technology in the banking industry through the e-banking models improved banks performance in terms of return on assets (ROA), profitability and market share. The design was used because the study seeks to focus on the banks which have been operating all the mobile banking, automated teller machine banking and internet banking for the last five years. The target population was the forty three commercial banks operating in Kenya between 2012 to 2016. The study utilized secondary and primary data. Secondary data was collected from the Central Bank of Kenya (CBK) and Kenya Bankers Association (KBA). Primary data was collected using a questionnaire. The target respondents were senior management staff in the respective bank located at the Head offices.

**Research Hypothesis**

$H_{01} : B = 0$  (There is no positive relationship between mobile banking, internet banking and Automatic teller Machine Banking on banks profitability).

$H_1 : B =$  (There is a positive relationship between mobile banking, internet banking and automatic teller machine banking on banks profitability).

$H_{02} : B = 0$  (There is no positive relationship between mobile banking internet banking and automatic teller machine banking on banks market share).

$H_2 : B = 0$  (There is a positive relationship between mobile banking and automatic teller machine banking on banks market share).

$\beta_1 < 0$  (Coefficient of mobile banking)

$\beta_2 < 0$  (Coefficient of Internet banking)

$\beta_3 < 0$  (Coefficient of automatic teller machine banking)

Data regression was carried out to determine the effects of e-banking models on the banks’ performance.

**4.0 Results and Discussion**

The research objective of this study was to investigate the use of e-banking technology as a strategic approach to improve performance of banks and financial institutions in Kenya. Based on the research objective on exhaustive literature review was carried out to conceptualize the subject matter being investigated. On the strength of data sourced, analyzed and interpreted, it was concluded that there exists a statistically significant relationship between banks profitability and e-banking models such as mobile banking, internet banking and Automatic teller machine banking. Results also revealed that there exists a statistically significant relationship between banks market share and new technological innovative models of mobile .Banking, internet banking and automatic teller machine banking.

**Table 4.1: Regression Analysis showing effects of mobile banking, internet banking and automatic teller machine banking on banks profitability.**

Model	Predictor	Unstandardized coefficients		Standardized coefficients		
		$\beta$	Std error	Beta	t	sig
1	Constant	44.043	4708		3.439	0.056
	Mobile banking	1.172	951	1.590	0.993	0.340
	Internet banking	0.678	0.790	1.106	0.868	0.403
	Automatic teller machine banking	0.238	0.459	0.196	0.518	0.614

**Dependent variable: Return on Assets (ROA)-Profitability**

Table 4.1: Presents the regression analysis depicting the effect of mobile banking, internet, banking and automatic teller machine banking on banks profitability .The results indicate that there exists a positive relationship between banks profitability and mobile banking .The estimated  $\beta_1$  coefficient is 1.590. This implies that a unit change in profitability is influenced by more than one unit increase in mobile banking. This means that mobile banking and level of profitability move in the same direction. There exists a positive relationship between banks profitability and internet banking. The estimated  $\beta_2$  coefficient `is 1.106. For automatic teller machine banking revenue is positively affects profitability though not significant .The estimated  $\beta_3$  co-efficient is 0.196.

**Table 4.2: Regression Analysis showing effects of mobile banking, internet banking and Automatic teller machine banking on banks market share.**

Model	Predictor	Unstandardized coefficients		Standardized coefficients		
		$\beta$	Std error	Beta	t	sig
2	Constant	47.432	3.087		2.709	0.043
	Mobile banking	1.073	0.973	1.691	1.603	0.137
	Internet banking	0.897	0.591	0.993	0.596	0.402
	Automatic teller machine banking	0.421	0.610	0.229	0.439	0.317

**Dependent variable: market share**

Table 4.2: Presents the regression analysis depicting the effect of mobile banking, internet banking and automatic teller machine banking on banks market share. The results indicate that there exists a positive relationship between banks market share and mobile banking. The estimated  $\beta_4$  coefficient is 1.691. This implies that a unit change in market share is influenced by more than one unit increase in mobile banking. There exists a positive relationship between banks market share and internet banking. The estimated  $\beta_5$  coefficient is 0.993. For automatic tellers machine banking revenue is positively affects market share though not significant. The  $\beta_6$  coefficient is 0.229.

The results are in line with some previous research. For instance Raput and Gupta (2011) reported a significant and improved trend in banks performance that adopted information technology. Robert and Amit (2003) found out that information technology application in the banking sector have helped to build competitive advantage. Woherem (2000) averred that only banks that adopt ICT in delivery and payment system will prosper in the new millennium. Mobile banking, buying and payment for goods and services including government services have been facilitated due to technological revolution courtesy of the M-pesa architecture. (Linna 2012: Hersman 2012: Marchant 2015). The results of the study also concur with the Diffusion of innovation theory by Mahajan and Peterson (1985) which explain the mechanisms of how new inventions in this case e-banking technology is adopted and becomes successful (Clarke, 1995).

**Conclusion of the Study**

The study sought to investigate e-banking technology as strategic approach to improve performance in banking industry in Kenya. On the banks performance, the findings of the study were that both the mobile banking revenue and the internet banking revenue positively significantly influenced profitability. However, for automated teller machine banking revenue, the effects was positive though insignificant since its respective value of the t-statistic is greater than 0.05. On the market share the findings were similar to those of the bank's profitability. Mobile banking and the internet banking were found to positively significantly influence bank market share.

However, for automatic teller machine banking revenue, the effects on was positive though insignificant since its respective probability value of the t-statistic is greater than 0.05. Based on the econometric results banks stand to gain more in terms of profitability and market share by adopting mobile banking and internet banking as opposed to increase in Automated teller machine. However, much preference should be given to mobile banking compared to internet banking. This is because the magnitude of the effect of mobile banking on profitability and market share is higher than the respective magnitude of the internet banking.

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