

Effects of ICT Strategies on Performance of Commercial Banks in Kenya: A Case of Equity Bank

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Abstract- This research studied ICT strategies in the area of automated teller machines, internet banking and mobile banking. These strategies were studied in relation to their effect on commercial banks' performance indicators namely: profit before tax, customer deposits and effectiveness. The target population of this study was 300 employees in its headquarters in Kenya, the sampling frame of this study was derived from the database of CBK which regulates and licenses financial institutions in Kenya, stratified sampling was used in selecting the respondents from their respective levels of management. Data was collected using Likert's scale questionnaires which were self-administered. Secondary data was obtained from financial statements of Equity group records. Correlation analysis was used to give an insight into the relationship between ICT strategies and performance. This was done with the help of the statistical package for social sciences (SPSS) version 23.0 for production of graphs, tables, descriptive statistics and inferential statistics. The findings reveal that ICT strategies had statistically significant influence on income, profitability and customer deposits of commercial banks in Kenya and tests for significance also showed that the influence was statistically significant. The findings also revealed that mobile phones had a higher effect than Internet services on the ICT strategies when influencing performance of commercial banks in Kenya. Based on the findings of the study, it can be concluded that ICT strategies influence performance of commercial banks in Kenya positively. It is therefore recommended that the management of commercial banks and the Government continue to explore and implement sustainable business linkages and collaborations with mobile phone service providers as well as the Internet service providers as a way of accelerating the penetration of ICT and eventually creating desired impacts in the economy. Banks should leverage on mobile phones in order to grow their business and customer base. This study did not include all ICT strategies in the banking sector and a further study is recommended to include strategies like agency banking, securitization and credit guarantees and their influence on the performance of commercial banks.

Index Terms- ICT strategies, Automated teller machine (ATM), Mobile banking, Internet banking

I. INTRODUCTION

An ICT strategy gives technological direction and purpose, organizes and deploys ICT (information communication technology) resources in the most effective manner, and

coordinates the stream of decisions being made by different members of the organization and ICT function. Strategy is about aligning every activity to create an offering that cannot be easily emulated by competitors (Kitur 2006). ICT strategy consists of firms developing technologically new products or new production processes to better perform their operations, in which case the new products could be based on the new processes (Lawrence, 2010). In the financial services industry, ICT strategy is viewed as the act of creating and popularizing new financial instruments, technologies, institutions and markets, which facilitate access to information, trading and means of payment (Solans, 2003). Lerner (2009) puts forward that ICT strategies are not just critical for firms in the financial services industry, but also affect other companies; for instance, enabling them to raise capital in larger amounts and at a lower cost than they could otherwise and that ICT strategy is an important phenomenon in any sector of a modern economy.

According to Nofie (2011), ICT strategies in the finance sector is the arrival of a new or better product and/or a process that lowers the cost of producing existing financial services. Akamavi (2005) also notes that ICT strategies in the financial services sector has led to recent fundamental changes including: deregulation, increasing competition, higher cost of developing new products and the rapid pace of technological innovation, more demanding customers and consolidation of corporations.

Kenyan banks are operating in a more politically risky environment. The country's political rating has been badly dented by the terrorist attacks. This has led to the downgrading of the country's credit rating. "Fitch has given Kenya a long term 'B+' credit rating, a medium term 'B' credit rating and a 'BB-' local currency credit rating. Its revision of the country's rating outlook came after another international rating agency; Standard and Poor's (S&P), downgraded Kenya's credit rating from 'BB-' to 'B+' (Gikunju 2008)".

The Kenyan banking industry operates under a monopolistic competition market structure. It is dominated by Barclays, Citigroup, Kenya Commercial Bank, Standard Chartered, Cooperative Bank and lately Equity Bank with CFC Stanbic. Monopolistic structures may be beneficial to the economy as (Petersen and Rajan, 2005) demonstrates that young firms with no record of past performance may actually receive more credit, and at better rates, if they are in a market where banks have monopoly power. However, Thomas and D'aveni (2004) have little regard for monopolistic competition as they believe its dead. They note that "monopolistic competition may still frequently occur at localized levels (for example, on certain city-pair routes in the airline industry or in certain therapeutic

categories in the pharmaceutical industry), but only quite rarely at the industry level as a whole”.

The supernormal profits being underwritten by Kenyan banks have attracted foreign competition. Although Kenya is a relatively small economy, leading global banks like Citigroup, Barclay's, United Bank of Africa, Standard Bank of South Africa (trading as CFC Stanbic) and Standard Chartered have local subsidiaries. Foreign competition is useful as “foreign bank entry can stimulate competition in national banking markets and thus force domestic banks to improve their operating efficiency” (Yilidirim and Phillipatos 2007) An analysis of the current Kenyan environment reveals the economic challenges listed below which are affecting the banking industry. According to the Minister of planning the challenges for Year 2008 included post election disruptions, unfavorable, continued political bickering, weather conditions, high cost of food and fuel prices, high crude prices, and the global financial crisis (Kenya National Bureau of Statistics 2009).

The banking industry has responded to this changing business environment with several strategies. Most banks have reduced their lending especially to consumers. To substitute and supplement their lost revenues banks have started to invest heavily in government securities. While banks like Cooperative Bank, Ecobank, Family and Cooperative have adopted expansion strategy and are opening more branches. Other banks like Cooperative Bank, Diamond Trust and NIC Bank have resorted to regional expansion. Banks like Cooperative Bank, Family Bank, ABC Bank have broadened their product offering with an aim of transforming themselves to financial supermarkets. Banks in Kenya are competing for deposits, loans and advances. Competition is likely to intensify in the banking industry in the background of a shrinking economy. However, the industry low penetration level of 19% still provides opportunities for banks to exploit. Banks are also competing with mobile phone operators' money transfer services likeSafaricom's (M-Pesa), Orange Telkom's (Orange Money) and Airtel's (Airtel Money). M-Pesa service has over four million registered subscribers. It transferred over KES 24 billion its first year of operation (Njiraini and Anyanzwa 2009). Most banks have already introduced phone-banking services to counter this competition.

Equity Bank has grown strategically by successfully making the following acquisitions purchase of the retail business arm of Industrial Development Bank (IDB) in 2005, 20% of Housing Finance in July 2007, and 100% acquisition of Uganda Micro Finance Ltd. In June 2008 Equity Bank increased its stake in Housing Finance to 24.9% through a rights issue. Equity bank has advanced plans to expand to Southern Sudan. Equity bank has expanded its initial products like personal savings and loan accounts offered by the building society to include trade finance, treasury services, personal banking, corporate e-banking, cash back services, short message services banking, retail Internet banking, swift codes, business loans, mobile banking, automatic teller machines, insurance, investment banking, and custodial services. Loan products include overdrafts, hire purchase, premium financing, asset financing, bills discounting and financing, trade finance and collateral management, cheques discounting, and “fanikisha” loans for women.

Today managers worldwide are expected to increase the productivity and performance of their organizations in times of

great uncertainty and with shrinking resources (Mabey & Ramirez, 2005). Many realize that managing change appropriately and without delay will put them ahead of their competitors. Performance is normally measured using standards which are usually detailed expressions of strategic objectives. They are also measures of acceptable performance results. Measures used to assess organizational performance depend on the organization and objectives that need to be achieved (Hunger & Wheelen, 2005). Delaney & Huselid (2006) identified two distinct performance yardsticks; those relating to performance and the strategic performance.

The benefits of application of ICT strategies in the enhancement of banking services is not only limited to cost reduction benefits alone, but the innovation is also found to have significant contribution to extending access to customers residing outside the branch network and create opportunities for effective cross (San-Jose et al., 2009). A sizeable number of studies on relationship between ICT strategies and firm performance have been undertaken for example, Bitler (2011) investigated the relationship between information and communication technology strategies and small firms' performance. The study revealed that firms using ICT strategies performed better compared to firms that were reluctant to adopt ICT. In their study conducted to examine technological progress and its effects in the banking industry using relevant data, Berger et al. (2005) found out that ICT investment leads to reduction in costs. This led to improved productivity which was attributable to improved quality and variety of banking services. These studies laid more emphasis on the link between ICT and cost reduction, productivity and improved quality of services.

Muyoka (2014) examined the relationship between mobile banking on the performance of commercial banks in Kenya. It was found that there existed a statistically significant relationship between mobile banking and profitability of commercial banks in Kenya. This was attributable to increased deposits through mobile transactions and reduced costs. A study by Juma (2012) investigated the relationship between the impacts of ICT strategies on growth of commercial banks in Kenya. The study concluded that there was a positive correlation between ICT and growth of commercial banks. Commercial banks that embraced ICT strategies were found to have a higher growth in market share.

Therefore Kenyan commercial banks have continued to deploy huge investments in ICT based strategies and training of manpower to handle the new technologies. Data from Central Bank of Kenya (2013) debit banking transactions increased from 48,000 per annum in 2007 to over 250,000 transactions per annum in 2013. Performance of commercial banks in Kenya also grew impressively between years 2005 to 2013 where profit before tax grew from Kshs 2.7 billion in 2005 to Kshs 74 billion in 2013. During the same period, total income grew from Kshs 61billion to Kshs 178 billion while total assets grew from Kshs 425 billion to Kshs 1.7 trillion (CBK, 2013). The relationship between the growing investments in ICT based bank innovations and bank organization performance in Kenya needs to be studied. There is need to establish whether ICT strategies have contributed to the organization performance of commercial banks in Kenya.

Lerner and Tufano (2011) in their study on consequences of ICT strategies contend that existing empirical evidence and conceptual frameworks can tell more about ICT strategies, but there are substantial unanswered questions in the areas of organization performance impact of ICT strategies, impact of ICT strategies on financial institutions and a lot of ICT strategies research is mainly on case studies. Rafael and Francisco (2007) studied the impact of various regional banking sector developments and ICT innovations during 1996- 2007 in Spain. The study found out that product and service delivery innovations contribute positively to regional Gross Domestic Product (GDP), investment and gross savings growth. These sentiments are shared by Hendrickson and Nichols (2011), while studying the performance of small banks in the United State with regards to interstate branching and found out that banks perform better when they adopt ICT strategies across their several branches. Based on these studies and the varying gaps in literature, there is need to conduct similar studies in Africa and more so in Kenya where ICT strategies have been on the rise in the past decade.

The general objective of this study was to establish the effect of ICT strategies on performance of commercial banks in Kenya a case of Equity Bank Limited. The specific objectives were: to determine the effect of ATMs on performance of commercial banks in Kenya, to establish the effect that mobile banking have on performance of commercial banks in Kenya and to determine the effect of internet banking on performance in Kenyan commercial banks.

The study only reviewed ICT strategies in the banking industry and therefore did not include other financial sector players such as the stock exchange, insurance, micro finance institutions, Savings and Credit Cooperatives (SACCO's) and pension funds. However this provides an opportunity for further research. The study experienced an initial slow response from the respondents who complained about the length of the questionnaire. This was mitigated by having constant follow up on phone and physical visits to the respondents' offices by using research assistants.

II. LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 Technology Acceptance Model

Technology acceptance model (TAM) was originally proposed by Davies in 1986. This model was designed to forecast the user's acceptance of information technology and usage in an organizational setting. Cracknell (2004) posits that firms are adopting technology to cope with the dynamics of the external environment. This model has been tailored in a manner that can accommodate changes for improved costs reduction and efficiency. Technology Acceptance Model deals with perceptions as opposed to real usage, the model suggest that users , the key factors that influence their decision on how, where and when they will use it.

This theory is relevant to this study since it explains user's acceptance of ICT strategies and usage in an organizational context. Acceptance is the first process in technology use and has a bipolar implication. First of all acceptance is a precursor to adoption and hence this theory complements the preceding

theories. Secondly, acceptance dictates the attitude and perception of the users which eventually affects efficiency of use and hence performance. Strategic adoption as well as operational efficiency and hence productivity of systems are a function of acceptance of the technology. It is thus plausible to conclude that without acceptance, the rest of the theories would be redundant and invalid. Though acceptance is an initial phase, it is also an attitude shaping facet that influences adoption and effectiveness of use.

2.1.2 Diffusion of Innovation Theory

The theory was advocated by Rogers in 1962 posit that diffusion of innovations is a theory that seeks to explain how, why, and at what rate new ideas and technology spread through cultures. He explains that critical factors that determine the adoption of an innovation at the general level are the following: relative advantage, compatibility, complexity, trialability and observability. In the context of ICT adoption, benefits such as immediacy, convenience and affordability to customers have been reported. Thus, it is assumed that, when customers perceive distinct advantages offered by ICT, they are more likely to adopt it (Roberts & Amit, 2003). Compatibility refers to the degree to which a service is perceived as consistent with users' existing values, beliefs, habits and present and previous experiences (Chen et al., 2004). Compatibility is an important feature of innovation as conformance with user's lifestyle can propel a rapid rate of adoption (Rogers, 2003).

Observability of an innovation describes the extent to which an innovation is visible to the members of a social system, and the benefits can be easily observed and communicated (Rogers, 2003). According to Rogers trialability is defined as the capacity to experiment with new technology before adoption. Potential adopters who are allowed to experiment with an innovation will feel more comfortable with it and are more likely to adopt it. Perceived risk refers to the degree of risks in using an innovation.

2.1.3 Task Technology Fit (TTF) Theory

This theory was advocated by Goodhue and Thompson (1995) who mention the factors that measure task-technology fit as; quality, locatability, authorization, and compatibility, eases of use/training, production timeliness, systems reliability and relationship with users. The model is useful in the analysis of various context of a diverse range of information systems including electronic commerce systems and combined with or used as an extension of other models related to information systems outcomes. According to the theory of task-technology fit, the success of an information system should be related to the fit between task and technology, whereby success has been related to individual performance (Goodhue & Thompson, 1995) and to group performance (Zigurs & Buckland, 1998).

As a result of the observable changes of business tasks and related technology requirements, it becomes necessary to assess the applicability of the theory of task-technology fit to mobile technologies and mobile use contexts, and to carefully determine the needs for theory adjustments and extensions (Junglas and Watson, 2006; Lyytinen and Yoo, 2002).

2.2 Conceptual Framework

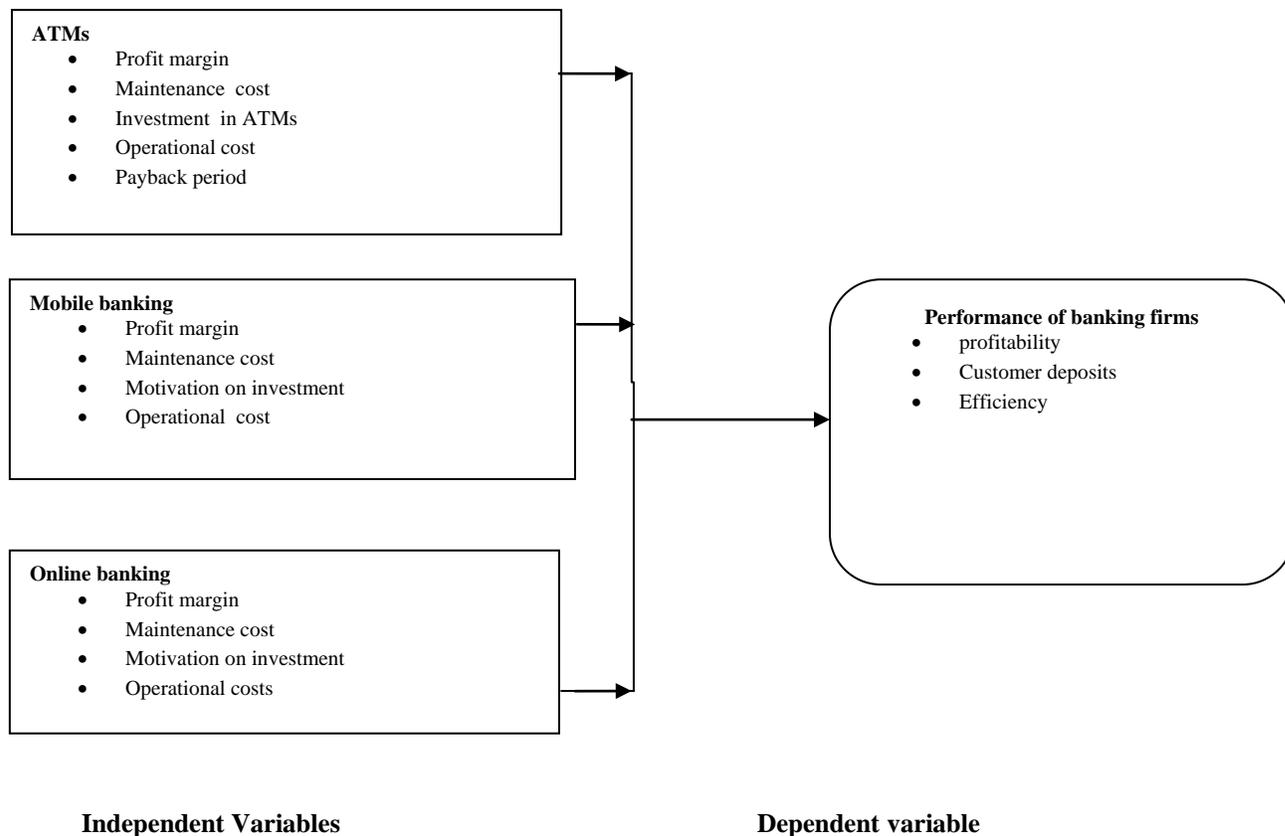


Figure 2.1: Conceptual framework

2.3 Empirical Review

2.3.1 ATM's and Organization performance

Automated Teller Machine (ATM), also known as automated banking machine (ABM) is a computerized telecommunications device that provides the clients of a financial institution with access to financial transactions in a public space without the need for a cashier, human clerk or bank teller. On most modern ATMs, the customer is identified by inserting a plastic ATM card with a magnetic stripe or a plastic smart card with a chip that contains a unique card number and some security information such as an expiration date. Authentication is provided by the customer entering a personal identification number (PIN). Using an ATM, customers can access their bank accounts in order to make cash withdrawals, credit card cash advances, and check their account balances as well as purchase prepaid cell phone credit. This improves convenience since customers can withdrawal money from their point of reach without necessarily visiting the bank. This increases efficiency and mitigates the costs of transactions leading to improved performance. This is consistent with Fannie Mae Foundation report of that indicated that automated teller machine as used in banking sector serve approximately 420 million transactions annually for a total of \$3.3 billion in gross annual revenues.

Ogbuji et al. (2012) observed the Automated Teller Machines (ATMs) is one of existing replacements of the cascading labor intensive transaction system effected through what is popularly referred to as paper-based payment

instruments. An automatic teller machine allows a bank customer to conduct his/her banking transactions from almost every other ATM machine in the world. The ATM, therefore, performs the traditional functions of bank cashiers and other counter staff. It is electronically operated and as such response to a request by a customer is done instantly.

The combined services of both the Automated and human tellers imply more productivity for the bank during banking hours. Also, as it saves customers time in service delivery as alternative to queuing in bank halls, customers can invest such time saved into other productive activities. ATMs are a cost-efficient way of yielding higher productivity as they achieve higher productivity per period of time than human tellers (an average of about 6,400 transactions per month for ATMs compared to 4,300 for human tellers Rose (2001). Furthermore, as the ATMs continue when human tellers stop, there is continual productivity for the banks even after banking hours.

The ATM transactions are done through over the phone line via internet connection (lease line). All the ATM machines are globally interconnected with each other with the financial institutions through the global ATM network like Master Card, Maestro, Cirrus, Visa, etc. In back side of every ATM card some logos are printed which refers to the ATM network. So the ATM machine connects to ATM network through processing center and the card holder's bank.

2.3.2 Mobile Banking and Performance

According to Nader, (2011) mobile banking is a service provided by financial institutions in cooperation with mobile phone operators. It allows customers with busy lives to conveniently do their banking using their phones anytime. It is about getting banking services to the unbanked, those who do not have bank access or bank accounts, and those who are at the bottom of the economic pyramid, often living in remote areas. They receive the benefits of banking services such as being able to save and borrow in a cost-efficient and secure way. The services include opening bank accounts, viewing account balances, making cash transfers between accounts, or paying bills via a mobile device. In recent time mobile banking is most often performed via SMS or the Mobile Internet but can also use special programs downloaded to the mobile device (Agboola 2006)

According to the German mobile operator Mobilcom, mobile devices, especially smart phones, are the most promising way to reach the masses and to create “stickiness” among current customers, due to their ability to provide services anytime, anywhere, high rate of penetration and potential to grow. According to Gartner, shipment of smart phones is growing fast, and should top 20 million units (of over 800 million sold) in 2006 alone. A study was conducted by Hernando and Nieto (2007) on the effect of mobile banking and performance of Spanish commercial banks. It was concluded that banks that implemented mobile banking were able to attract more customers and this led to increased access to customer deposits leading to improved performance.

2.3.3 Internet Banking and performance

Internet banking (e-banking) is the use of internet and telecommunication networks to deliver a wide range of value added products and services to bank customers. Malhotra and Singh (2009) argue that through the use of a system that allows individuals to perform banking activities at home or from their offices or over the internet. Some online banks are traditional banks which also offer online banking, while others are online only and have no physical presence (Bradley and Stewart, 2003). Online banking through traditional banks enables customers to perform all routine transactions, such as account transfers, balance inquiries, bill payments, and stop-payment requests, and some even offer online loan applications (Kannabira and Narayan, 2005).

Internet banking refers to a bank making its services accessible to clients using the internet as its delivery channel. Using internet banking, registered customers are able to log on to the bank's website and carry out banking dealings on their accounts. It is also referred to as online banking (Gerrard and Cunningham, 2003). Internet Banking is beneficial to banks as well as consumers, whereby there is an improvement of efficiency in services rendered to customers. Internet banking is convenient and cost-efficient. Moreover, the development of Internet banking has transformed the distribution channel structure in bank sector (DeYoung, Lang & Nolle (2007)

Customers can access account information at any time, day or night, and this can be done from anywhere. Internet banking has improved banking efficiency in rendering services to customers. Financial institutions in Kenya cannot ignore

information systems since they play an important role in their operations because customers are conscious of technological advancements and demand higher quality services this leads to organization performance. In a study on the impact of mobile and internet banking on performance of financial institutions in Kenya, it was concluded that the adoption of internet banking has enhanced organization performance of the banking industry due to increased customers' deposits. This is attributable to improved efficiency, effectiveness and organization performance (Oruro & Ndungu, 2013).

2.3.2 ICT Strategies and Profitability

Simpson (2002) suggests that e-banking is driven largely by the prospects of operating costs minimization and operating revenues maximization. A comparison of online banking in developed and emerging markets revealed that in developed markets lower costs and higher revenues are more noticeable. While Sullivan (2000) finds no systematic evidence of a benefit of internet banking in US click and mortar banks. Furst, Lang and Nolle (2002) find that federally chartered US banks had higher Return on Equity (ROE) by using the click and mortar business model. Furst, Lang and Nolle (2002) also examined the determinants of internet banking adoption and observed that more profitable banks adopted internet banking after 1998 but yet they were not the first movers. Jayawardhena and Foley (2000) show that internet banking results in cost and efficiency gains for banks yet very few banks were using it and only a little more than half a million customers were online in U.K.

Nader (2011) analyzed the profit efficiency of the Saudi Arabia Commercial banks during the period 1998- 2007. The results of his study indicated that availability of phone banking, number of ATMs and number of branches had a positive effect on profit efficiency of Saudi banks. On the contrary he found that the number of point of sale terminals (POSs), availability of PC banking and availability of mobile banking did not improve profit efficiency. Agboola (2006) in his study on Information and Communication Technology (ICT) in Banking operations in Nigeria using the nature and degree of adoption of innovative technologies; degree of utilization of the identified technologies; and the impact of the adoption of ICT devices on banks, found out that technology was the main driving force of competition in the banking industry. During his study he witnessed increase in the adoption of ATMs, EFT, smart cards, electronic home and office banking and telephone banking. He indicates that adoption of ICT improves the banks' image and leads to a wider, faster and more efficient market. He asserts that it is imperative for bank management to intensify investment in ICT products to facilitate speed, convenience, and accurate services, or otherwise lose out to their competitors.

Malhotra and Singh (2009) in their study on the impact of internet banking on bank performance and risk found out that on average internet banks are larger, more profitable and are more operationally efficient. They also found that internet banks have higher asset quality and are better managed to lower the expenses for building and equipment and that internet banks in India rely substantially on deposits. They further found out that smaller banks that adopt internet banking have been negatively impacted on profitability.

Mabrouk and Mamoghli (2010) in their study on Dynamics of Financial Innovation and Performance of Banking Firms: Context of an Emerging Banking Industry, analyzed the effect of the adoption of two types of financial innovations namely; product innovation (telephone banking and SMS banking etc) and process innovation (Magnetic strip card (debit, ATM and credit card), Automatic cash dispenser; (Automatic teller machine; Electronic payment terminal etc) on the performance of banks. Their analysis included two adoption behaviours, first mover in adoption of the financial innovation and imitator of the first movers. They found out that first mover initiative in product innovation improves profitability while process initiative has a positive effect on profitability and efficiency. Banks that imitate are less profitable and less efficient than first movers

2.4 Critique of Existing Literature Relevant to the Study

From reviewed relevant literature, it has come out strongly from several writers like; Dew (2007), Lerner (2006), Iftekhar, Schmiedel and Song (2009), Nadia, Anthony and Scholnick (2003), Nofie (2011), Hirtle and Stiroh (2007), Agboola (2006), Malhotra and Singh, (2009), Hernando and Nieto (2006), DeYoung (2005), and Acharya and Kagan (2004) that ICT strategies have positive impact on performance indicators. They have agreed on the transformational effects of ICT strategies on bank performance and operational efficiency. However other scholars like; Nadia, Anthony and Scholnick (2003), McAndrews (2002), Nader (2011), Akram and Allam (2010) and Prager (2001) found out that ICT strategies have negative effects on performance indicators. These mixed results and alternative views from different countries and writers are mainly as a result of lack of comprehensive analysis of multiple ICT strategies and performance indicators. This study intends to take a departure from past studies and incorporate several ICT strategies and their effect on multiple bank performance indicators. There is also concentration of ICT strategies-performance studied on

profitability and mostly in developed and emerging economies leaving a paucity of ICT strategies performance literature for Africa and Kenya specifically. This literature gap is addressed by this comprehensive study.

2.5 Research gaps

From the foregoing review of relevant literature, it is evident that research in the area of ICT strategies has been done but not in a comprehensive approach. All the literature reviewed indicates that previous researchers only concentrated on a few variables of ICT while this study covers additional important variables that were omitted by previous studies like, mobile banking and internet banking. This makes the study more comprehensive. From survey of relevant literature, it has been found that there are few studies specific to Kenya on the link of ICT strategies and performance of commercial banks. This study therefore intends to fill these pertinent gaps in literature by studying the effects of ICT strategies on selected key performance indicators of commercial banks in Kenya.

III. RESEARCH METHODOLOGY

This study adopted a descriptive design to answer the research questions. Descriptive research design was appropriate for this study as it helps in understanding the ICT strategies affecting performance of commercial banks and therefore answers the “what” question of the study.

The target total population of interest was 300 employees from the three levels of management of Equity bank limited in their headquarters in Upperhill Nairobi as their records that were provided to the researcher show that 17% being from senior management, 33% from middle level management and 50% from lower level management (Equity Group, 2015)

Table 3.1 Target Population

Level	Population	% of population
Senior Level Management	50	17
Middle level management	100	33
Lower level management	150	50
Total	300	100

The sampling frame of this study will be derived from the database of the Central bank of Kenya which licenses insurance companies in Kenya. A Stratified sampling technique was used to obtain a sample for the 300 employees. The essence of stratification is to ensure inclusion, in the sample, of subgroup, which otherwise would be omitted entirely by other sampling methods because of their small numbers in the population. Simple random sampling is a probability sampling design in which every element in the population has a known and equal chance of being selected as a subject Sekaran and Bougie (2011).

As shown in Table 3.2, a sample will be taken through stratified and simple random sampling procedures. Application of the two techniques is based on the assumption that while simple random ensures equal chance of being included in the sample, the stratified method will be viable for sampling employees who are heterogeneous (Kothari, 2011) in terms of levels of management they are working and knowledge of work. In this regard, the company will be stratified into three levels before using simple random sampling to select the desired 30 participants. The sample size is as laid on the sample matrix below on table 3.2

Table 3.2: Sample matrix

Level	Population	Sample
Senior Level Management	50	5
Middle level management	100	10
Lower level management	150	15
Total	300	30

Primary information was gathered by use of questionnaires coupled with informal interviews that will be guided by the questionnaires. Secondary data will be gathered from annual reports of the Equity Group. The study used both primary and secondary data sources since the nature of the data is quantitative and qualitative. The respondents were picked randomly from their respective departments. Stratified sampling was used in selecting the 30 respondents from their respective levels of management. The rationale of using stratified sampling is because the method is cost effective and convenient in case of a wide geographical area (Mugenda & Mugenda, 2010). The researcher also collected primary data by use of a semi structured questionnaire. The questionnaire was structured into three sections; the first section was seeking demographic data, the second section data on ICT strategies and the third section data on performance. The questionnaire was administered through a drop and pick later method at an agreed time with the researcher. Secondary data was sourced from the CBK and audited annual financial statements of Equity group. Secondary data was collected from the annual report of the Equity bank which was available from the Ministry of Finance through the use of research assistance. The questionnaires were issued to the respondents through self-introduction and where need be internal informant will be used to give a lead on how to get to the respondent

The reliability of the instruments was determined through piloting process to assess if developed items will give the consistent results at different times after they would be administered. The internal consistency of the instruments was determined by applying the Cronbach's alpha technique on Likert rating items. The results of the reliability test produced an overall Cronbach Alpha correlation coefficient of 0.887. The closer Cronbach's alpha coefficient is to 1, the higher the internal consistency reliability (Sekaran, 2003). A coefficient of 0.7 is recommended for a newly developed questionnaire and therefore 0.887 was adequate for this study.

Information was sorted, coded and input into the statistical package for social sciences (SPSS) version 23.0 for production of graphs, tables, descriptive statistics and inferential statistics. Descriptive statistics will be used to determine ICT strategies on performance of commercial banks in Kenya. A regression model was used for establishing the relationship between the ICT strategies and performance. The model adopted will consist of four variables: The independent variables were ICT strategies while the dependent variable was performance.

$$Y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \epsilon$$

Y= performance of bank

- X_1 =ATM's
- X_2 = mobile banking
- X_3 = Internet banking
- β_0 = Constant (Y-intercept)
- ϵ = Error term.

The study used a linear regression model to show the relationship between ICT strategies and performance. Information sorted and coded using the statistical package for social sciences (SPSS) version 23.0 was presented using graphs, tables and descriptive statistics because they help summarize the findings and conclusion in a more understandable language.

IV. RESEARCH FINDINGS AND DISCUSSION

4.1 Response rate

According to Cooper and Schilder (2011), as the rule of the thumb, one percent of the sample should constitute the pilot test taking into consideration the time, costs and practicability of the exercise. In this study, one percent of the sample questionnaire designed as the main data collection instrument was used to pre-test effectiveness and relevance of the instrument. In this case, seven questionnaires were used in the pilot test.

The questionnaire pre-testing was done using randomly selected Equity bank managers and employees who were not included in the final data collection. Questions answered by the pilot test included: Is each of the questions measuring what it is intended to measure? Are questions interpreted in a similar way by all respondents? Do close-ended questions have a response which applies to all respondents? Are the questions clear and understandable? Is the questionnaire too long? How long does the questionnaire take to complete? Are the questions obtaining responses for all the different response categories or does everyone respond the same? (Polit & Beck, 2003).

The questionnaire was pretested to a selected sample which was similar to the actual sample which the researcher was to use in the study. Procedures that were used in pre-testing the questionnaire were identical to those that were used during the actual data collection. The practice of pre-testing the questionnaire was very important because Comments and suggestions made by respondents during the pre-testing were seriously considered and incorporated in the final study for example the format of the questionnaire had to be changed, such comments helped to improve the questionnaire. Questions which were vague were revealed as the respondents interpreted them differently. This made the researcher rephrase the questions until they conveyed the same meaning to all subjects.

The clarity of the instrument items to the respondents was established so as to enhance the instrument’s validity and reliability. The pilot study enabled the researcher to be familiar with the research and its administration procedure as well as identification of items that required Modification. The results helped the researcher to correct inconsistencies arising from the Instruments, which ensured that they measured what was intended.

A total of 42 questionnaires were given out to the managers and employees of Equity bank, 30 of them were returned, giving a response rate of 73%. According to Mugenda and Mugenda (2010), a response rate of 50%-60% is adequate and good respectively for a research, and above 70% is very good. Babbie (2004) also asserted that return rates of 50% are acceptable to analyze and publish, 60% is good and 70% is very good.

Table 4.1: Response Rate

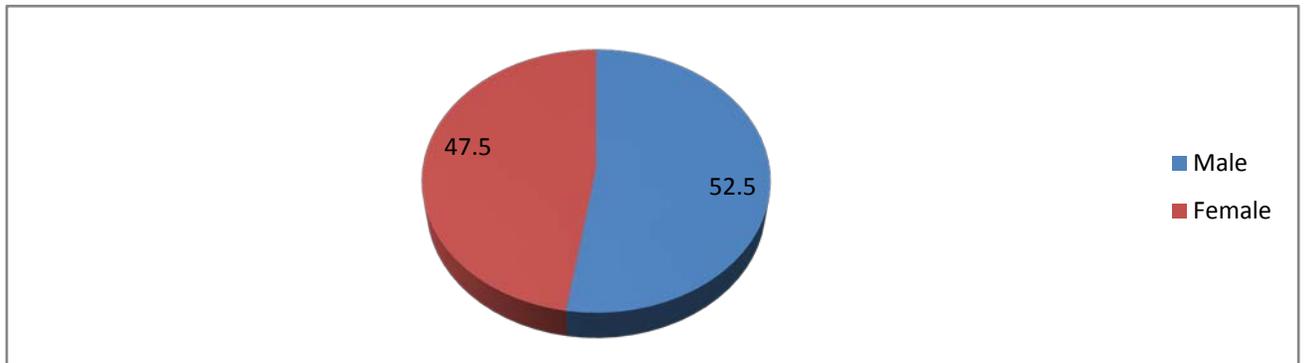
Response Rate	Frequency	Percent
Returned	30	73%
Unreturned	12	27%
Total	42	100%

4.2 General Information

4.2.1 Gender of the participants in percentages

The study established that the male employees were more (52.5%) than the female (47.5%), this although it was fair representation of the employees in the company. This agrees with the two-third gender rule in Kenya in terms of male-female representation (Kenyan constitution 2010)

Figure 4.1: Composition of Gender



4.2.2 Level of education

Investigating on the education level of employees in Equity bank, the study revealed that most of the employees were of degree level (65%) and masters at (25%) while a few had diploma education. The study concurs with the findings of

Pazarskis, et al., (2006) who explored the improvement of business Performance after adoption of ICT strategies and found out that education level plays a key role in implementation of ICT strategies.

Table 4.2 Education level of the participants

Education	Frequency	Percentages
Diploma	4	10
Degree	27	65
Masters	11	25
Total	42	100

4.2.3 Area of Specialization

To effectively deliver well after introduction of ICT strategies is try to match their employees with their specialization. Figure 4.2 shows the result of the areas that were represented in the study for better performance. It was discovered that ICT department was the area that the companies had put more emphasis at 27.5% with finance and strategy and operation being at 20%. The study by Epstein (2004) found out that for effective move in performance, the companies had to do more technological strategies so that the customers can be satisfied with

products and services offered and new changes they bring to the market. This can be the reasons why the equity bank decided to put more effort in ICT by employing more human personnel to reach greater efficiency.

Table 4.3 confirms to this by showing that only (10%) of the employees are the one who are working in different area of specialization. But still if the company wishes to achieve more efficiency in delivery of they should make sure that employees work on their area of specialization. (Moretti & Florian, 2012)

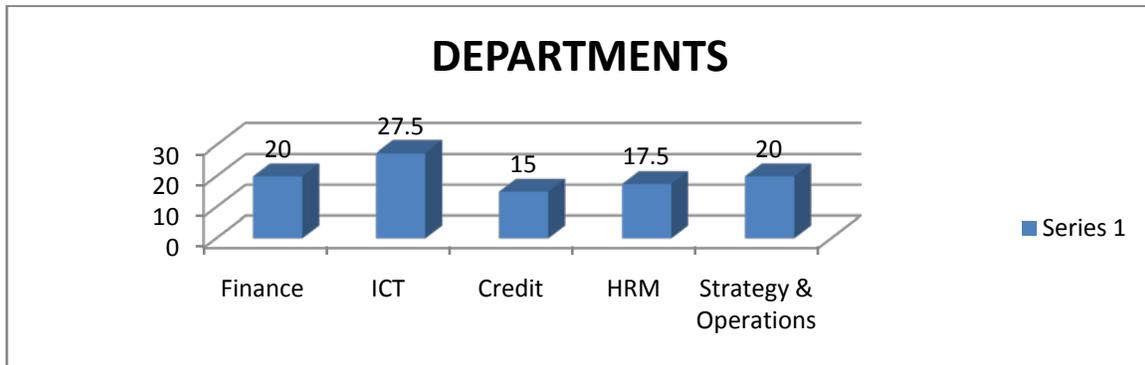


Figure 4.2: Area of specialization

Table 4.3: Area of working matching with specialization

	Frequency	Percentages
Yes	38	90
No	4	10
Total	42	100

4.2.4 Banking Sector Experience

Table 4.4 indicates that 90% (n=30) of the respondents had worked in the banking sector for more than 5 years, 53% had worked for less than 10 years. This finding suggests that majority of the respondents joined the sector after year 2004 which is in line with the growth experienced in the past decade in the sector. Aggregate bank employees in Kenya in 2002 were 10,884 and grew to 30,056 by end of 2012 indicating staff growth of 2.76 times (CBK, 2012). This also shows that banks have recruited more people to oversee the tremendous growth witnessed in the last decade and transformed themselves as sources of employment and have also attracted various skills in the past decade. The results also indicate a stable and a sticky job environment which shows that most banks have turned themselves into employers of choice in the country by initiating several employee retention strategies and hence the many respondents who had worked for the banking sector for more than ten years.

Table 4.4: Response experience

Year category	No. of respondents	Percent
Below 5 years	3	7%
5-10 years	22	53%
Above 10 years	17	40%
Total	42	100%

4.3 Study Variables Data Analysis

This section presents the findings and discussion in the order of the three specific objectives of the study. Frequencies and descriptive statistics are presented first followed by inferential statistics. The questionnaire responses were based on a likert scale which was coded with numerical values for ease of

data analysis. The values assigned to the likert were 1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree.

4.3.1 Effect of ICT strategies on Bank Profitability

The first objective of the study was to establish the influence of ICT strategies on profitability of Equity bank in Kenya. Data for this objective was gathered using likert scale questionnaires which were issued to randomly selected respondents who work for Equity bank in Kenya.

4.3.1.1 ATMs and Bank Profitability

Table 4.5 displays the results of responses from respondents regarding the influence of ATMs on the profitability of Equity bank in Kenya. Ninety percent of the respondents agreed that ATMs have incomes which carry high margins and hence leading the high profits for equity bank. 2% were neutral while 8% disagreed. Regarding whether ATMs have low maintenance or operational costs, 95% agreed while 3% were neutral and 2% disagreed. Thirty three percent agreed that investment in ATMs by equity bank was driven by profits, 44% were neutral and 24% disagreed. The mean score of the statements was 3.70 which indicate more agreement with the statements on whether ATMs contributed positively to the profits of Equity bank in Kenya. The responses were spread closely to the mean as indicated by the standard deviation of 0.525.

These results concur with the findings of Nader (2011) in a study conducted among Saudi Arabia banks during the period 1998-2007 where the results of the study confirmed that availability of ATMs and branches had a positive effect of profit efficiency of Saudi banks. Agboola (2006) in a study in Nigeria found that the increase in the adoption of ATMs had a positive impact on a bank's image and its profitability. These findings are further supported by Schimiedel et al. (2009) in a study across the European Union which concluded that ATMs increased bank profitability in terms of accounting ratios and cost efficiency.

In Kenya ATMs are capable of generating some income for Equity bank due to the convenience they offer to bank customers. Equity bank has been marketing itself by showcasing their ATM network across the country with an objective to attract more

customers and eventually contribute to bank profits. Equity bank have further invested in intelligent ATMs which have face and finger print detection capabilities all in the need to attract more customer

Table 4.5:ATMs and Bank Profitability

Statements	Mean	Std deviation
ATMs has high profit margin	3.92	0.324
ATMs have low maintenance costs	4.13	0.399
Investment in ATMs in mostly motivated by profits to the bank	3.05	0.853
TOTAL	3.70	0.525

4.3.1.2 Mobile Banking and Bank Profitability

Responses on the influence of mobile banking on the profitability of Equity bank in Kenya are presented on Table 4.6. Ninety seven percent of the respondents agreed that incomes from mobile banking have high margin, 91% agreed that maintenance costs of mobile banking are low and 78% disagreed that profits is the main objective of banks when investing in mobile banking. The mean score of 3.35 shows that there was more agreement with the statements on whether mobile banking influences positively the profitability of Equity bank in Kenya. The standard deviation was 0.602 meant that the responses were spread around the mean within one standard deviation. Similar to the findings on mobile banking and bank profitability, Porteus (2006) asserts that in Uganda mobile banking has increased access to banking services and subsequently income and profits for the banks. In Kenya, Ndung'u (2011) concurs that mobile

banking has revolutionalized the money transfer business and has created further innovations that have lowered the transaction costs for both the banks and customers.

This transformation of money transfer business has translated to more incomes and profits to the equity banks. This confirms why Kenya has appeared in the global map in the front of mobile money transfer services. Due to the potential in mobile banking, the model has been replicated in other countries and seems to be a threat to the traditional money transfers services like the EFT and cheque system. Many retail transactions in Kenya have moved to the mobile phone. Bank customers can move money from their bank accounts to their e-money accounts or from their e-money to their bank accounts. This improvement of the mobile money services has increase the velocity and circulation of money in the country and has resulted to more profits for the banks through commission incomes.

Table 4.6:Mobile Banking and Profitability

Statements	Mean	Std deviation
mobile banking has high margin	4.03	0.517
low maintenance costs	3.97	0.572
mobile banking is mostly motivated by profits to the bank	2.06	0.717
TOTAL	3.35	0.602

4.3.1.3 Internet Banking and Bank Profitability

Table 4.7 shows responses of the extent of influence of internet banking on profitability of Equity bank in Kenya. Forty percent agreed that incomes from internet banking have good margins, 15% were neutral and 44% disagreed. On whether internet banking have low maintenance or running cost, 68% agreed, 22% were neutral and 10% disagreed. Fifty eight percent disagreed with the statement that equity bank is mainly driven by profits when investing in internet banking while 32% were neutral and only 10% agreed. The mean score for the responses was 2.99 which indicate that there was less agreement on the assertion that internet banking has a positive influence on bank profitability. The mean score was very close to 3.00 which would

mean there was indifference on the nature of influence that internet banking have on bank profits. The standard deviation was 0.817 meaning that at least 68% of the responses were spread within one standard deviation of the mean.

These findings are inconsistent to those of Malhotra and Singh (2009) who found that, in India, larger internet banks were more profitable. However their study also found that smaller banks had their profitability impacted negatively by internet adoption. DeYoung, Lang and Nolle (2007) also had contrary findings in the USA which concluded that internet banking improved bank profitability. Another contrary finding was reported in India by Kagan, Acharya, Rao and Kodepaka (2005)

that internet banking helped community banks to improve their earning ability.

The findings show that Equity bank does not invest in internet banking with a sole objective of making high incomes from the service. Internet banking in Kenya is mainly used as a compliment of other service delivery channels in order to create convenience to the customers. Internet banking is also used as a

competitiveness tool in order to attract and retain mainly the corporate clients. In Kenya, internet banking is mainly used by corporate clients who would be given the service at highly subsidized rates due to the fact that corporate customers have several ways of contributing to the banks' profitability like through loans, overdrafts, letters of credit and cheques processing

Table 4.7: Internet Banking and Profitability

Statements	Mean	Std deviation
internet banking has high margin	2.88	1.058
low maintenance costs	3.66	0.584
internet banking is mostly motivated by profits to the bank	2.42	0.808
TOTAL	2.99	0.817

Regression Analysis – Profitability and ICT strategies (Primary Data)

Table 4.8 presents the coefficients of model fitness on how effective ICT strategies explain bank profitability. The profitability has an overall correlation with ICT strategies of 0.691, which is strong and positive. ICT strategies that are

included in the model explain 47.8% of the changes or variations in profitability of Equity bank. This shows that 52.2% of the variations in profitability is explained by other factors not captured in the model. This presents an opportunity for future studies to include additional variables that could explain banks' profitability.

Table 4.8 Model Fitness – Profitability and ICT strategies (Primary Data)

Model	R	R ²	Std. Error of the Estimate
1	.691	.478	2529.61008

4.3.2 Effect of ICT strategies on Customer Deposits

The second objective of the study was to determine the influence that ICT strategies have on customer deposits of Equity bank. Information used to arrive at the findings for addressing the objective was gathered by use of a questionnaire. Specifically the respondents were requested to provide their views on whether; ATMs, mobile banking and Internet banking have influence on the mobilization of customer deposits in the Kenyan banking sector.

4.3.2.1 ATMs and Customer Deposits

Table 4.9 presents the percentage of respondents who responded to statements on the influence of ATMs on deposits. On whether the availability of ATMs have attracted more retail deposits, 95% of the respondents agreed to the statement while 2% were neutral and 2% disagreed. Eighty four percent agreed that ATMs provided ease of access to deposits by the customers while 6% disagreed and 9% were neutral. On whether ATMs have led to attraction of corporate customers, 48% disagreed, 13% were neutral and 39% agreed. The mean score for the responses was 3.65 on a scale of one to five. This shows that

there was more agreement with the statements regarding the ability of ATMs to influence mobilization of customer deposits. The data was spread closely to the mean within one standard deviation as indicated by a standard deviation of 0.734.

In line with the finding of this study, a study in the USA by Massoud, Saunders and Scholnick (2006) found that banks were using ATMs surcharge to mobilize deposits and it was concluded that the level of ATM surcharge was positively related to deposits market share of large banks. Milne (2006) in a study conducted in Turkey concluded that ATMs led to increase of customers and hence deposits due to ease of accessibility to their bank accounts. Other similar findings were revealed by Frei, Harker and Hunter (2007) who found that banks were using ATMs to change customer behaviour by migrating them away from high cost delivery systems.

Automatic teller machines have been used expansively by equity bank in Kenya as a way of marketing their attractiveness. On many occasions equity banks display the extent of ATM network as a way of attracting mostly the retail customers. It is also quite common to note equity bank advertising in their annual reports on the number of ATMs and even the capabilities of the

ATMs in order to create customer appeal. Deposits are a key component of banks' structure and funding mechanism and hence the banks use various methods like ATMs to provide an appeal to attract customers and their deposits.

Table 4.9:ATMs and Deposits

Statements	Mean	Std Deviation
ATM services have attracted more retail depositors	4.063	0.410
ATMs have enabled customers to access their deposits	4.031	0.759
ATMs have attracted corporate depositors and deposits	2.87	1.032
TOTAL	3.65	0.734

4.3.2.2 Mobile Banking and Customer Deposits

Table 4.10 shows the percentage of respondents and their views on how mobile banking influence customer deposits among Equity bank. Mobile banking services influenced the mobilization of retail customer deposits as agreed by 97% of the respondents. Mobile banking also provided ease of access for customers to their bank accounts as agreed by 85% of the respondents. Fifty six percent of the respondents disagreed that mobile banking influences the attraction or recruitment of corporate customers deposits. The mean score for the responses was 3.75 indicating more agreement that mobile banking influences customer deposits mobilization among equity bank. The standard deviation of 0.713 infers a strong spread of the responses around the mean of the responses.

Similar findings are found in studies conducted in South Africa by Ivatary and Pickens (2006) and Morawczynski (2008)

which concluded that the introduction of mobile banking led to introduction of mobile financial services and transactions. Mobile banking is being used to make payments for things such as airtime, pre-paid electricity and sending remittances to friends. According to Rayhan et al (2012) in their study on mobile banking in Bangladesh, it was concluded that mobile phone banking offers the potential to extend low cost virtual bank accounts to a large number of currently un-banked individuals. A positive aspect of mobile banking is that mobile networks can reach remote areas at low cost both to the consumer and the bank. Kenya has appeared in the global technology arena due to a high rate of mobile technology adopted and the way it has transformed ways of doing things to individuals and organizations.

Table 4.10:Mobile Banking and Deposits

Statements	Mean	Std Deviation
mobile services have attracted more retail depositor	4.376	0.498
mobile have enabled customers to access their deposits	4.234	0.852
mobile have attracted corporate depositors and deposits	2.653	0.790
TOTALS	3.75	0.713

4.3.2.3 Internet Banking and Customer Deposits

Table 4.11 presents the percentage of respondents on their views on how Internet banking influence customers deposits mobilization among Kenyan commercial banks. Internet banking did not provide an attract point to retails deposits and customer since 56% of the respondents disagreed, 9% were neutral and 36% agreed. Ninety four percent agreed that internet banking provided easy access to customer accounts and provided ease of withdrawal. Internet banking was a key attraction to corporate customers and their deposits as agreed by 85% of the respondents. The mean score for the responses was 3.67 which indicated more agreement with the assertion that internet banking positively influenced customer deposits. The standard deviation was 0.684

The findings are concurred with several studies across many countries. According to Acharya and Kagan (2004) it was found

in India that Internet banking attracted many customers due to the wide range of banking transactions that could be performed electronically via the bank's web site. Nickerson and Sullivan (2003) found that in the USA, use of Internet banking was an aggressive strategy to position banks in the market and quickly attract new clients with high yielding deposits than traditional banks. Mohammed, et al (2009) research concluded that Internet banking had transformed traditional banking and led to explosive growth of banks in terms of customer base and deposits. Use of Internet has become an essential component of peoples' live both at an individual level and in the corporate world. Companies in Kenya prefer to conduct their banking with bank that have internet banking services because it provides them with ease of transacting without having to physically presents themselves in the bank. Internet banking therefore provides cost savings on the operations of a bank account to both the banks and their

customers. High-end retail customers also like banking with banks, which provide them with Internet banking. They can access their bank accounts and transact as they travel around the

world on business. Internet banking saves them from the hassle of queuing in the banking halls and the hours spent travelling to bank branches.

Table 4.11:Internet Banking and Deposits

Statements	Mean	Std deviation
Internet banking have attracted more retail depositors	2.79	0.903
Internet banking have enabled customers to access their deposits	4.00	0.299
Internet banking have attracted corporate depositors and deposits	4.23	0.851
TOTAL	3.67	0.684

4.3.2.4: Regression Analysis – Customer Deposits and ICT strategies (Primary Data)

The robustness of the regression model is presented on Table 4.12. The results indicate that the overall correlation between customer deposits and ICT strategies is 0.731 which is a

positive and strong correlation. The coefficient of determination is indicated by R square of 0.534 showing that the predictors in the model can explain 53.4% of the variations in customer deposits. There are other factors that can explain 46.6% variations in changes in customer deposits.

Table 4.12: Model Fitness – Customer Deposits and ICT strategies(Primary Data)

Model	R	R ²	Std. Error of the Estimate
1	.731	.534	40166.4

4.3.2.5:Regression Analysis – ICTstrategies and Customer Deposits (Secondary Data)

In order to cross examine the results from the primary data, secondary data on customer deposits and ICTstrategies was gathered and subjected to regression analysis. Table 4.13 shows results of model robustness, which indicates that 70.7% of the

variations in customer deposits among commercial bank in Kenya can be explained by ICT strategies. This is further supported by results on Table 4.13, which show that ICT strategies have a statistically significant influence on customer deposits of equity bank in Kenya at a p value of 0.001

Table 4.13: Model Fitness – Customer Deposits and ICT strategies (secondary Data)

Model	R	R ²	Std. Error of the Estimate
1	.841	.707	485059

Table 4.14 Analysis of Variance

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	5.12	1	5.12	21.766	0.001
Residual	2.118	20	2.353		
Total	7,24	21			

Table 4.15 contains the summary of mean scores for objectives one to three. The table summarizes the degree of agreement of respondents' views on the influence of ICT strategies on performance of equity bank. The results indicate that ICT strategies had the highest positive influence on customer deposits. These findings are supported by the existence

of many initiatives to mobilize customers and their deposits through various strategic channels. There are several ATMs that display deposit products of banks and many banks' websites also mainly advertise deposit products and the associated customer benefits. Mobile banking is also used by banks to encourage customers to deposit cash in their bank accounts.

Table 4.15: Summary of Respondents Mean Scores (Primary Data)

Type of ICT strategy	Income	Profitability	Deposits	Average
Automated Teller Machines	3.03	3.70	3.65	3.47
Mobile Banking	3.38	3.35	3.75	3.57
Internet Banking	2.32	2.99	3.67	3.09
Average	2.95	3.21	3.57	3.31

Table 4.16 presents the prediction power of ICT strategies on banks' performance indicators on both primary and secondary data. The coefficient of determination or the R square indicates the percentage of variations in the outcome variable that can be explained by the predictor variables. The results show that ICT strategies can explain by deposits (53.4%), Income (49.6%) and lastly profitability with 47.8% R square. The R square coefficients for the secondary data are also shown on Table 4.16 and they also indicate strong coefficient of determinations for ICT strategies on performance indicators. The average of the R square for both the primary data (0.503) and the secondary data

(0.777) are also strong which shows that ICT strategies that have been included in this study can explain a large variation in the performance of equity bank in Kenya. ICT strategies have improved bank assets utilization capabilities and hence improving their potential for return on assets. An example is the ATMs, which could perform very few functions ten years ago, but due to ICT strategies, ATMs are capable of providing several services. This makes it possible for banks to recoup their investments faster than it was possible a decade ago due to ICT strategies. On an overall basis ICT strategies can explain 61.3% of the variations in the performance of equity bank in Kenya.

Table 4.16: Summary of ICT strategies Regression Power Using R-Square

Variable	Primary Data	Secondary Data
Deposits	0.534	0.707
Income	0.496	0.798
Profitability	0.478	0.828
Average	0.503	0.777

4.3.3 Mobile Phones and Bank Performance

Table 4.17 shows the frequencies of responses on the effect of mobile phones on the performance of Equity bank. The mean score of the responses was 4.04 indicating a high degree of agreement that mobile phones influenced equity bank performance. Ninety percent agreed that use of mobile phones has increased access to bank services to customers while 83% agreed that use of mobile phones has brought in more profitable business ventures for banks. Seventy five percent of the respondents agreed that use of mobile phones had assisted in mobilizing deposits while 90% agreed that use of mobile phones has led to attraction of more retail clients than corporate clients among Kenyan banks.

According to International Telecommunication Union, [ITU] (2009), access and use of mobile telephony in sub-Saharan Africa has increased dramatically over the past decade. There are ten times as many mobile phones as landlines and 60% of the population has mobile phone coverage. This provides a good avenue for banks to deliver their services and expansion of their profitability. Aker and Mbiti (2010) found a strong correlation between mobile phone coverage and firm performance. Also Rayhan et al (2012) found that mobile phone coverage in Bangladesh was key in enhancing banks' performance in terms for profitability and deposits growth. Mobile phones have transformed the way banking business is done in Kenya. Many customers can perform some basic bank account enquiries using their mobile phones. Such services include checking balance,

downloading mini-statements, reporting suspect transactions, payment of bills and deposit of cash in to their accounts. These services attract some commission fees which add to the income and profits of banks. Banks also advertise their new products to their customers through the use of short message services and hence creating more awareness. The mobile phone instrument

has therefore presented a convenient service delivery platform for both the banks and their customers leading to a win-win type of innovation. Customer gets their services at their convenience while banks earn income and improve their margins due to improved cost of doing business.

Table 4.17: Mobile Phones and Bank Performance

Statements	Mean	Std deviation
Use of mobile phones has increased customer access to bank services	4.28	0.773
Use of mobile phones has added to more profitable business avenues to the bank	4.13	0.785
use of mobile phones has improved the level of deposits for the bank	3.74	0.633
Use of mobile phones has led to more ICT strategies	3.91	0.633
TOTAL	4.04	0.699

4.3.3.2 Internet Service and Bank Performance

Table 4.18 presents frequencies on responses on how Internet service influences performance of Equity bank in Kenya. The mean score of the responses was 3.44 which indicate more agreement with the statements in support of the assertion that internet service has a positive influence on the performance of commercial banks. Sixty five percent of the respondents agreed that use of internet services increased customers’ access to bank services while 61% agreed that use of internet services had generated profitable business avenues for the banks. Fifty three percent agreed that use of internet services helped to improve deposit mobilization while 57% agreed that use of internet services had led to attraction of more retail customers than corporate customers. Simpson (2002) reveals that electronic banking is motivated largely by the prospects of operating costs minimization and operating revenues maximization. Haq (2005) also states that use of internet has improved the ability to achieve economies of scale in minimizing asymmetry of information

between savers and borrowers and that the unit costs of internet banking fall more rapidly than those of traditional banks as output increases as a result of balance sheet growth. Chung and Dutta (2012) also assert that Internet based banking led to cost reduction and hence likely to increase bank’s profitability. They also concluded that bank customers have also been using the Internet for security trading activities

In Kenya, Internet has been used widely by Equity bank to market their services through their corporate websites. The Internet has also been used by Equity bank to send bulk emails to their customers when informing about new services, products and developments. Internet is also used as a conveyance channel for delivering Internet banking services. This shows that the Internet has presented an avenue for banks to promote their services and attract new customers and hence more business leading to higher performance. The cost of Internet has also reduced drastically over time making it a cost effective service delivery channel.

Table 4.18: Internet Service and Bank Performance

Statements	Mean	Std deviation
Use of internet banking has increased customer access to bank services	3.35	0.920
Use of internet banking has added to more profitable business avenues to the bank	3.31	1.025
use of internet banking has improved the level of deposits for the bank	3.34	0.766
Use of mobile phones has led to more ICT strategies	4.05	0.700
TOTAL	3.44	0.851

V. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Major Findings

The first objective of the study was to establish the influence of ICT strategies on profitability of commercial banks in Kenya. The results showed that ICT strategies have a moderate influence on profitability of commercial banks in Kenya. The analysis produced a coefficient of determination, which showed the percentage of variations in profitability, which is explained by ICT strategies. The significance test showed that influence of ICT strategies on bank profitability was statistically significant. Majority of the respondents agreed that ICT strategies had a positive influence of bank profitability. Banks in Kenya have been boosting their earning capability and controlling costs through adoption of ICT strategies like mobile banking, Internet banking and recently the agency banking.

The second objective sought to establish the influence of ICT strategies on the customer deposits of commercial banks in Kenya. Findings on the influence of ICT strategies on customer deposits mobilization showed that variations in customer deposits can be explained by ICT strategies. This finding is further supported by regression results, which showed that ICT strategies have a statistically significant influence on the customer deposits of commercial banks in Kenya. This meant that ICT strategies have a positive influence on customer deposits of commercial banks in Kenya. Commercial banks in Kenya use various ICT delivery channels to recruit customers who deposit their savings. The ICT delivery channels that are used in Kenya when recruiting bank customers are, mobile banking, internet banking, automated tellers machines and more recently the agency banking.

The third objective of the study sought to establish the influence of ICT strategies in influencing performance of commercial banks. The findings revealed that mobile phones have a higher effect on the ICT strategies when influencing performance of commercial banks in Kenya. The overall change in the coefficient of determination for mobile phones was higher. Mobile phones have been used to enhance the capabilities of various ICT strategies. In equity bank, automated teller machines and bank accounts have been linked to customer mobile phones in order to alert the customers when a transaction occurs related to the customer account. Mobile phones have also been interfaced with core banking software of banks in order to enable deposit and withdrawal of cash and also viewing of interim statements. Mobile phones are also being used by banks to market their products through bulk short messaging service. In Kenya there are more mobile phone users than internet users hence making the mobile phone a crucial delivery channel for commercial banks.

5.2 Conclusion

In conclusion, the study reveals that the use of ICT strategies have a positive effect on performance of Commercial banks in Kenya as seen in the case of Equity Bank. There is a general agreement about the positive effect of ICT strategies on profitability, customer deposits and overall performance of commercial Banks in Kenya. The conclusions were arrived at on the influence of the independent variable, (ATMs, Internet

banking and mobile banking) on the performance of commercial banks in Kenya based on the findings of the study.

5.3 Recommendations

5.3.1 Policy Recommendations

Information and communication technology (ICT) professionals should invest their time, effort and resources towards ICT strategies. This will mean more income for the professionals if the ICT strategies become successful. In Kenya there are some citizens who are still unbanked due to poor access to financial services. ICT professionals should explore ways of providing innovative solutions for reaching the unbanked. This can result to more financial deepening and better financial development for the country and hence better profitability for the banks.

ICT strategies have their set of challenges especially related to security threat which can lead to reputation risk among banks and loss of confidence by the customers. The main users of such strategies are depositors. Without deposits and depositors the sustainability of banks would be at risk. This therefore calls for better management of ICT strategies in a manner that boosts depositors' confidence. System developers therefore need to create enhanced and effective security systems, which can detect, control, prevent and manage fraud incidents on the various channels. This recommendation is derived from the growing threat of system intrusion by hackers, which can erode the desired gains of ICT strategies in banks.

Mobile phones and Internet have been found to have a major influence in delivering technology driven banking services. It is recommended that commercial banks continue to create sustainable business linkages and collaborations with mobile phone service providers as well as the internet service providers. Findings revealed that mobile phones had a high effect and this can be attributed to the level of penetration and ease of access of mobile phones to the public. Banks should leverage on mobile phones in order to grow their business and customer base. The Government should continue to offer more incentives for technologies that use mobile phones as their delivery platforms.

5.3.2 Recommendations for Further Research

This study did not include all ICT strategies in the banking sector hence a further study is recommended to include strategies like agency banking, securitization and credit guarantees and their influence on the performance of commercial banks. An in-depth, boarder-based study, covering a wider geographical region and embracing greater demographic, ethnic, political, economic and social diversity than what was achievable in this study would be valuable, to establish whether the conclusions can be generalized.

A study should be carried out to find out how ICT strategies affect other aspects of businesses especially making management easier and internal customer satisfaction. A replica study is recommended for companies in other sectors in order to test whether the conclusions of this study will hold true. Future studies could also focus on a comparative study among various sectors. Future studies should apply different research instruments like focus group discussions and primary data only to involve respondents in discussions in order to generate

detailed information, which would help improve ICT strategies of commercial banks.

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