# VIABILITY OF INTERNET BANKING AS AN OPERATIONS STRATEGY IN COMMERCIAL BANKS, KENYA

By

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# DECLARATION

This research project is my original work and has not been submitted for a degree award in any other university.

Signed ..... Date.....

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D61/60205/2011

This report has been submitted for examination with my approval as University Supervisor.

Signed ..... Date.....

Dr. Murang'a Njihia

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# DEDICATION

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# ABSTRACT

The Internet has revolutionised the way business is conducted today and the banking industry is no exception. Advances in technology have led to innovative strategies adopted by banks to become and remain competitive. In the banking industry, adoption of new technology has led to the development of new channels through which customers can access banking services. Among these is internet banking, which in spite of the various benefits accruing to the bank and to the customer, appears to display lacklustre performance, especially with the myriad of other alternative channels available.

This study evaluates internet banking as an operations strategy and its viability in commercial banks in Kenya. It seeks to establish the availability and level of use of internet banking services and other alternative banking channels across commercial banks in Kenya; determine the relative impact of internet banking on service operations compared to other channels; and evaluate internet banking as an operations strategy. A cross-sectional survey of commercial banks in Kenya was conducted, administered through questionnaires to bank personnel.

Findings from the study indicate that internet banking is increasingly available to customers of commercial banks in Kenya, with varying levels of functionality and corresponding usage of the services. The relative impact of internet banking on service operations was found to be significantly different from other channels, and internet banking is considered to have significant contribution to operational performance of commercial banks that offer the service. As an operations strategy, internet banking was considered to be effective and offer considerable value to commercial banks in the country.

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# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Study

This study is concerned with the various operations strategies utilised by commercial banks in Kenya to reach their customers. In particular, the study looks at the provision of banking services through the Internet as a channel, that is, internet banking, and its relevance amidst a myriad of other alternative banking channels.

### 1.1.1 Internet Banking and Bank Operations

Advances in technology and changing customer preferences have resulted in the development of various alternative channels of conducting banking transactions. These include internet banking, mobile banking, mobile payments, branch networking, automated teller machines, point of sale systems, telephone banking, agency banking and social media. Internet banking forms the primary concern of this research because the study seeks to establish whether it is still a viable strategy in the era of various technology innovations in commercial banks. Internet banking therefore becomes the channel of focus and is discussed herewith in detail.

Internet banking refers to a bank making its services available to clients using the internet as its delivery channel. Using internet banking, registered users are able to log on to the bank's website and carry out banking transactions or inquiries on their accounts (IBS Intelligence, 2013). Internet banking is also commonly referred to as online banking or electronic banking (e-banking).

Internet banking services are normally free (or at a nominal charge) to use and enable customers to do their banking at a time that is convenient to them. It relieves the load on the bank's call centres and the branch network. Some internet banks do not have

any ‘real’ branches at all, but exist purely as internet accessed banks. Depending on the bank, services available to internet users include transfer of funds between accounts, payment of bills, request for statements or viewing statements on-line, view their investment portfolios and even buy/sell securities. The provision of internet banking services is done either by the bank’s core banking system or, more usually, through specialist application packages that control all of the bank’s ‘multi-channel delivery’ (e.g. telephone banking, call-centre banking, internet banking, mobile telephone banking, etc.) which in turn connect to the relevant core banking system depending on the specific service the customer wishes to use. A bank’s information security department may prefer that the bank uses a separate application to act as an interface between its internal systems and the internet. This will provide an element of separation between external and internal systems and restrict internet users to the internet interface layer only and not allow direct entry into the bank’s internal processing systems (IBS Intelligence, 2013).

With increased convenience, the threat of internet banking fraud has become a great concern. Customer confidence and loyalty to a bank with internet banking services depend greatly on the protection against banking fraud and identity theft. Financial institutions are responding by using security tokens in addition to static username and passwords. For ubiquitous reach, banks are adopting mobile and software-based tokens. Protection through a single username/password authentication is not considered secure enough for personal internet banking applications in some countries. The PIN/TAN system, usually done via a web browser that utilises secured connections, is one in which the personal identification number (PIN) represents a password used for the login, and transaction authentication numbers (TANs) represent one-time passwords to authenticate transactions (SolidPass, 2013).

The benefits of internet banking are varied. To the customer, it means 24/7 access to banking services; greater convenience and speed of executing transactions; no queues or waiting on hold; checking of account balances, transfer of funds to other accounts, ease of account monitoring and so on. To the bank, internet banking is an effective strategy of providing banking services to its customers that enables it to reduce its operating overheads and gain customer loyalty in the increasingly competitive environment. Challenges faced by internet banking, however, include technophobia, high cost of internet services, security concerns and uptime of banking services.

### 1.1.2 Operations Strategy in Banking

Strategy is concerned with the long-term plans of a business. The operations strategy of an organisation, as described by Waters (2006), consists of all the long-term goals, plans, policies, culture, resources, decisions and actions that relate to its operations. According to Slack and Lewis (2002), operations strategy is defined as the total pattern of decisions which shape the long-term capabilities of any type of operations and their contribution to the overall strategy, through the reconciliation of market requirements with operations resources. The operations strategy is typically driven by the overall business strategy of the organisation, and is designed to maximize the effectiveness and efficiency of production processes.

Globally, high energy prices, sluggish economies and continuing fallout from the credit crunch have dampened the banking industry in recent times according to Accenture (2008). The current economic scenario gives banks an opportunity to identify channels that are most important to their customers, and provide a positive experience across them. Banks are shifting their customers from high-cost to lower-cost channels, thus reducing their total cost-to-serve. There is a growing trend to

achieve a seamless multi-channel integration by banks who want to make their customer interactions channel-agnostic. This will help banks leverage their distribution networks by offering the right products to the right customer segment through a desired channel, resulting in overall cost savings and an enhanced customer experience. Banks also face highly saturated markets where product and price no longer remain the key differentiators, thus pushing up retention costs. Innovations around better and faster delivery of the right products to a customer will help banks provide a differentiated customer experience, thus supporting better customer retention (Capgemini, 2012).

### 1.1.3 Commercial Banks in Kenya

The Banking industry in Kenya, of which commercial banks form the core, 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). There are currently 43 commercial banks and 1 mortgage finance company in Kenya (Central Bank of Kenya, 2012). The industry has become increasingly competitive, with commercial banks pursuing strategies to grow their market share and manage operating costs.

The banking sector in Kenya has continued to grow in assets, deposits, profitability and products offering in the recent past. The growth has been mainly underpinned by an industry wide branch network expansion strategy both in Kenya and in the East African community region; and, automation of a large number of services and a move towards emphasis on the complex customer needs rather than traditional 'off-the-shelf' banking products. Commercial banks in Kenya have been enhancing their mobile and internet banking platforms to enable their customers gain access to their

bank accounts and transact from any part of the world. Players in the sector have experienced increased competition over the last few years resulting from increased innovations among the players and new entrants into the market (PwC, 2013).

Over the years, Kenya's banking sector has continually raised the bar in terms of innovation and technology use. Serving a client base that not only spans the country geographically, but also runs the gamut from social and economic status, banks in Kenya continue to reinvent their service offering in order to stay relevant to their clients' dynamic needs. Moreover, banks have been instrumental in opening up opportunity for the marginalized through the extension of innovative services such as mobile banking, micro financing and agent banking (Kenya Bankers Association, 2013).

Availability of internet access, a pre-requisite for the utilisation of internet banking services, has been on the increase in Kenya over the last few years. According to new data from the Communications Commission of Kenya (2013), the number of internet users in Kenya stands at 16.2 million with internet penetration in the country being 41.1% by 31 December 2012. Meanwhile, the total number of mobile subscribers in Kenya has risen to 30.7 million, significantly higher than internet users. The largest market share at the time was taken by Safaricom Limited with 64.5%. The penetration of mobile phones as at December 2012 was estimated as 78%. In the same publication, mobile money transfer was seen to record tremendous growth in the period under review, with the number of mobile money transfer subscribers in December 2012 being 21.14 million and total deposits of Kes. 227 billion. The value transferred through mobile money transfer services for the year to 30 June 2012 was Kes. 1,375.83 billion. There were 9.49 million internet subscribers as at December

2012, with 99% of the subscribers browsing through their mobile phones (Central Bank of Kenya, 2012).

## 1.2 Statement of the Problem

With increasing sophistication of information technology, Wan, Luk, & Chow (2005) observe that banks in many parts of the world are adopting a multiple-channel strategy. Their study notes that the trend is also evident in many developing countries, such as Malaysia (Hway-Boon and Yu, 2003), Romania (Gurău, 2002), Thailand (Rotchanakitumnuai and Speece, 2003), and Turkey (Akinciet al., 2004). The cost of investment in technology has also been in the increase; Josiae et al (2012) observe that, apart from personnel costs, technology is usually the largest and fastest growing item in the budget of a bank, thus electronic banking innovations should only be made after sound analysis of associated risks and costs. The same study notes a positive relationship between electronic banking and performance of commercial banks, with electronic banking making transacting easier by bringing services closer to the customer.

In both developing and developed countries, even with significant growth of internet users, Podder (2005) found that the number of transactions carried out through the internet banking channel remain low. Usage levels of internet banking in Zimbabwe are low, according to Thulani, Tofara, & Langton (2009), even with seemingly good adoption rates of the technology by majority of the banks in the country. In South Africa, in spite of availability and regular use of the internet, only 31% of the respondents banked online for inter-account transfers, balance inquiries, making payments and communication with their bank. Reasons for not banking online included transactions being considered unsafe, lack of knowledge on banking online,

time consuming and more costly (Singh, 2004). Gerrard, Cunningham, & Devlin (2006) found that the two most frequently mentioned factors why certain consumers are not using internet banking were the risks associated and lack of perceived need, with other factors being lack of knowledge of the service, inertia, inaccessibility, lack of human touch, pricing, and IT fatigue.

Nyangosi, Arora, & Singh (2009) considered Kenyan banks as being at initial stages of adopting technology, with ATM technology being the most available technology to users. Njuguna, Ritho, Olweny, & Wanderi (2012) conclude that internet banking adoption and use in Kenya is very low despite the high levels of internet access; and perceived usefulness, perceived ease of use, perceived self-efficacy, perceived compatibility, perceived relative advantage and perceived results demonstrability are the key factors that influence internet banking adoption and continued usage in Kenya. In contrast to other studies, Ouma's (2012) study on electronic banking adoption by Kenyan commercial banks found that the usage of e-banking was high with full utilisation by customers in major commercial banks, although e-banking in the study was taken to encompass mobile banking, ATM and internet banking, not only internet banking as is the case with the current study.

From the review of past studies, there is limited research done on the topic of internet banking as an operations strategy, with most of the research revolving around factors affecting adoption of the channel. Although there is a significant growth of internet users in Kenya in recent years, there is a general concern that the number of financial transactions carried out over the internet (through internet banking) remains very low. At the same time, the number of alternative channels for conducting banking transactions has been on the increase. For example, mobile payment systems in Kenya, dominated by the M-Pesa system of Safaricom, have introduced convenience,

security and ease of use for payment for goods and services. Traditional systems such as branch banking and automated teller machines continue to dominate banking transactions. While the various channels have become essential in the lives of most Kenyans for the transfer of funds and payment of services, there has been lacklustre performance in the adoption of internet banking. In spite of internet banking offering a wide variety of functionality by providing online access to one's bank account, other innovations have overtaken and seem to have made internet banking redundant. In the myriad of options available, there is need for a well-defined strategy based on which commercial banks can select the ideal channel that resonates with their corporate objective. The study will answer the question, "Is the investment in internet banking by commercial banks in Kenya worthwhile, given the prevalence of other preferred channels of transacting?" The study therefore seeks to establish whether internet banking is a viable operations strategy among commercial banks in Kenya.

## 1.3 Research Objectives

The general objective of this study is to establish the value of internet banking as an operations management strategy given the prevalence of other channels of banking that are apparently preferred for payment of goods and services and conducting banking transactions in the Kenyan market.

### 1.3.1 Specific Objectives

The specific objectives of the study are:

1. To establish the level of use of internet banking services among commercial banks in Kenya.
2. To establish the relative impact of internet banking on service operations of commercial banks.

3. To evaluate internet banking as an operations strategy for commercial banks in Kenya.

## 1.4 Value of the Study

The purpose of this study is to establish whether the implementation and success of alternative banking channels has had an impact on the adoption of internet banking services in commercial banks, and identify ways in which internet banking can differentiate itself and become relevant, while highlighting the advantages of internet banking over other channels of banking.

The study is beneficial to commercial banks in Kenya that provide internet banking services or are considering providing the service to their customers. Through the study, banks can evaluate the effectiveness or identify better ways of implementing an internet banking strategy. Service providers who develop internet banking solutions will be better informed on whether their efforts and investment in internet banking are appropriately placed, or whether to redirect their focus elsewhere. Government stakeholders such as the Central Bank of Kenya, the Kenya ICT Board and Ministry of Information, Communication and Technology also stand to benefit, with the study intended to provide useful information to guide policy formulation in the IT and banking sectors. Other members of the research community who may be interested in exploring the internet banking channel as an operations management strategy will likely benefit from the study.

# CHAPTER TWO: LITERATURE REVIEW

The literature review will cover the subject of operations management strategy, technology innovations in commercial banks, various models of information technology evaluation and empirical studies of internet banking.

## 2.1 Technology Innovations in Bank Operations

Significant shifts in the business environment, economic volatility, changing customer and staff expectations, and the adoption of new technology make it increasingly challenging for banks to navigate technology strategy alternatives and prioritize technology investments (Accenture, 2010, p. 3). A detailed discussion of internet banking was undertaken in chapter one of the document. Advances in technology and changing customer preferences have resulted in the development of various alternative channels of conducting banking transactions. These are examined in subsequent sections.

### 2.1.1 Mobile Banking

Mobile telephone banking (often referred to simply as mobile banking) covers a broad area of the provision of banking services through the mobile phone. This can be for basic static applications such as using the handset as a mobile ATM to check a balance, or using the internet browser on the phone as a mobile access point for online banking. It can also cover some more interactive aspects such as mobile payments where the mobile phone can be used as a payments channel (IBS Intelligence, 2013).

### 2.1.2 Mobile Payment

Mobile payment, which differs from mobile banking, involves the use of a mobile device to pay for goods or services either at the point of sale or remotely, analogous to the use of a debit or credit card to effect an EFTPOS payment (KPMG, 2011). The term 'mobile payments' refers to a sub-division of mobile telephone banking that covers a range of payment transactions made via the mobile phone. The basic form would be P2P money transfer where money is transferred from one person's mobile wallet to another through SMS messaging. A stage on from this would be mobile remittances. Migrant workers could use this to transfer money directly into a recipient's mobile phone account back home. This is done either online or through a cash transaction at a bank, airtime reseller, or money transfer agent. The recipient will receive an SMS voucher that the money has arrived, and this can be claimed at their local airtime reseller (IBS Intelligence, 2013). In Kenya, this is dominated by the Safaricom's M-Pesa platform.

### 2.1.3 Branch Networking

A branch network is the traditional method of delivering retail banking services. In most developed countries branches are networked together and use the same computer system. This allows the bank to have up to date centralised information and permits the customer to conduct most business at any branch. This is called a centralised branch network (IBS Intelligence, 2013). Branch networking in the country continues to be a dominant channel through which Banks avail their services to customers, with commercial banks in Kenya increasing their branch network by 111 in 2012 bringing the total to 1,272 branches countrywide (Central Bank of Kenya, 2012).

### 2.1.4 Automated Teller Machine (ATM)

Estimates developed by the ATM Industry Association (ATMIA) place the number of ATMs in use currently at over 2.2 million across the globe, or approximately 1 ATM per 3000 people in the world. These process up to 70% of all banking transactions making it the most popular banking channel for customers to carry out their banking activities. The ATM is used by 85% of consumers, according to a recent Mercator Advisory Group report and thus a critical delivery channel of banking services.

An automated or automatic teller machine (ATM) is a computerized telecommunications device that enables the clients of a financial institution to perform financial transactions 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 or card verification value (CVV). 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, debit card cash advances, and check their account balances as well as purchase pre-paid mobile phone credit among other services.

### 2.1.5 Electronic Funds Transfer Point of Sale (EFTPOS)

Point of Sale (also called as POS or Checkout) is the place where a retail transaction is completed and the point at which a customer makes a payment to a merchant in exchange for goods or services. At the point of sale the retailer would calculate the amount owed by the customer and provide options for the customer to make payment. The merchant will also normally issue a receipt for the transaction. EFTPOS — electronic funds transfer at point of sale — is an electronic payment system involving

electronic funds transfers based on the use of payment cards, such as debit or credit cards, at terminals located at points of sale.

### 2.1.6 Telephone Banking

Telephone banking, or telebanking, is a service provided by a bank or other financial institution, which enables customers to perform financial transactions over the telephone, without the need to visit a bank branch or automated teller machine. Telephone banking times can be longer than branch opening times, and some financial institutions offer the service on a 24 hour basis. From the bank's point of view, telephone banking reduces the cost of handling transactions by reducing the need for customers to visit a bank branch for non-cash withdrawal and deposit transactions.

### 2.1.7 Agency Banking

Agency banking, introduced during the 2009 Kenya budget and enshrined in the Finance Act of 2009, is the new innovation that banks in Kenya are using to take services to the un-banked and under-banked at a cheaper rate. Among the platforms are M-Kesho and 24/7 from Equity bank, Tangaza and Mobikash of MobiKash Afrika Limited, Co-op kwa Jirani of Co-operative bank among others (Nganga & Mwachofi, 2013). As at June 30, 2012, 10 commercial banks in Kenya had contracted 12,067 agents facilitating over 20.4 million transactions valued at Kes. 104.4 billion (Central Bank of Kenya, 2012).

### 2.1.8 Social Media

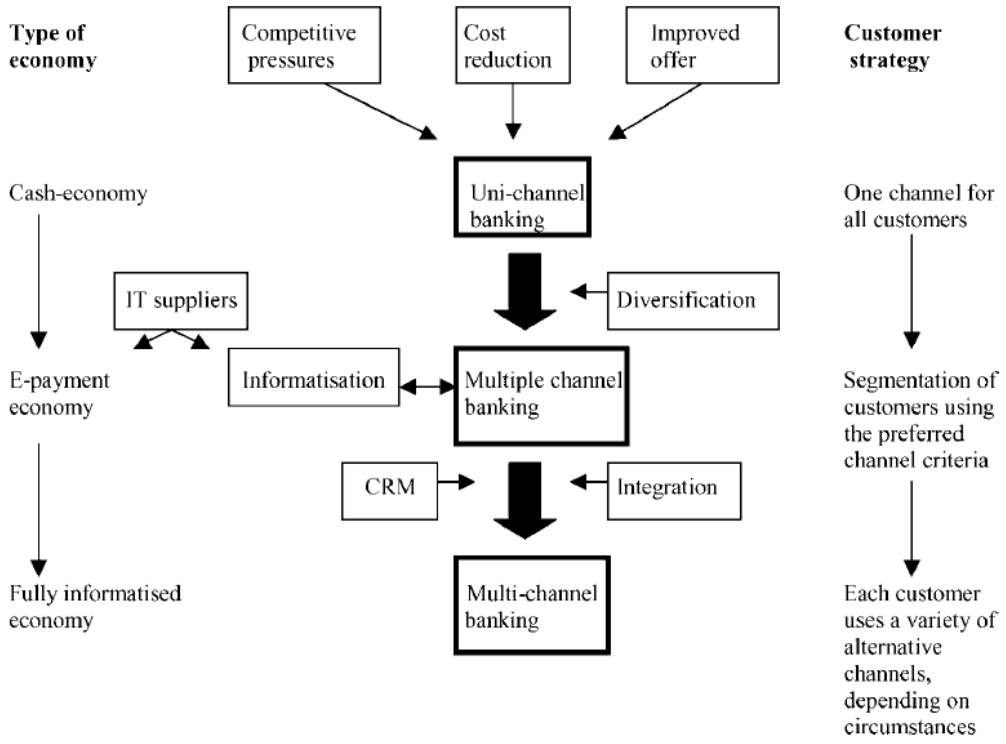
Recent years have seen social media creeping up alongside mobile banking. Banks feel the need to counteract the impersonality of our digital age by offering customers

greater contact on a perceived one-to-one level. Although most social media platforms still rely heavily on marketing content, the trend is firmly set towards development of more interactive services (Tephen Tribune, 2011, p. 30).

### 2.1.9 Multichannel Approach

Driven by the competitive pressures within the market and the desire to reduce costs and improve the company's offerings, banks have moved from a unichannel approach to a multiple-channel delivery of financial services. This gradual process and the factors determining its evolution are graphically represented in Figure 2.1.

**Figure 2.1 The evolution of banking services toward a multichannel approach**




**Source: Gurău (2005)**

This goes to show that with new developments in technology, new channels to reach customers emerge which complement each other, and banks therefore need to have innovation strategies that support their business strategies. As commercial banks

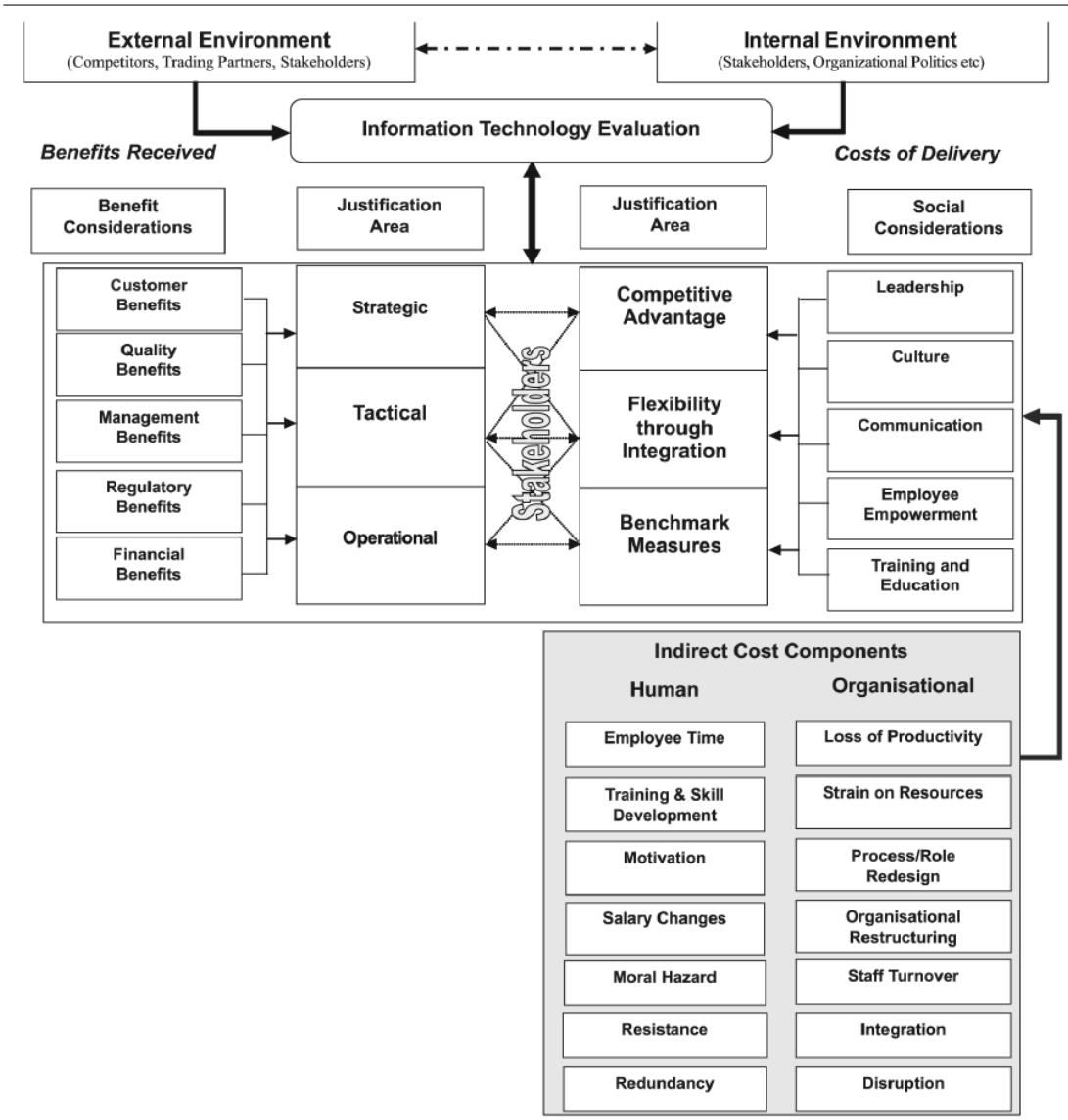
explore various channels to reach their customers, it is essential that a technology strategy is defined that supports its overall corporate strategy. This will enable the institution to compete effectively by providing value adding services to its customers.

## 2.2 Technology Management Process Frameworks

The evaluation of technology investments frequently proves challenging because the intangible costs and benefits are not easily quantified. Anandarajan & Wen (1999) tries to overcome the deficiencies of the traditional methods of net present value and internal rate of return by incorporating a framework for quantifying hidden costs and intangible benefits in IT projects by considering all the relevant stages involved in project implementation from the point of view of both technical personnel and end users. Risk is incorporated into the model using sensitivity analysis (Anandarajan & Wen, 1999).

Milis and Mercken (2004) identified five parties involved in information technology investments; each having their own set of objectives and expectations. These are organisation (management), users, project team (implementers), supporters (sub-contractors) and stakeholders (who do not benefit or influence the investment). Love, Ghoneim, & Irani (2004) have developed the conceptual framework (see Figure 2.2) in an attempt to incorporate indirect costs into the IT evaluation process.

**Figure 2.2 Conceptual framework for IT evaluation**




**Source: Love, Ghoneim, & Irani (2004)**

An alternative framework is proposed by Gregory (1995) who considers management of technology as being comprised of five generic processes. These are the identification of technologies which are (or may be) of importance to the business; selection of technologies that should be supported by the organisation; acquisition and assimilation of selected technologies; exploitation of technologies to generate profit, or other benefits; and, protection of knowledge and expertise embedded in products and manufacturing systems.

This framework proposed by Gregory (1995) is related to other process models that have been proposed for technology management, such as Sumanth and Sumanth (1996) - awareness, acquisition, adaptation, advancement and abandonment - and Jolly (1997) - imagining, incubating, demonstrating, promoting and sustaining. These types of models are often closely related to the innovation and new product development processes; Gregory's framework has the advantage of being quite generic, encompassing all technology management activities in the firm (Phaal, Farrukh, & Probert, 2001).

Skilbeck and Cruickshank (1997) have extended Gregory's five-process model, linking the framework to business activities within a systems context, and identifying three levels within the organisation where technology management processes apply (Phaal, Farrukh, & Probert, 2001):

i. Corporate level (network view): how to manage technology across a diverse range of businesses.
ii. Business level (external view): how to gain competitive advantage through technology.
iii. Operational level (internal view): how to optimise internal processes to manage technology effectively.

## 2.3 Empirical Studies on Internet Banking

Finance and banking are information-intensive industries, which can be positively transformed by the development of ICT (Gurău, 2005). However, a 1999 World Bank survey (Purcell & Toland, 2003) reported the average on-line banking penetration for developing countries to be only 5%. Hadidi (2003) identified the main challenges encountered by developing countries in implementing multichannel banking activities

as the abilities to adapt global technology to the local requirements, strengthen the public support for e-finance, create the necessary level of regulatory and institutional frameworks, and mainstream SMEs toward e-finance.

In time, the search for greater convenience makes customers access various channels, depending on personal needs and circumstances. These multichannel customers expect and request a similar level of service from every delivery channel. On the other hand, the necessity to improve customer loyalty through personalized customer relationship management determines the financial institutions to introduce a unique platform technology, integrating the information flows from all existing channels (Martz, 2003). The banks are therefore adopting a multichannel approach, which is characteristic for a fully-informatized economy in which information has become the primary strategic asset for building and maintaining competitive advantage (Gurău, 2005). Despite the unprofitable market and the small number of clients adopting multichannel banking, the banks are using this strategy to develop a reputation for being innovators and high-technology adopters (Odobescu, 2001; Pascariu, 2001).

Internet Banking has been embraced by most of the banking populace in Africa and the rest of the world. For instance, in Ghana, 70% of the total number of banks provide internet banking services to their customers, with the remaining 30% planning to provide the services in the near future (Akuffo-Twum, 2011). In Tunisia, 80% of the commercial banks in the country are offering internet banking services, but the number of internet banking users is still low in comparison with the other e-banking services (Nasri, 2011).

Bradley et al. (2003) found that internet banking was universally seen as important within the future of retail banking, with 84% of banks expected to have adopted internet banking by 2011. 91% of panellists identified that internet banking was very

important or of very great importance to the overall future of retail banking. The study also found that the internet was not going to be the sole medium. The internet is an additional channel, rather than a replacement, and ultimately, the internet, branch, ATM and telephone comprise a multi-channel strategy. The findings from the study also pointed to the internet being a competitive necessity in banking rather than a source of competitive advantage. (Bradley & Stewart, 2003)

Malhotra et al (2007), using data on internet banking adoption by banks in India, found that both larger banks, banks with younger age and banks which have large amounts of deposits exhibited a higher probability to adopt internet banking. Similarly, the banks with lower market shares and branching intensity and higher expenses for fixed assets and premises utilised internet banking as a complementary channel to the existing branch network with an intention to increase the market share and lower the expenses. Other factors identified that affect probability of adoption of internet banking included the category of the bank (private banks – both domestic and foreign – tend to adopt internet banking quicker than public sector banks); the adoption of internet banking by other banks; and profitability; were found to be the least important variable (Malhotra & Singh, 2007).

A study by Munyoki et al (2011) revealed that e-banking is a relatively new banking distribution channel in Kenya and it is at the early stages of growth and development; it identified critical issues that stood out as being inhibitors to e-banking adoption, among them security, quality of ICT , awareness programs , slow adoption , customer intention drivers , customer attitude, ease of usage by customer, usefulness of e-service to customer, customer trust , age of customer, level of education and gender.

## 2.4 Operations Strategy

Decision makers in today's organisations are faced with rapid changes in their distribution networks, mainly through direct, electronic delivery channels (Bauer & Colgan, 2001). These changes also have an obvious impact on industry structure and the general corporate strategy.

Strategy has been defined as the direction and scope of an organisation over the long-term, which achieves advantage in a changing environment through its configuration of resources with the aim of fulfilling stakeholder expectations (Johnson et al., 2005). It may be classified according to Porter's generic strategies: cost leadership, differentiation and focus (Porter, 1980, p. 41). Overall cost leadership seeks to outperform competitors industry-wide in terms of product cost, with high revenues achieved through low-cost positions and high relative market shares; differentiation strategy requires a unique position in an industry through providing value to customers that cannot be offered by any competitor, from technology to brand image and distribution networks; whereas focus strategy looks at a particular buyer group can be targeted specifically by market segmentation. An organisation failing to fully commit to any one of these generic strategies ends up ``stuck in the middle" – an extremely poor strategic position (Porter, 1980, p. 44).

Strategy can be considered to exist at three levels in an organisation: corporate level, which is the highest level of strategy and sets the long-term direction and scope for the whole organisation; business level, which is primarily concerned with how a particular business unit should compete within its industry and its strategic aims and objectives; and functional level which is concerned with individual functions and their contribution to business strategy, their strategic objectives and management of objectives (Barnes, 2008). He further argues that the way an organisation secures,

deploys and utilizes its resources will determine the extent to which it can successfully pursue specific performance objectives. Slack et al. (2004) identify five operations performance objectives: cost, quality, speed, dependability and flexibility.

By definition, operations strategy concerns the pattern of strategic decisions and actions which set the role, objectives and activities of operations (Slack, Chambers, & Johnston, 2004). Waters (2006), on the other hand, considers operations strategy as more than a set of decisions, and broadens the view to include other long term effects. He considers the operations strategy of an organisation as consisting of all the long term goals, plans, policies, culture, resources, decisions and actions that relate to its operations. He further concludes the overall aim of an operations strategy as supporting the higher strategies in achieving the organisation's purpose by providing superior performance in operations (Waters, 2006).

Hayes and Wheelwright (1984) categorised different types of organisations in a four-stage model, based on their attitude towards operation. The model is underpinned by their belief that an organisation's operations can provide a source of competitive advantage, with organisations aspiring to reach the highest level possible. In stage 1 (internally neutral), the operations function is internally focused and reactive, viewed as a 'necessary evil'. In stage 2 (externally neutral), the operations function tries to be as good as the competition, or achieve parity with industry norms, and will normally benchmark its operations against competitors and adopt industry best practice. The operations function seeks to provide credible support for the organisation's business strategy in stage 3 (internally supportive), whereas it will provide the basis of competitive advantage for the organisation by setting the standard in the industry in stage 4 (externally supportive). (Hayes & Wheewlright, 1984). Hayes et al further developed criteria for evaluating an operations strategy as consistency and

contribution to competitive advantage. Effective operations strategies need to be consistent and contribute to competitive advantage (Hayes, Pisano, Upton, & Wheelwright, 2005).

Barnes (2008) advises that managers need to understand the capabilities of any particular technology and the benefits that ensue from its use in considering what technology to use with their operations, as well as understand associated costs and limitations of operating that technology. He advises the general issues to consider as the volume and variety of output that the technology can achieve, the fit with existing technology used with the organisation and the level of maturity of the technology.

Johnston et al. (1993) advocate the use of three dimensions when considering what type of technology to adopt: the scale of technology, that is, its processing capacity; the degree of automation – the extent to which the technology can operate without human involvement; and, the degree of integration – the extent to which separate pieces of technology are connected to each other, within a process or between more than one processes. (Johnston, Chambers, Harland, Harrison, & Slack, 1993)

Benefits of investing in the latest process technology according to Barnes (2008) are threefold: lower operating costs, due to a reduced need for resource inputs, increased throughput, reduced waste, reduced downtime and less maintenance; differentiation, from improved quality, increased product variety, faster response times, etc.; and, 'new game' strategies (Dussauge, Hart, & Ramanantsoa, 1992), that is using technology to change the way that business has previously been conducted in an industry or even creating entirely new businesses and industries. He, however, cautions about the challenges associated with process technology. They include the inherent risk of being the first to adopt a new technology, envisaged benefits are not materialised, implementation is notoriously difficult, with frequent time and cost

overruns and the market not being ready for the new products or services to be produced by the technology.

## 2.5 Summary

Through the literature review undertaken, a broad understanding of operations management strategy concepts was obtained. The review identified various channels that banks use to provide services to their customers and further came to the realisation that customers will likely adopt a multi-channel approach where they use more than one channel to access the services. Various technology management process frameworks were assessed for suitability in the evaluation of internet banking as a form of technology. A review of various empirical studies of internet banking, within Kenya, Africa and the world was also undertaken, and through which the researcher was able to establish that there is limited research undertaken on internet banking as an operations management strategy. For purposes of this study, the Skilbeck and Cruickshank (1997) framework will be utilised owing to its ease of interpretation and flexibility in implementation.

# CHAPTER THREE: RESEARCH METHODOLOGY

This chapter deals with the description of the methods applied in carrying out the research study. Any type of research should be governed by a well-defined research methodology based on scientific principles.

## 3.1 Research Design

The researcher used descriptive cross-sectional research design in collecting the data from respondents. A cross-sectional survey collects data to make inferences about a population of interest (universe) at one point in time and has been described as snapshots of the populations about which they gather data (Lavrakas, 2008). A cross-sectional survey is selected as the study seeks to collect data through which inferences about commercial banks in Kenya can be made.

## 3.2 Population

The researcher's target population for investigation will be drawn from all commercial banks in Kenya. There were 43 commercial banks as at 31st December 2012 (Central Bank of Kenya, 2012).

## 3.3 Data Collection

The respondents of the study consisted of operations managers at the various banking institutions, and their equivalents.

The researcher collected data by conducting a survey using a questionnaire. This was distributed through paper-based forms and online surveys at the respondent's convenience, with the latter being preferred. The questionnaire items were made up of

both semi-structured and structured questions to avoid being too rigid and to quantify the data where structured items are used. This method helped the researcher to collect information that can be statistically analysed, which would otherwise not be possible using interview and observation. The questionnaire was divided into various sections; the first section captured background details about the respondent and whether the bank provides internet banking services among other alternative channels; subsequent sections sought to capture the respondents' take on level of use, impact and effectiveness of internet banking according to corporate level, business level and operational level (Skilbeck and Cruickshank, 1997).

A review and analysis of secondary data sources was instrumental in obtaining information that has been collected by organisations that are stakeholders in the industry, including the Central Bank of Kenya (CBK), Communications Commission of Kenya (CCK) and the Kenya Bankers Association (KBA).

### 3.4 Data Analysis

The questionnaire data was reviewed for accuracy and completeness of the recorded responses. Analysis of the data involved the use of appropriate descriptive and inferential statistics to address the objectives of the study, including frequencies, cross-tabulations, percentages and measures of central tendency. Inferential statistics using chi square (formula given below) assisted in making inferences about the population from the observations and analysis.

Chi square, $\chi^2 = \sum \frac{(O-E)^2}{E}$ (where O = observed value, E = expected value)

| Objective | Analysis technique |
|---|---|
| Establish the level of use of internet banking services among commercial banks in Kenya | Descriptive statistics (percentages, measures of central tendency and standard deviations) |
| Establish the relative impact of internet banking on service operations of commercial banks. | Descriptive statistics (percentages, measures of central tendency and standard deviations) and inferential statistics (chi-square tests to determine if internet banking has had the intended impact on service operations of commercial banks relative to other channels) |
| Evaluate internet banking as an operations management strategy for commercial banks in Kenya. | Descriptive statistics (percentages, measures of central tendency and standard deviations) |

The Skilbeck and Cruickshank (1997) framework was utilised to evaluate the three levels within the organisation where technology management processes apply.

# CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

This chapter analyses and discusses the data collected from the field. Data was collected primarily through questionnaires and outputs are presented using tables and charts.

Questionnaires were distributed to the various commercial banks in the country through physical distribution (drop and pick) as well as online surveys. Out of these, responses were obtained from 31 out of the 43 commercial banks in Kenya, representing a 72% response rate. There were 6 large banks, 10 medium banks and 15 small banks that responded to the survey, based on the classification of the banks by peer groups (Central Bank of Kenya, 2012). Out of the responses obtained, 7 of the banks (23% of the respondents) do not provide an internet banking facility to their customers and were thus not included in the analysis.

## 4.1 Level of Use of Internet Banking

### 4.1.1 Availability of Internet Banking

The study sought to determine which services are available to customers of commercial banks in Kenya through internet banking. The availability of internet banking services is as summarised in Table 4.1.

**Table 4.1 Availability of internet banking services**

| Service | No. of banks | Percentage |
|---|---|---|
| Check balances and account activity | 24 | 100% |
| Transfer funds between accounts of a single customer | 23 | 96% |
| Transfer funds between customers within the bank | 21 | 88% |
| Transfer funds to other banks in the country | 18 | 75% |
| Transfer funds to banks in other countries | 11 | 46% |

| | | |
|---|---|---|
| Initiate term deposit accounts | 6 | 25% |
| Initiate loan repayments | 6 | 25% |
| View and print statement of accounts | 23 | 96% |
| Request cheque books | 15 | 63% |
| Stop cheque payment | 12 | 50% |
| View loan statements | 17 | 71% |
| Utility payments | 14 | 58% |
| Airtime top-ups | 6 | 25% |
| General inquiries | 18 | 75% |

The results in Table 4.1 show that most of the standard services accessible through internet banking are available for most of the banks that responded. This points to wide functionality of the internet banking platforms implemented across most banks. In particular, checking of balance and account activity, viewing and printing of statement of accounts and transfer of funds between accounts of a single customer and customers within a bank are the most ubiquitous services (available in over 80% of banks with internet banking that responded).

### 4.1.2 Usage of Internet Banking

The study sought to determine the level of usage of the various banking services available through internet banking. The descriptive statistics of the usage of the internet banking services are summarised in Table 4.2.

**Table 4.2 Usage of internet banking services**

| Service | Mean usage | Median usage | Mode usage | Standard deviation |
|---|---|---|---|---|
| Check balances and account activity | 4.79 | 5 | 5 | 0.51 |
| Transfer funds between accounts of a single customer | 3.67 | 4 | 5 | 1.34 |
| Transfer funds between customers within the bank | 3.54 | 4 | 5 | 1.35 |
| Transfer funds to other banks in the country | 3.00 | 3 | 1 | 1.50 |
| Transfer funds to banks in other countries | 2.17 | 2 | 1 | 1.40 |
| Initiate term deposit accounts | 1.38 | 1 | 1 | 0.77 |
| Initiate loan repayments | 1.42 | 1 | 1 | 0.72 |
| View and print statement of accounts | 3.96 | 4 | 5 | 1.16 |

| | | | | |
|---|---|---|---|---|
| Request cheque books | 2.50 | 3 | 3 | 1.14 |
| Stop cheque payment | 2.08 | 2 | 1 | 0.93 |
| View loan statements | 3.00 | 3 | 3 | 1.41 |
| Utility payments | 2.42 | 2 | 1 | 1.53 |
| Airtime top-ups | 1.71 | 1 | 1 | 1.30 |
| General inquiries | 3.58 | 4 | 5 | 1.53 |

The data in Table 4.2 points to 8 features being the most predominantly used: check balance and account activity, transfer of funds (between accounts of a single customer, customers within the bank or in other banks within the country), viewing and printing of statement of accounts, request of cheque books, viewing of loan statements and general inquiries, with the rest not available or not being used at all. In particular, check balances and account activity, transfer funds between accounts of a single customer, view and print statement of accounts and general inquiries appear to be very frequently used on average. This implies that a large proportion of the feature set is not available or not utilised much by customers where available.

### 4.1.3 Level of Uptake of Electronic Delivery Channels by Customers

The banking industry is characterised by innovation as commercial banks adopt various channels to enable customers to access banking services. The study sought to establish alternative channels that customers can use to access banking services which could likely affect adoption of internet banking. The availability of electronic channels in the various banks that responded is detailed in Table 4.3.

**Table 4.3 Availability of electronic delivery channels**

| Channel | Number of banks | Percentage |
|---|---|---|
| Automated teller machine (ATM) | 22 | 92% |
| Internet Banking | 24 | 100% |
| Mobile Banking | 20 | 83% |
| Mobile Payment (M-Pesa/Zap) | 20 | 83% |
| Branch networking | 22 | 92% |
| Point of Sale (POS)/Electronic funds transfer at point of sale (EFTPOS) | 18 | 75% |
| Telephone banking | 7 | 29% |

| | | |
|---|---|---|
| Agency banking | 12 | 50% |
| Social media | 7 | 29% |
| Other | 3 | 13% |

Based on the results depicted, commercial banks provide services to their customers through various channels, with ATM, Internet Banking, Mobile Banking, Mobile Payment and Branch networking being the channels that are available with most banks. Banks continue to provide banking services through their traditional channels like ATM and branch networking, while providing channels based on newer technologies such as mobile and internet channels. The channels are available to the customers and are not mutually exclusive. As suggested by Gurău (2005), banks have moved from a unichannel approach to a multiple-channel delivery of financial services.

### 4.1.4 Level of Uptake of Electronic Delivery Channels

Uptake of electronic delivery channels refers to the level of usage of the various channels by customers. The study sought to gauge the level of usage of the channels which likely influence the impact of internet banking. Frequency of usage of electronic delivery channels by customers is summarised in Table 4.4.

**Table 4.4 Uptake of electronic delivery channels**

| Channel | Mean | Median | Mode | Std dev |
|---|---|---|---|---|
| Automated teller machine (ATM) | 4.50 | 5 | 5 | 1.06 |
| Internet Banking | 3.42 | 3 | 3 | 0.97 |
| Mobile Banking | 3.52 | 4 | 4 | 1.34 |
| Mobile Payment (M-Pesa/Zap) | 3.38 | 3.5 | 5 | 1.44 |
| Branch networking | 4.57 | 5 | 5 | 0.95 |
| Point of Sale (POS)/Electronic funds transfer at point of sale (EFTPOS) | 2.91 | 3 | 1 | 1.53 |
| Telephone banking | 1.75 | 1 | 1 | 1.15 |
| Agency banking | 1.96 | 1 | 1 | 1.30 |
| Social media | 1.67 | 1 | 1 | 1.20 |
| Other | 1.29 | 1 | 1 | 0.91 |

The study shows that commercial banks in Kenya provide various channels through which customers access banking services. ATM, internet banking, mobile banking, mobile payment and branch networking appear to be the channels used by customers, with ATM and branch networking being the most popular (average very frequently used). The use of internet banking as a channel for accessing banking services is only average, with a mean rating of 3.42 with possible room for growth.

## 4.2 Relative Impact of Internet Banking on Service Operations

### 4.2.1 Impact of internet banking on service quality viz a viz other channels

The study sought to establish the impact of internet banking on service quality. To achieve this, data was collected comparing the suitability of the various alternative channels to internet banking and thus determine the relative impact on service quality viz a viz other channels, see Table 4.5.

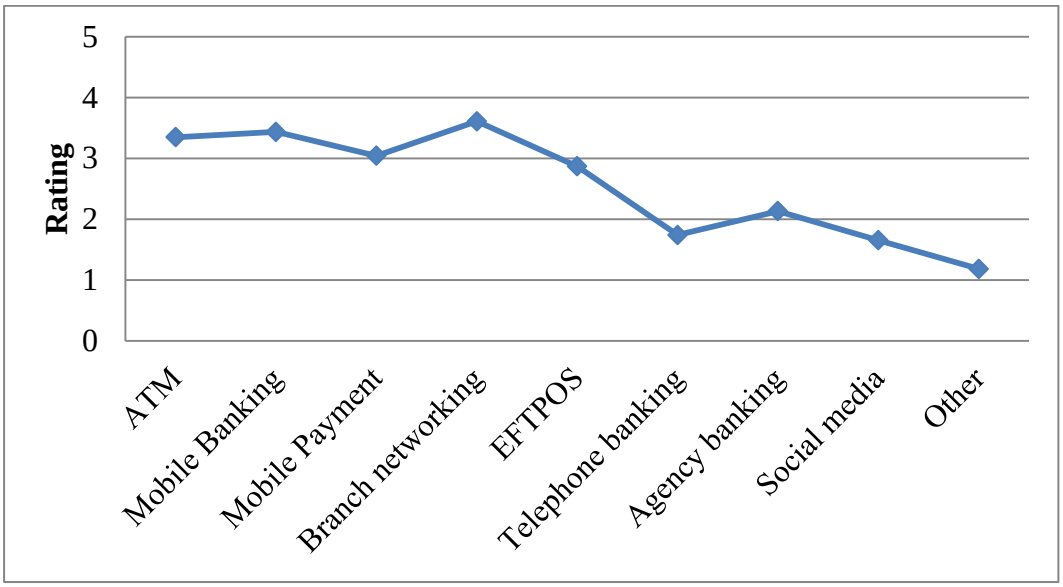
**Table 4.5 Impact of internet banking on quality of services viz a viz other channels**

| Channel | Mean | Median | Mode | Std dev |
|---|---|---|---|---|
| Automated teller machine (ATM) | 3.38 | 4 | 5 | 1.50 |
| Mobile Banking | 3.77 | 4 | 5 | 1.31 |
| Mobile Payment (M-Pesa/Zap) | 3.48 | 3 | 3 | 1.08 |
| Branch networking | 3.70 | 4 | 5 | 1.29 |
| Point of Sale (POS)/Electronic funds transfer at point of sale (EFTPOS) | 3.24 | 3 | 5 | 1.45 |
| Telephone banking | 2.25 | 2 | 2 | 1.18 |
| Agency banking | 2.69 | 2 | 2 | 1.45 |
| Social media | 2.06 | 2 | 2 | 0.85 |
| Other | 2.14 | 1 | 1 | 1.68 |

According to data in Table 4.5, ATM, Mobile banking, Mobile payment, POS/EFTPOS and Branch networking appear to be the banking channels that meet the customer service objectives of the bank as effectively as internet banking (mean rating of approximately 3). Internet banking appeared to be more suitable in meeting

customer service objectives of the bank compared to the other channels, where available. This is further illustrated in the chart of mean scores in Figure 4.1.

**Figure 4.1 Relative impact of internet banking viz a viz other channels**




The contingency table in Table 4.6 shows frequencies obtained for relative impact of internet banking on customer service objectives relative to other channels. The ratings and various channels have been consolidated to form a 3 by 3 contingency table to assist with computing the chi square statistic.

**Table 4.6 Contingency table of relative impact of internet banking on service operations**

| Impact | ATM/Mobile Payment | Branch networking/ Mobile Banking/EFTPOS | Agency/Telephone/ Social/Other | |
|---|---|---|---|---|
| Low | 8 | 12 | 36 | 56 |
| Medium | 13 | 11 | 7 | 31 |
| High | 23 | 33 | 10 | 66 |
| | 44 | 56 | 53 | 153 |

The chi-square statistic obtained is 36.317, degrees of freedom are 4 and probability of chance is .0000. The low significance value leads to rejection of the null hypothesis that the relative impact of internet banking is not significantly different from that of

other channels. This therefore suggests that relative impact of internet banking is significantly different from that of other channels.

### 4.2.2 Impact of Internet Banking on Dimensions of Operations Performance

The study sought to evaluate the impact of internet banking on the dimensions of operations performance, namely quality, dependability, cost, speed of delivery and flexibility, compared to other banking channels. The mean, mode, median and standard deviation of the impact of internet banking on the dimensions of operations performance in comparison to other channels is tabulated in Table 4.7.

**Table 4.7 Relative impact of internet banking on dimensions of operations performance**

| Operations dimension | Mean | Median | Mode | Std dev |
|---|---|---|---|---|
| Quality | 3.96 | 4 | 4 | 0.75 |
| Dependability | 3.83 | 4 | 4 | 0.82 |
| Cost | 3.75 | 4 | 4 | 1.03 |
| Speed of delivery | 4.42 | 4 | 4 | 0.58 |
| Flexibility | 4.22 | 4 | 5 | 0.80 |

Internet banking is generally seen to enhance operations performance with a high impact for quality, dependability and cost and significant impact in speed of delivery and flexibility. Banks appear to appreciate the impact that internet banking has had on operations performance.

## 4.3 Evaluation of Internet Banking as an Operations Strategy

The study evaluated the effectiveness of internet banking as an operations strategy at the corporate, business and operational level of the organisation in accordance to the Skilbeck and Cruickshank (1997) framework.

### 4.3.1 Ease of Implementation at Corporate Level

The study sought to find out the ease of implementation and management of internet banking across the bank's various business divisions in a bid to evaluate internet banking at the corporate level.

**Table 4.8 Ease of Implementation of Internet Banking**

| | | |
|---|---|---|
| Easy | 7 | 29% |
| Medium | 15 | 63% |
| Difficult | 2 | 8% |

The results documented in Table 4.8 indicate that 63% of the banks with internet banking that responded cited medium ease of implementation of internet banking, while 29% cited easy implementation and 8% difficult implementation. At the corporate level therefore, internet banking implementation and maintenance is primarily of medium difficulty.

### 4.3.2 Effectiveness of Internet Banking as a Differentiation Strategy

The study sought to evaluate the effectiveness of internet banking in relation to the competitive strategies of differentiation, low cost, innovation, growth and alliance, which are based on Porter's generic strategies (Xu & Quaddus, 2013).

**Table 4.9 Effectiveness of internet banking as a differentiation strategy**

| | | |
|---|---|---|
| Not effective | 1 | 4% |
| Slightly effective | 10 | 42% |
| Very effective | 13 | 54% |

54% of the banks cited internet banking as being very effective as a differentiation strategy, 42% found internet banking to be slightly effective while 4% found it not to be effective. Internet banking therefore appears to be an effective differentiation strategy for the banks with internet banking that responded, and has therefore supported them to develop differentiated products to their customers.

### 4.3.3 Effectiveness of Internet Banking as a Low-Cost Strategy

The study sought to establish whether internet banking has been an effective strategy in reducing operating costs, and the results are depicted in Table 4.10.

**Table 4.10 Effectiveness of internet banking as a low-cost strategy**

| | | |
|---|---|---|
| Not effective | 0 | 0% |
| Slightly effective | 11 | 46% |
| Very effective | 13 | 54% |

54% of the banks having internet banking that responded found internet banking to be a very effective low-cost strategy; 46% found it to be slightly effective while none considered it ineffective. Internet banking is therefore considered to be an effective low cost strategy by the banks surveyed with most of the banks considering it slightly effective and very effective.

### 4.3.4 Effectiveness of Internet Banking as an Innovation Strategy

The study sought to find out whether internet banking was effective in identifying and creating new products and markets and/or to develop new/niche markets.

**Table 4.11 Effectiveness of internet banking as an innovation strategy**

| | | |
|---|---|---|
| Not effective | 0 | 0% |
| Slightly effective | 6 | 25% |
| Very effective | 18 | 75% |

75% of the banks having internet banking that responded found internet banking to be a very effective innovation strategy; 25% found it to be slightly effective while none found it not effective. Internet banking is therefore considered to be effective as an innovation strategy with most banks considering it very effective. Some of the responses in subsequent sections suggest that internet banking contributed to the growth of corporate and diaspora banking.

### 4.3.5 Effectiveness of Internet Banking as a Growth Strategy

The study sought to find out the effectiveness of internet banking in expanding domestic and international operations as well as diversifying and integrating into other products and services.

**Table 4.12 Effectiveness of internet banking as a growth strategy**

| | | |
|---|---|---|
| Not effective | 0 | 0% |
| Slightly effective | 10 | 42% |
| Very effective | 14 | 58% |

All the banks that responded to the survey and offering an internet banking facility found it to be effective as a growth strategy, with 58% of the banks finding it a very effective growth strategy and 42% finding it to be slightly effective. From the results, internet banking is viewed as slightly effective and very effective as a growth strategy for most of the commercial banks surveyed.

### 4.3.6 Effectiveness of Internet Banking as an Alliance Strategy

The study also sought to establish the effectiveness of internet banking in creating or enhancing relations with partners.

**Table 4.13 Effectiveness of internet banking as an alliance strategy**

| | | |
|---|---|---|
| Not effective | 1 | 4% |
| Slightly effective | 9 | 38% |
| Very effective | 13 | 54% |
| No response | 1 | 4% |

54% of the banks having internet banking that responded to the survey found internet banking to be a very effective alliance strategy, 38% found it to be slightly effective and only 4% found it not effective. Internet banking was therefore effective as an alliance strategy with most banks considering it either slightly effective or very effective.

### 4.3.7 Ease of Implementation of Internet Banking Internally within the Bank

The study sought to establish how difficult or easy it was to manage internet banking internally, that is, at the operational level.

**Table 4.14 Ease of implementation of internet banking internally within the bank**

| | | |
|---|---|---|
| Easy | 9 | 37.5% |
| Medium | 15 | 62.5% |
| Difficult | 0 | 0% |

Of the banks that responded to the survey and provide the internet banking facility, 37.5% found it easy to implement internet banking internally within the bank while 62.5% cited medium difficulty; none of the banks found implementation of internet banking internally within the bank difficult. The findings in Table 4.14 suggest that at the operational level, internet banking implementation is easy or of medium difficulty.

## 4.4 General Feedback on Internet Banking

### 4.4.1 Benefits and challenges of Internet Banking

The study obtaining qualitative data on the benefits derived from and challenges associated with the implementation of internet banking. These were useful in providing greater insights into the viability and effectiveness of internet banking in commercial banks.

The benefits of internet banking in the study are summarised in Table 4.15.

**Table 4.15 Benefits derived from implementation of internet banking**

| Benefit | Number of banks |
|---|---|
| Convenience (24/7 access) | 11 |
| Focus on core bank functions | 2 |
| Provision of additional revenue | 3 |
| Reduction in operating costs | 8 |
| Improved turnaround time | 5 |
| Reduced queues | 7 |
| Fraud reduction | 1 |

| | |
|---|---|
| Customer growth and retention | 5 |
| Acceptance of corporate clients | 2 |
| Embracing technology | 3 |
| Quality service delivery | 4 |
| Easy support and monitoring | 2 |
| Improved cash management | 1 |

Key benefits of internet banking highlighted by the banks surveyed comprise 24/7 access to banking services to provide convenience to the customer, reduction in operating costs and reducing queues in the banking halls.

**Table 4.16 Challenges faced with the implementation of internet banking**

| Challenge | Frequency |
|---|---|
| High cost of implementation and maintenance | 7 |
| Connectivity issues | 5 |
| Information security concerns | 8 |
| Low customer adoption rates | 6 |
| Customer technology aversion and resistance to change. | 8 |
| Perceived ease of usage | 1 |
| Customer education | 1 |
| Poor cooperation from senior management | 1 |
| Limited functionality | 3 |
| High subscription fees | 2 |
| Need for call centre | 1 |
| Limited skills | 1 |
| Customer bureaucracy | 1 |
| Competition from other banks | 1 |

The results in Table 4.16 suggest that information security concerns (comprising fraud and compromise of login credentials), the high cost of implementation and maintenance and fear of new technology and resistance to change are the key challenges facing the implementation of internet banking in commercial banks in Kenya. Low customer adoption rates and internet connectivity are also cited by several respondents as challenges with internet banking.

### 4.4.2 Level of Investment in Internet Banking

The study sought to gain an assessment of the level of investment in internet banking that commercial banks in Kenya have made.

**Table 4.17 Level of investment in internet banking**

| | | |
|---|---|---|
| High | 13 | 54% |
| Medium | 10 | 42% |
| Low | 1 | 4% |

Of the banks that responded, 54% of the respondents cited a high level of investment in internet banking, 42% cited medium level and 4% low level of investment. This provides an indication that banks derive value from internet banking and are therefore willing to make necessary investment into the channel.

### 4.4.3 Customer Registration Numbers

In order to utilise the internet banking facility, customers are required by commercial banks to register for the service. The study sought to obtain an indication of the number of customers registered over the last five years to gauge the level of growth and speed of adoption of the service in commercial banks in Kenya.

**Table 4.18 Customer registration numbers**

| Year | Number of customers registered |
|---|---|
| 2009 | 9,700 |
| 2010 | 18,000 |
| 2011 | 23,400 |
| 2012 | 128,300 |
| 2013 | 185,815 |

The results in Table 4.18 suggest an increasing number of customers particularly within the last two years. This points towards more banks providing internet banking as a channel through which to transact as well as increasing awareness of the service by customers. There is increasing acceptance of the channel among customers. In

addition, banks have gained appreciation of the channel by providing the facility, where necessary enhancing the functionality and banks without the facility likely to introduce it within the near future.

## 4.5 Discussion of Findings

From the study, we learn that various services are available to customers of commercial banks in Kenya through internet banking. These include checking balances and account activity, viewing and printing of statements of accounts, transfer of funds (between accounts of a single customer, between customers within a bank and to other banks within and outside the country), requesting cheque books, stopping cheque payments, utility payments, viewing loan statements and general inquiries. The study revealed that in addition to internet banking, various electronic delivery channels are available to customers of commercial banks in Kenya to access banking services. The traditional channels like ATM and branch networking remain popular, while the adoption of new technologies such as mobile and internet channels have similarly been embraced. This confirms Gurău's (2005) assertion that banks have moved from a unichannel approach to a multiple-channel delivery of financial services, with customers utilising multiple channels to meet their specific needs, as well as Wan, Luk, & Chow (2005) who observed that banks in many parts of the world are adopting a multiple-channel strategy with increasing sophistication of information technology. The use of internet banking as a channel for accessing banking services is only average. Whereas this is not as low as observed by Podder (2005) who found that the number of transactions carried out through the internet banking channel remain low in developing and developed countries, there is still room for banks to encourage uptake of the service by customers.

ATM, mobile banking, branch networking and mobile payment were perceived to have similar suitability to internet banking in terms of impact on customer service. This implies that customers may not preclude one channel over the other and may thus tend to have more than one channel through which they transact, that is, multichannel approach.

Based on the computation of the chi square statistic, the relative impact of internet banking appears to be different from that of other channels, particularly for ATM/Mobile payment and branch networking/mobile banking/EFTPOS which tend to have a high relative impact and due regard must be given to these channels when implementing internet banking as an operations strategy. Internet banking is generally seen to enhance operational performance with considerable impact on quality, dependability, cost, speed of delivery and flexibility. Banks therefore appear to appreciate the positive impact of internet banking on their service operations.

Internet banking was generally considered to be effective as an operations strategy by the respondents of the survey. In contrast to the findings by Bradley & Stewart (2003) who pointed to the internet being a competitive necessity in banking rather than a source of competitive advantage, the findings of the survey indicate that internet banking provides competitive advantage through innovation, lowering of costs, differentiation of products and services.

The results on challenges faced with implementation of internet banking suggest that information security concerns (comprising fraud and compromise of login credentials), the high cost of implementation and maintenance and fear of new technology and resistance to change are the key challenges facing the implementation of internet banking in commercial banks in Kenya. Similar challenges are cited by authors such as Singh (2004) and Gerrard, Cunningham, & Devlin (2006) as reasons

why customers do not use internet banking. These challenges need to be addressed to realise the full benefits of internet banking and encourage adoption of the service.

Most of the banks that responded to the survey have made medium to high level of investment in internet banking. The level of investment in internet banking is consistent with Josiae et al (2012) observations that, apart from personnel costs, technology is usually the largest and fastest growing item in the budget of a bank, thus electronic banking innovations should be made by sound analysis of associated risks and costs.

The exponential growth in number of customers registered for internet banking in the last 5 years is an indication of increasing availability of the service among commercial banks in Kenya, as well as greater awareness of the customer of benefits of the service.

# CHAPTER 5: SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter summarizes the findings, and formulates conclusions and recommendations based on the findings.

## 5.1 Summary of Findings

This study sought to establish the viability of internet banking as an operations strategy in commercial banks in Kenya. In this regard, the study sought to find out which of the Kenyan commercial banks offer an internet banking facility to their customer and establish the various internet banking services available and their level of use; to establish the various electronic delivery channels available to customers and their level of uptake; to determine the relative impact of internet banking on service operations; to evaluate internet banking as an operations strategy; and, to obtain general feedback on internet banking including the associated benefits and challenges.

Based on results from the survey, various services are available to customers of commercial banks in Kenya through internet banking, with checking balances and account activity, viewing and printing of statements of accounts, transfer of funds (between accounts of a single customer, between customers within a bank and to other banks in the country), viewing loan statements and general inquiries being the most frequently used services. The study also revealed that in addition to internet banking, various electronic delivery channels are available to customers of commercial banks in Kenya. ATM, internet banking, mobile banking, mobile payment and branch networking are the most popular.

ATM, mobile banking, branch networking and mobile payment were perceived to have similar suitability to internet banking in terms of impact on customer service. However, relative impact of internet banking is significantly different from that of other channels based on computed chi square statistic. With regard to operations performance, internet banking was found to have a significant impact on quality, dependability, cost, speed of delivery and flexibility.

Banks appear to derive value from internet banking, with most banks perceiving internet banking as an effective operations strategy. Implementing and managing internet banking was perceived as easy and medium difficulty for most of the banks.

The primary benefits of internet banking cited by respondents were customer convenience, reduction in queues in banking halls and minimising operating costs. Challenges include information security concerns, high cost of implementation and maintenance, and customer attitudes of aversion to new technology and resistance to change. Figures on number of customers registered for internet banking indicate exponential growth as more banks introduce the service and increasing customer awareness.

## 5.2 Conclusion

Internet banking is gaining prominence with most commercial banks in Kenya now offering the service. Through the study, it emerged that internet banking is gaining prominence in the country with most commercial banks offering the facility. Banks offer a wide range of services through internet banking, including viewing account information, transferring funds and making inquiries as the most basic features. More advanced features such as initiating loan repayments, initiating term deposit accounts and transfer of funds to banks outside the country are less common among the banks.

There is therefore room for growth for the internet banking service, through provision of additional functionality as well as customer sensitisation for services that are not available or not used.

The relative impact of internet banking relative to other channels was found to be significantly different from that of other channels particularly where ATM, mobile banking, mobile payment, EFTPOS and branch networking channels are concerned. Due regard must be given to these alternative channels when implementing internet banking as an operations strategy However, the internet banking channel was considered to have high to significant impact on the quality, dependability, cost, speed of delivery and flexibility of operations compared to other channels.

As an operations strategy, internet banking was generally considered to be an effective operations strategy that enhanced the competitiveness of commercial banks that provide the service. The banks derive value from the internet banking service, obtaining benefits such as convenience for the customer, reducing operating costs and freeing the banking halls. Internet banking is therefore viable as an operations strategy in commercial banks in Kenya.

## 5.3 Recommendations

The study brought to light various challenges faced by commercial banks in the implementation of internet banking. The study makes various recommendations to address these.

Commercial banks would do well to provide advanced functionality in addition to basic features such as viewing account information if they have not already done so. In order to gain and retain customers, banks will need to consider providing advanced services such as transfer of funds including outside the country, utility payments,

airtime topups and initiating loan repayments. Service providers who develop internet banking solutions should continue to invest in customised solutions that meet various requirements of the banks. Banks that do not provide an internet banking facility will need to do so in the near term so as to compete effectively and be responsive to customers' needs.

Banks should put effort into creating awareness of the features and benefits of internet banking to increase adoption of the service. They should further provide assurance of security to allay fears of its abuse and overcome resistance to change.

Internet connectivity is a requirement to utilise the internet banking service. Measures should be put in place to provide reliable and affordable internet access through which customers of commercial banks can access banking services.

## 5.4 Limitations of the Study

Due to time and resource constraints, the collection of qualitative data through interviews posed a challenge. Interviews on the viability of internet banking would have been ideal so as to corroborate the findings and provide additional insights on the topic. In addition, challenges were encountered in data collection as some of the respondents did not provide quality responses to the questionnaire. Personnel of some of the banks were reluctant to complete the questionnaire while others did not do so in a timely basis thus lowering the overall response rate. Obtaining suitable respondents from the banks, ideally operations managers who were willing and available, was sometimes a challenge thus affecting the quality of responses obtained.

## 5.5 Suggestions for Further Research

Other areas related to internet banking as an operations strategy that can be advanced from this work include establishing factors influencing customer adoption trends, relationship between level of investment and operational benefits and customer satisfaction levels with the internet banking service.

Other areas of research would include an analysis of the impact of internet banking on businesses and customers in the country that utilise the service and evaluating whether they derive value from the service.

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# APPENDIX

**Research Questionnaire**

The purpose of this questionnaire is to assess the viability of internet banking as an operations strategy.

***Section A: Respondent Background***

1. What is the name of your bank?

.....

2. What position do you hold in the bank?

.....

3. Do you provide an internet banking facility to your customer? (An internet banking facility provides services to its clients using the internet as a delivery channel.)

☐ Yes ☐ No

***Section B: Level of Use of Internet Banking***

4. If the bank provides services to its clients using the internet as a delivery channel, please select the services available through internet banking from the following (you may select more than one):

| | |
|---|---|
| ☐ Check balances and account activity | ☐ View and print statement of accounts |
| ☐ Transfer funds between accounts of a single customer | ☐ Request cheque books |

| | |
|---|---|
| ☐ Transfer funds between customers within the bank | ☐ Stop cheque payment |
| ☐ Transfer funds to other banks in the country | ☐ View loan statements |
| ☐ Transfer funds to banks in other countries | ☐ Utility payments |
| ☐ Initiate term deposit accounts | ☐ Airtime top ups |
| ☐ Initiate loan repayments | ☐ General inquiries |

5. Please rate the frequency of usage where applicable (1 – None, 2 – Seldom used, 3 – Average use, 4 – Frequently used and 5 – Very frequently used):

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Check balances and account activity | ☐ | ☐ | ☐ | ☐ | ☐ |
| Transfer funds between accounts of a single customer | ☐ | ☐ | ☐ | ☐ | ☐ |
| Transfer funds between customers within the bank | ☐ | ☐ | ☐ | ☐ | ☐ |
| Transfer funds to other banks in the country | ☐ | ☐ | ☐ | ☐ | ☐ |
| Transfer funds to banks in other countries | ☐ | ☐ | ☐ | ☐ | ☐ |
| Initiate term deposit accounts | ☐ | ☐ | ☐ | ☐ | ☐ |
| Initiate loan repayments | ☐ | ☐ | ☐ | ☐ | ☐ |
| View and print statement of accounts | ☐ | ☐ | ☐ | ☐ | ☐ |

| | | | | | |
|---|---|---|---|---|---|
| Request cheque books | ☐ | ☐ | ☐ | ☐ | ☐ |
| Stop cheque payment | ☐ | ☐ | ☐ | ☐ | ☐ |
| View loan statements | ☐ | ☐ | ☐ | ☐ | ☐ |
| Utility payments | ☐ | ☐ | ☐ | ☐ | ☐ |
| Airtime top ups | ☐ | ☐ | ☐ | ☐ | ☐ |
| General inquiries | ☐ | ☐ | ☐ | ☐ | ☐ |

6. Which are the electronic delivery channel(s) available to your customers? (You may select more than one.)

| | | | |
|---|---|---|---|
| ☐ Automated teller machine (ATM) | ☐ Point of Sale (POS)/Electronic funds transfer at point of sale (EFTPOS) | | |
| ☐ Internet Banking | ☐ Telephone banking | | |
| ☐ Mobile Banking | ☐ Agency banking | | |
| ☐ Mobile Payment (M-Pesa/Zap) | ☐ Social media | | |
| ☐ Branch networking | ☐ Other | (Specify) _____ _____ | |

7. Please rate the level of uptake of the following electronic delivery channel(s) by customers. (1 – None, 2 – Seldom used, 3 – Average use, 4 – Frequently used and 5 – Very frequently used)::

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| ATM | ☐ | ☐ | ☐ | ☐ | ☐ |
| Internet Banking | ☐ | ☐ | ☐ | ☐ | ☐ |
| Mobile Banking | ☐ | ☐ | ☐ | ☐ | ☐ |
| Mobile Payment (M-Pesa/Zap) | ☐ | ☐ | ☐ | ☐ | ☐ |

| | | | | | |
|---|---|---|---|---|---|
| Branch networking | ☐ | ☐ | ☐ | ☐ | ☐ |
| POS/EFTPOS | ☐ | ☐ | ☐ | ☐ | ☐ |
| Telephone banking | ☐ | ☐ | ☐ | ☐ | ☐ |
| Agency banking | ☐ | ☐ | ☐ | ☐ | ☐ |
| Social media | ☐ | ☐ | ☐ | ☐ | ☐ |
| Other _____ | ☐ | ☐ | ☐ | ☐ | ☐ |
| (Specify) _____ | ☐ | ☐ | ☐ | ☐ | ☐ |

***Section C: Relative Impact of Internet Banking on Service Operations***

8. Please rate the impact of internet banking on quality of services provided to customers viz a viz the other channels. (Tick based on suitability of channel to meet customer service objectives of the Bank.)

| | | | | | | |
|---|---|---|---|---|---|---|
| Internet banking | ☐ | ☐ | ☐ | ☐ | ☐ | ATM |
| Internet banking | ☐ | ☐ | ☐ | ☐ | ☐ | Mobile Banking |
| Internet banking | ☐ | ☐ | ☐ | ☐ | ☐ | Mobile Payment (M-Pesa/Zap) |
| Internet banking | ☐ | ☐ | ☐ | ☐ | ☐ | Branch networking |
| Internet banking | ☐ | ☐ | ☐ | ☐ | ☐ | EFTPOS |
| Internet banking | ☐ | ☐ | ☐ | ☐ | ☐ | Telephone banking |
| Internet banking | ☐ | ☐ | ☐ | ☐ | ☐ | Agency banking |
| Internet banking | ☐ | ☐ | ☐ | ☐ | ☐ | Social media |
| Internet banking | ☐ | ☐ | ☐ | ☐ | ☐ | Other (Specify) _____ _____ |

9. What is the impact of internet banking in relation to the following dimensions of operations strategy terms of speeding up operations in relation to other channels (ATM, Mobile Banking, etc.)?

   (1 – Minimal or no impact, 2 – Little impact, 3 – Average impact, 4 – High impact and 5 – Significant impact)

| Operations dimension | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Quality | ☐ | ☐ | ☐ | ☐ | ☐ |
| Dependability | ☐ | ☐ | ☐ | ☐ | ☐ |
| Cost | ☐ | ☐ | ☐ | ☐ | ☐ |
| Speed of delivery | ☐ | ☐ | ☐ | ☐ | ☐ |
| Flexibility | ☐ | ☐ | ☐ | ☐ | ☐ |

***Section D: Evaluation of Internet Banking as an Operations Strategy***

10. How easy is it to implement and manage internet banking across your various business divisions (e.g. retail vs corporate) as a Bank?

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Easy | ☐ | Medium | ☐ | Difficult |

11. To what degree is Internet Banking an effective differentiation strategy in comparison to the Bank's leading channel?

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Not effective | ☐ | Slightly effective | ☐ | Very effective |

12. To what degree is Internet Banking an effective low cost strategy in comparison to the Bank's leading channel?

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Not effective | ☐ | Slightly effective | ☐ | Very effective |

13. To what degree is Internet Banking an effective innovation strategy in comparison to the Bank's leading channel?

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Not effective | ☐ | Slightly effective | ☐ | Very effective |

14. To what degree is Internet Banking an effective growth strategy in comparison to the Bank's leading channel?

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Not effective | ☐ | Slightly effective | ☐ | Very effective |

15. To what degree is Internet Banking an effective alliance strategy in comparison to the Bank's leading channel?

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Not effective | ☐ | Slightly effective | ☐ | Very effective |

16. How easy is it to implement and manage internet banking within the Bank?

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Easy | ☐ | Medium | ☐ | Difficult |

***Section E: General Feedback on Internet Banking***

17. What benefits do you derive from the implementation of internet banking at your bank?

.....

.....

.....

.....

18. What challenges have you faced in the implementation of internet banking at your bank?

.....

.....

.....

.....

19. How would you rate your level of investment in internet banking?

| | | |
|---|---|---|
| ☐ High | ☐ Medium | ☐ Low |

20. Kindly indicate the number of customers registered for internet banking between 2009 and 2013.

| **Bank name** | **2009** | **2010** | **2011** | **2012** | **2013** | **Total** |
|---|---|---|---|---|---|---|
| | | | | | | |