INFORMATION TECHNOLOGY AND COMPETITIVENESS OF COMMERCIAL BANKS IN KENYA

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DECLARATION

I, the undersigned declare that this research project is my original work and has not been submitted to any other college or university.

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This research project proposal has been presented with my approval as the university supervisor

Sign: ………………………………   Date: ………………………….

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DEDICATION

This research is dedicated to God for the good health and strength throughout the study period, all my MBA colleagues for their moral support.

I dedicated this research work to my Wife, Dad, Mum and siblings indeed you both inspired me to have a reason to study.

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ABSTRACT

This main objective of the study is to analyze the adoption of information technology and competitiveness of commercial banks in Kenya. To achieve the main objective the study established the extent of adoption of information technology by commercial banks in Kenya, determine whether the extent of adoption of information technology by commercial banks in Kenya is related to bank competitiveness and determine the challenges faced in adoption of information technology by commercial banks in Kenya. The study adopted a descriptive research design. The population of study consisted of all the registered commercial banks in Kenya. Purposive sampling in which chief Information Communication Technology (ICT) managers at the headquarters of each of the commercial banks in Kenya was applied in the study. Data was collected using questionnaires and analysis was done using Statistical Package for Social Sciences (SPSS) for quantitative data while content analysis was used for qualitative data. Descriptive statistics (frequencies, mean and standard deviations) and multiple regression models was generated using SPSS and the findings were presented using tables and charts. From the findings, the study found that commercial bank's overall performance was influenced by information technology adoption in specifically marketing, credit, finance, Information Communication Technology departments, customer relations and human resource departments. The study revealed that adoption Information Technology enhanced competitiveness as it enabled the bank to practices had retail-banking, automated banking and other financial services, and retain customers through strengthening customer relationships. The study recommends that commercial banks should do a research for developing information technology and guidance to promote its positive competitive advantage.

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LIST OF ABBREVIATIONS

ATMs:	Automated Teller Machines
CBK:	Central Bank of Kenya
ICT:	Information Communication Technology
IT:	Information Technology
KBA:	Kenya Bankers Association
LAN:	Local Area Networks
MIST:	Marketing Information System Technology
MkIS:	Marketing Information System
NBK:	National Bank of Kenya
R&D:	Research and Design
SCA:	Sustainable Competitive Advantage
SPSS:	Statistical Package for Social Sciences
SST:	Self-Service Technology
TAM:	Technology Acceptance Model
TRA:	Theory of Reasoned Action
WAN:	Wide Area Network

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The banking industry is confronted with changes taking place in the business environment. The impact of the changing function; the physical nature of money; and the changes in the services offered have a tremendous impact on the function of banking facilities and on the organization of a bank's real estate management. Information Technology is one leading driving force in different businesses (Tavares, 2000). It is therefore important to research the investments in technology and their impact in the bank business (Sethi and King, 1994). It is particularly important to assess how technology is reducing the labour intensive activities, reducing service and processing cost, increasing service levels, and improving the productivity and competitiveness of the Kenyan financial sector.

To meet customer needs, keep up with competitors, or improve efficiency, new technologies such as advanced computer operating systems, wide and local area networks (WAN, LAN), and the Internet, are becoming significant strategic areas for financial institutions. The scope of this research focuses on information technology and competitiveness of commercial banks in Kenya.

1.1.1 Firm competitiveness

Competitive advantage takes a center stage in the business strategy of every firm. According to, Porter (1980), competitive advantage means having low costs, differentiation advantage, or a successful focus strategy. In addition, Porter argues that competitive advantage grows fundamentally out of value a firm is able to create for its buyers that exceeds the firm's cost of creating it. Competitive strategies is a two dimensional phenomenon with a supply side- strategic scope, which looks at the strength or core competency of a firm; and a demand side – strategic strength, which looks at the size and composition of the market a firm intends to target (Porter, 1980). Johnson *et al.* (2006), looks at competitive strategies from a business level perspective and believe that it is the achievement of competitive advantage by a business unit in its particular market. They advocate for a hybrid strategy which provides a market-facing element to Porter's model in the form of price as a new dimension and its combination with differentiation.

Barney (2002) says that a firm experiences competitive advantages when its actions in an industry or market create economic value and when few competing firms are engaging in similar actions. Barney goes on to tie competitive advantage to performance, arguing that a firm obtains above-normal performance when it generates greater than expected value from the resources it employs.

When a firm earns a higher rate of economic profit than the average rate of economic profit of other firms competing within the same market, the firm has a competitive advantage in that market (Besanko, Dranove, and Shanley, 2000). Economic profit is the difference between the profits obtained by investing resources in a particular activity, and the profits that could have been obtained by investing the same resources in the most lucrative alternative activity (Besanko *et al.*, 2000). Competitive advantage also means either that a firm can produce some service or product that its customers value than those produced by competitors or that it can produce its service or product at a lower cost than its competitors (Saloner, Shepard and Podolny, 2001).

Sidorwicz (2007) on the other hand sees competitive strategies as more skill-based and involving strategic thinking, innovation, execution, critical thinking, positioning and the art of warfare. Combined strategy of an organization involves matching its corporate objectives and its available resources. In this development of strategy, managers are concerned with reconciling the business the organization is in with the allocation of resources. This allocation process is concerned with the general purposes of an organization, whether it is part of the grand plan, the overall objectives or a 'strategy' designed to keep the organization in business.

The competitiveness of firms can greatly be improved if the chosen strategy is carefully executed by linking three processes: people, strategy and operation (Hrebiniak, 2005). Should a firm face difficulty in executing a particular strategy, then it is advisable for that firm to create an effective structure, enhance its communication, improve its information sharing, introduce incentives, control systems, institute adequate policies and procedures and employ an effective change management strategy (Hrebiniak, 2005).

1.1.2 Adoption of information technology

Technology-based self-service has greatly changed the way that service firms and consumers interact, and are raising a host of research and practice issues relating to the delivery of e-service which has become increasingly important not only in determining the success or failure of electronic commerce, but also in providing consumers with a superior experience with respect to the interactive flow of information (Ombati *et al.*, 2010). Although adoption of IT has been implemented in many developed countries such as the United States and those in Europe (Pikkarainen *et al.*, 2004), there is a growing trend in the adoption of online banking by banks in developing countries too (Gurau, 2002). Rogers (2004) identified five characteristics or attributes of innovations that affect the rate at which innovations are adopted (and ultimately their usage patterns): their relative advantage, compatibility, complexity, divisibility (trialability), and communicability (observability). Additional characteristics were later added; perceived risk and financial and social cost (Zeithaml, 2005).

To assess the adoption scenario of IT application in the market, such as internet banking, a lot of previous studies and research have carried out and various frameworks were proposed to identify the factors or determinants influencing the acceptance of technology in the consumer context (Lin and Lee, 2005). One of the most common models used by researchers in the study of individual's adoption of technology is Technology Acceptance Model (TAM) (Davis, 1989). TAM proposed that both the perceived usefulness and perceived ease of use can be used to predict the attitude towards using new technology, which in turn affects the behavioral intention to use the actual system directly (Venkatesh et al., 2003). Pikkarainen *et al*. (2004) in their study of online banking in Finland found that perceived usefulness is one of the most significant influences on the intention to use online banking among the consumers. Besides perceived usefulness, perceived ease of use has also been validated as important determinant in adoption of lot information technologies, such as intranet (Chang, 2004)

1.1.3 Adoption of Information Technology and Firm competitiveness

Information technology has enhanced competitiveness in the banking industry. IT has enabled banks to adjust their services to meet the clienteles' needs. IT provides opportunities to track a customer's behavior and respond at the right time (Joseph *et al.,* 2003). Accessibility has been extended through introduction of new service delivery methods that allow consumers to do business with service firms from the home and office. The potential competitive advantage of the internet for banks lies in the areas of cost reduction and satisfaction of consumer needs (Elliot and Loebbecke, 2000). According to Schultze (2003), mobile technology enables the user to access information wherever they are assuming the user is within the cellular broadcast area. The mobility of the hardware, e.g cellular handsets permits the user to conduct transactions and/ or receive information even when the user is engaged in another activity such as traveling or working, dissemination. Turban *et al.*, (2008) argued that IT has benefits such as reduction in cost, increasing business opportunities, reducing lead time and providing a more personalized service to the consumers

Information technology has removed repetitive, time consuming tasks, reduced human error and extended access to banking related facilities. Technology also provides customer information that it would be much more expensive to provide on a person-to-person basis. Telephone banking facilities allow non-cash transactions to be carried out, which would have required a visit to a branch earlier (Dabholkar, 2000). Internet banking allows customers to perform tasks at a time and in a place convenient to them. Dabholkar (2000) suggests that direct contact with such technology also gives customers a feeling of greater control.

1.1.4 Banking industry

Banking can be traced back to the year 1694 with the establishment of the bank of England. The bank was started by a few individuals who were actually money lenders with an aim of lending money at interest. Banking in Kenya started in 1896 with the National Bank of India opening its first branch. Standard Chartered Bank opened its first branches in Mombasa and Nairobi in January 1911.The Kenya Commercial Bank was established in 1958 with Grindlays Bank of

Britain merging with the National Bank of India. The Cooperative Bank of Kenya was established in 1965 for the express purpose of providing financial services to Co-operative societies. Three years later, National Bank of Kenya (NBK) was incorporated (Ojung'a 2005).

The banking industry is facing tremendous changes. Even the few stable securities that were left are susceptible to erosion. Aggressive growth strategies against increasing competition; the diminishing use of cash; the worldwide trend towards global banks through mergers and acquisitions; and the growing importance of information technology, confront the banking industry with huge changes both in real estate and facilities management. While the design of bank facilities has for centuries focused on expressing wealth and magnitude, today even the banking industry, often regarded as one of the most conservative of industries, is transforming its buildings into lean, customer oriented facilities (Krum, 1998).

1.1.5 Commercial banks in Kenya

The Kenyan Banking sector has demonstrated a solid growth over the past few years. The industry continues to offer significant profit opportunities for the major participants During the period ended June 30th, 2011, the sector comprised of 43 commercial banks, 1 mortgage finance company, 6 deposit taking microfinance institutions, 2 credit reference bureaus, 3 representative offices and 124 foreign exchange bureaus (Central Bank of Kenya, 2012). The Banking Sector recorded improved performance as indicated by the size of assets which stood at Ksh. 1.9 trillion, loans and advances of Ksh. 1.1 trillion, deposits of Ksh.1.4 trillion and profit before tax of Ksh. 40.8 billion as at 30th June 2011. Equally, the number of bank customer deposit accounts stood at 12.8 million with a branch network of 1,102, while the bank loan accounts were 2.1 million.

The banking sector aggregate balance sheet grew by 26.7 percent from Ksh 1.5 trillion in June 2010 to Ksh 1.9 trillion in June 2011. The major components of the balance sheet were loans and advances, government securities and placements, which accounted for 55.0 percent, 22.0 percent and 6.0 percent of total assets respectively (Central Bank of Kenya, 2012).

1.2 Research Problem

The adoption of information technology into service industries, more so in banking is becoming a strong trend as service providers are now being urged by industry bodies to invest in technology. Parasuman and Colby (2001) argued that long lines, limited time for customer servicing, transaction errors, excessive bureaucracy, security and network failures have been said to be the most frequent problems using banking services. This highly lower customer's perception on the quality of service offered and hence reduces the bank's profitability and credibility hence the need for IT. While technology can save time and money and eliminate errors, thereby addressing certain issues associated with changing cultural and social trends, it can also minimize direct customer interaction and any associated service value to be gained (Bitner, 2001). It is therefore important for firms to evaluate the effectiveness of technologies it has adopted in enhancing their competitiveness.

A number of studies have been done on information technology in the Kenyan banking industry for instance, Nyambati (2001) carried out a survey of information technology planning practices in Kenyan banks, Onduso (2001) did a survey of ethical issues in the use of information technology among commercial banks in Kenya, Kipsang N. (2003) surveyed outsourcing information technology services by commercial bank in Kenya, Gumbo (2006) investigated adoption of broadband technology in Kenyan banking sector, Gachiri (2007) examined the extent and challenges of application of information and communication technology in marketing in commercial banks in Kenya and Kanini (2008) analysed implementation of strategic information systems by commercial banks in Kenya.

The previous studies on information technology in the Kenyan have not focused on adoption of information technology and competitiveness of commercial banks in Kenya the Kenyan Banking industry. This study therefore, seeks to analyze the adoption of information technology and competitiveness of commercial banks in Kenya. The study sought to answer the following research questions: What is the extent of adoption of information technology in the Kenyan banking industry: Is the extent of adoption of information technology by commercial banks in Kenya is related to bank competitiveness? What are the challenges faced in adoption of information technology by commercial banks in Kenya?

1.3 Objectives of the study

The objectives of the study are as follows:

i. To establish the extent of adoption of information technology by commercial banks in Kenya

ii. To determine whether the extent of adoption of information technology by commercial banks in Kenya is related to bank competitiveness

iii. To determine the challenges faced in adoption of information technology by commercial banks in Kenya

1.4 Value of the study

The findings of the study will be valuable to bank managers. Bank managers will use the information to formulated strategies that will enhance adoption of information technology as a tool to enhance competitiveness. Bank mangers will use the findings of the study as a benchmark for review and realignment of the present competitive strategies in order to solve the current challenges in the banking industry.

Government of Kenya is a major player in the country's banking industry. Through the Central Bank of Kenya (CBK), the Ministry of Finance and the Ministry of Trade, Kenyan government serves a main regulator of the banking industry. The information resulting from this study will therefore form a basis for policy formulation with a view to enhancing adoption of information technology as competitive tool for Kenyan banks.

The study will contribute to the existing body of knowledge on information technology**.** The study findings will therefore serve as a source of reference for researchers and academicians in the fields of information technology and strategic management.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents review literature. The review covers concept of strategy, firm competitiveness, bases of competitive advantage and information technology and bank competitiveness. The chapter also presents the conceptual framework for the study.

2.2 Concept of Strategy

Strategy is a combination of competitive moves and business approaches that managers employ to satisfy organizational vision and objectives (Thompson and Strickland, 2003). Strategy has also been defined as the direction and scope of the organization over the long term that enables an organization utilize its resources effectively within a changing environment and to fulfill stakeholder's expectations (Johnson and Scholes, 2003). Pearce and Robinson, (2001) noted that the purpose of strategy is to give directional cues to the organization that allow it to attain its objectives while responding to the opportunities and threats in the environment. Strategy results in future oriented plans interacting with the competitive environment to achieve the company's objectives.

Porter (1985) argues that business strategy is all about competition and gaining competitive advantage over rivals in the market. Competitive strategy is the ability of a firm to meet and beat the performance of its competitor (Porter, 1985). The purpose of competitive strategy therefore is to establish a profitable and sustainable position against the forces that determine industry competition. A unique strategy contributes effectively to the competitiveness of business firms.

Strategies enables organizations attain their long term goals and objectives thus enables the firms survive in the unstable environment.

Strategy ensures the survival and prosperity of a firm by implementing strategies to fulfill stakeholder expectations in an uncertain future (Grant, 2005). Competitive strategies can lead to high organizational performance, customer satisfaction, and increased competitiveness in the face of other rival businesses. However, achieving competitive advantage and increased market share in a competitive environment is rather complex in several aspects as businesses would need to operate with distinguished principles and characteristics in order to continually adapt to change (Grant, 2005).

2.3 Firm Competitiveness

Competitiveness is a multidimensional concept. It means different to different people depending on the context and level. It can be looked at three different but inter-related levels: Country, Industry and Firm level. Competitiveness describes economic strength of a country or industry or firm with respect to its competitors in the global market economy in which goods, services, people, skills and ideas move freely across geographical borders (Murths, 1998). Competitiveness involves a combination of assets and processes, where assets are inherited (e.g. natural resources) or created (e.g. infrastructure) and processes transform assets to achieve economic gains from sales to customers (DC, 2001).

Firm level competitiveness is of the greatest interest among practitioners and has attracted the maximum attention of researchers among the three levels of competitiveness: country, industry and firm. Many researchers and authors have time and again written about the importance of firm level competitiveness. Porter (1998) stated that it is the firms, not nations, which compete in international markets. The firms actually compete in the global arena and face the direct competition. The environmental factors are more or less uniform for all competing firms. The variance in profitability could be attributed to the firms' characteristics and actions (McGahan, 1999).

Firms can be viewed as autonomous entities, striving for competitive advantage from either external sources, or from internal resources and capabilities (Gulati *et al.*, 2000). Accelerating changes in industries and economies resulting in global competition have led to an increased popularity of strategic planning (Rigby, 2001). An understanding of how technology and globalization affects a company's competitive positioning and creating global competitive advantage are the most important determinants of strategic management today. With the liberalization of international trade and financial markets, an increasingly interconnected global economy has been emerging (Dicken, 2007).

A competitive strategy is one that specifically directs an organization in gaining a competitive advantage above its rivals (Porter, 1986). Competitiveness is about ensuring the survival and prosperity of a firm (Grant, 2005) by implementing strategies to fulfill stakeholder expectations in an uncertain future. Firms that engage in strategic planning and have appropriately designed and applied competitive strategies tend to have higher performance than those that do not. Competitive strategies can lead to high organizational performance, customer satisfaction, and increased competitiveness in the face of other rival businesses. However, achieving competitive advantage and increased market share in a competitive environment is rather complex in several aspects as businesses would need to operate with distinguished principles and characteristics in order to continually adapt to change.

Firma can gain competitiveness through cost reduction, innovation and quality-enhancement (Schuler and Jackson, 1987). All the three types of strategy can be used simultaneously to gain domestic and international competitive advantage, regardless of industry. The ease with which competitors can enter or expand in a given market is an essential factor in determining a competitive advantage (Greenwald and Kahn, 2005). If a company can erect strong barriers to entry, through customer captivity, lower production costs, or economies of scale, it can manage these advantages, anticipate competitors' moves, or achieve stability through bargaining and cooperation. It is claimed that addressing barriers to entry is by far the most important activity in business strategy, and avoiding competition is the only way to escape an open playing field in which only the best survive and prosper.

Barney *et al.* (2001) emphasizes on the role of internal factors to the firms such as firm' strategy, structures, competencies, capabilities to innovate, other tangible and intangible resources for their competitive success. Ability to develop and deploy capabilities and talents far more effectively than competitors can help in achieving excellent competitiveness. In a turbulent business environment, dynamic capabilities, flexibility, agility, speed and adaptability are becoming more important sources of competitiveness (Sushil, 2000). Farell *(*1992) focus on price, quality, design, marketing, flexibility and management as sources of firm competitiveness.

2.4 Bases of Competitive Advantage

The following is a discussion of strategies that server as bases of competitive advantage. Porter (1985) identified strategies that server as bases of competitive advantage which include cost advantage, differentiation, offensive strategies, defensive strategies, collusive strategies and strategic alliances. Cost Leadership is a strategy where a company aims to out-price its competitors by reducing overheads or the fixed costs associated with manufacture and distribution. It requires a focus on the efficiency of production lines and economies of scale. This strategy is employed where customers have the ability to change supplier easily and the products or services are standardized and well understood by the consumer. By using this strategy, marketing the product becomes less important. Benefits include raising barriers for competitors to enter the market and easing the effect of fixed-cost rises across the industry (Porter, 1985).

Differentiation strategy is employed where a unique attribute of a product or service is highlighted relative to similar alternatives presented by the competition (Porter, 1985). It allows a higher price to be charged or a greater ability to command customer loyalty. Differentiation strategy is used where the company sees its key product competencies as a more profitable advantage than simple cost leadership. Customers react to this strategy by paying more for a perceived greater reliability or quality or by returning to a trusted brand. It relies heavily on marketing or advertising to maintain the brand identity and raises the barrier to competitors entering the market.

Offensive strategies involve strategic moves that improve the firm's position relative to that of rival firms in the industry (Porter, 1985). Successful offensive strategy are almost always a source of a competitive advantage because they are moves intended to yield a cost leadership position, differentiation advantage, or provide the best value product/service to industry consumers. At the core of these strategies are the firm's competitive resources – the tangible and intangible assets and organizational capabilities that are linked to what industry consumers value. Offensive strategies can be launched by existing rival firms seeking to improve their position or new entrants seeking to establish a position in the industry.

Defensive strategies are those moves that reduce the ability of rival firm strategies to threaten the firm's competitive strength or organizational resources. Their intended purpose is to defend an industry position, protect competitive resources from imitation, and sustain an existing advantage by lowering the risk and weakening the impact of rival firm offensive attacks. There are five basic defensive strategies; retaliation, commitment, government intervention, strategic flexibility, and avoidance. Retaliation strategies described by Porter as discipline, denying a base, and commitment are efforts to discourage rival firms from attacking. Discipline involves one immediate response directed at the initiator so that rival firms can always expect retaliation to occur. Denying a base involves preventing a new entrant from meeting its goals so they withdraw or deescalate their efforts (Porter, 1985).

Commitment strategies include those that 1) deter retaliation by communicating a commitment to unequivocally follow through on offensive moves, 2) deter threatening moves with a commitment to direct and continued retaliation if rival firms make certain moves and 3) create trust by communicating a commitment to make no new moves or forego existing moves in an effort to deescalate a competitive battle (Porter, 1985). Government intervention strategies involve the use of political and legal tactics to prevent rival firms from changing the rules of the game. Strategy flexibility protects firm resources through the ability to move quickly out of declining markets into more prosperous ones. Lastly, avoidance strategies dodge confrontation by focusing on market segment of little interest to rival firms.

Collusive strategies involve collaborative efforts that tamper with the industry balance of supply and demand. Price/output collusion occurs when rival firms reduce the supply of an output below its competitive level in order to raise price above its competitive level and earn a greater than economic return. Because this strategy is illegal tacit forms are more common than explicit forms. The industry structure can influence the perception that tacit collusion is non-threatening and facilitate its use by rival firms. Opportunities for tacit collusion are more likely in industries where 1) a small number of firms that are large in size control the industry, 2) rival firms produce and sell similar products that are difficult to differentiate, 3) the industry leader establishes and maintains an acceptable industry price and profit margin, 4) rival firms are unaffected by large inventories and order backlogs, 5) norms for competitive behavior define some rival strategies as unacceptable and most importantly 6) entry barriers are high(Porter, 1985).

Strategic alliances are cooperative arrangements of rival firms that don't involve the reduction of industry output to control prices. They are perceived to be non-threatening when performance improvements arises across participating firms that wouldn't be possible without the cooperative efforts of those involved (Porter, 1985). They enable rival firms 1) to manage risks and share costs when the economies of scale and learning are lacking, 2) facilitate low cost entry into new markets, industries, and industry segments by rival firms that individually lack the required products, capabilities, and resources, and 3) provide rival firms with strategic flexibility and a point of entry without incurring the cost of full-scale under conditions of high uncertainty.

Strategic alliances take many forms but fall into three broad categories. Non-equity alliances (licensing and distribution agreements) are cooperative arrangements enforced by contractual obligations without any equity position being shared by rival firms. Equity alliances are the same as non-equity ones except that one rival firm or the other or both make an equity investment in the arrangement. This involves supplementing contractual relationships with stock purchases.

Joint ventures involve the formation of an independent firm in which participating firms invest and share the profits (Porter, 1985).

2.5 Information Technology and Bank Competitiveness

Information technology (IT) is increasingly being seen by management as an opportunity to leverage sustainable competitive advantage in their organization (Remenyi 1991). In this way IT has become one of the most powerful strategic tools a manager can possess, but creating sustainable competitive advantage from IT, however, has not been easy (Domegan, 1995). The identification and implementation of these IT opportunities for competitive advantage would seem, therefore, to be an important decision. Clemons and Row (1991) underline this point by noting that there is a widespread and continuing interest in IT and its effect on business strategy, particularly in those IT applications that can confer sustainable competitive advantage for innovative firms. Clemons and Row, (1991) suggested that there is a growing realization that achieving competitive advantage through IT may be more difficult it there are implementation problems. However, if these implementation problems can be overcome, IT can provide sustainable competitive advantage and rewards far greater than those that so far have been realised in operational areas, in relation to increased market share and a shift in the industry balance of power (Clemons and Row, 1991).

The financial services industry, specifically the retail-banking sector, has experienced significant changes brought about by the interaction between competitive pressure, customer needs, and technological innovation. A service delivery evolution has occurred as customers move toward technology-based self-service as an alternative to the traditional inter-personal service encounter. This provides benefits to both the bank, as it decreases the cost per transaction, and the customer, who is offered increased convenience (Farquhar and Panther, 2007). Mobile phone banking is a rich platform for automated banking and other financial services. It is a wireless service delivery channel that offers increased value for customers by providing “any time, anywhere” access to banking services (Lee and Chung, 2009). M-banking provides value for consumers, above other banking channels, through ubiquitous access, time convenience, and Luarn and Lin, 2005).

Marketing Information System Technology (MIST) has the potential to create competitive advantage for retail banks (Colgate, 1998). Marketing information system technology is IT within the Marketing Information System (MkIS) which is a set of procedures and methods for the regular planned analysis and presentation of information for use in making marketing decisions (Li *et al.* 1993). Colgate (1998) stated that MIST strengthens customer relationships by enabling banks to build up a complete picture of individual customers. This information can then be used to forge stronger ties with them. Complete and accurate information on the customer through MIST can enable the bank to reduce the risk in transacting with the customer by establishing whether the customer is likely to default on a loan, for example. This will then assist them in the decision to reject the application for the loan or the setting of an interest rate to reflect this risk. MIST can facilitate cross-selling and establish switching costs between the financial institution and its customers. MIST enables financial institutions calculate profitability of customers and to retain customers through strengthening customer relationships, cross-selling and the creation of switching costs (Colgate, 1998).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology that was used in this study. It focuses on the research design, population of study, data collection methods and data analysis methods that were used in this study.

3.2 Research Design

The study adopted a descriptive survey design. Survey method involves asking participants questions on how they feel, what their views are, and what they have experienced (Babbie, 2002). The goal of descriptive survey is to derive comparable data across subsets of the chosen sample so that similarities and differences can be found (Cooper and Schindler, 2006). Survey method is useful when a researcher wants to collect data on phenomena that cannot be observed directly. Survey allows the collection of large amounts of data from a sizeable population in a highly effective, easily and in an economical way using questionnaires. Survey findings are projectable to large and diverse population (Cooper and Schindler, 2006).

3.3 Target Population

The study targeted registered commercial banks in Kenya. A census was carried out in which all the 43 registered commercial banks in Kenya as obtained from the Central Bank of Kenya dated 2012 participated (see appendix i). The bank branches were not be considered as separate entities because decision-making and governance are normally conducted from the bank headquarters and executed in all branches. The data was collected from chief Information Communication

Technology (ICT) manager, Marketing manager, Operations manager, Customer Relation Manager, Human Resource Manager and Finance Manger from each commercial bank. The managers have been chosen because they are knowledgeable on the contribution of information technology to bank competitiveness.

3.4 Data Collection

The study used questionnaires to collect primary data from the respondents. The questionnaires included structured (close-ended) and unstructured (open-ended) questions and were administered through drop and pick method to respondents. The unstructured questions were used so as to encourage the respondent to give an in-depth and as much information as possible without holding back.

The questionnaire consists of four sections. Section A of the questionnaire asks questions on banks' profile. Section B asks questions on the extent of adoption of information technology by commercial banks in Kenya. Section C asks questions on the relationship between adoption of information technology and competitiveness of commercial banks in Kenya. Finally, section D asks questions on the challenges faced in adoption of information technology by commercial banks in Kenya. Questionnaires provided quantitative data which is easy to collect and analyze. Mugenda and Mugenda (2003) observed that questionnaires are very economical in terms of time, energy and finances.

3.5 Data Analysis

The study used Statistical Package for Social Sciences (SPSS) as the main tool for data analysis. Data was analyzed using descriptive statistics (frequencies, mean and standard deviations) and inferential statistics (correlation and regression analysis). Mean and standard deviation was used to determine the extent of adoption of information technology by commercial banks in Kenya. The challenges faced in adoption of information technology by commercial banks in Kenya were analyzed using mean and standard deviations. Regression analysis was done to determine the nature of relationship between adoption of information technology and competitiveness of commercial banks in Kenya whereas correlation was used to determine the strength of relationship between adoption of information technology and competitiveness of commercial banks in Kenya. The qualitative data from open-ended questions was analyzed using content analysis. The findings were presented using tables and charts.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

This chapter discussed the interpretations and presentations of the findings based on the objective of the study. This chapter focused on data analysis, interpretation and presentation and presented the discussion and conclusion of the study. From the study, the target population was 308 where 229 respondents responded and returned the questionnaires. This constituted to 74% response rate. Mugenda and Mugenda (2003) indicated a respondent rate of above 50% is sufficient for a study and therefore a response rate of 74% for this study was very good.

Of the 229 respondents were the chief Information Communication Technology (ICT) manager, Marketing manager and Operations manager, Customer Relation Manager, Human Resource Manager and Finance Manger from all the registered commercial banks in Kenya.

4.2 General Information

The study requested the respondents to indicate the name of the bank in which they work in. From the finding 70% of the respondents were from Family Bank Ltd, Commercial Bank of Africa Ltd, Co-operative Bank of Kenya Ltd, Kenya Commercial Bank Ltd, National Bank of Kenya Ltd, Savings And Loan Kenya Ltd, Standard Chartered Bank (K) Ltd, Paramount Universal Bank Ltd, Bank Of Africa (K) Ltd and Housing Finance Bank Ltd.

4.2.1 Operational years of the bank

Table 4. 1 Operational years of the bank

Operational years	Frequency	Percentage
11-15 years	115	50
16-20 years	64	28
5-10 years	30	13
Over 20 years	13	6
Less than 5 years	7	3
Total	229	100

The study sought to investigate the years in which their bank had been in operation. From the findings, the study found that majority 50% of the respondents indicated that the bank had been in operation for 11 to 15 years, 28% indicated that the bank had been in operation for 16-20 years, 13% of the respondents indicated the their bank had been in operation for 5 to 10 years, 6% of the respondents indicated over 20 years while 3% of the respondents indicated the their bank had been in operation for less that 5 years.

4.2.2 Number of Branches

Table 4. 2 Number of Branches

Branches	Frequency	Percent
Above 200 branches	85	37
151-200 branches	71	32
100-150 branches	55	24
51– 100 branches	18	8
Total	229	100

The study requested the respondents to indicate the number of Branches their bank had as indicated in the table 4.2. From the findings 37% of the respondents indicated that their bank had above 200 branches, 32% indicated that their bank had 100 to 200 branches. The study further found that 24% indicated that their bank had 100 to 151 branches while 8% of the respondents indicated that their bank had 51 to 100 branches. This implied that the majority of the commercial banks in Kenya have many branches in the country.

4.3 Adoption of Information Technology

The first objective of the study was to establish the extent of adoption of information technology by commercial banks in Kenya and results were as follows.

4.3.1 The Extent of Adoption of Information Technology

Whether bank periodically upgrade technology used in various departments

Table 4. 3 Whether bank periodically upgrade technology used in various departments

Responses	Frequency	Percentages
Yes	229	100
Total	229	100

This study sought to know the whether bank periodically upgrade technology used in various departments. From the findings, all 100% of the respondents indicated that bank periodically upgrade technology used in various departments.

4.3.2 Success adoption of the latest technologies applied

Table 4. 4 Success adoption of the latest technologies applied

Success adoption of the latest technologies	Mean	Standard deviation
Marketing	4.83	0.76
Customer relationship management	4.70	0.65
Financial management	4.66	0.69
Operations management	4.69	0.56
Corporate governance	4.66	0.69

The study sought to know extent to which bank succeeded in adoption of the latest technologies applied in the given areas. From the findings, the banks succeeded in adoption of the latest technologies applied in marketing, customer relationship management, corporate governance and financial management to a very great extent as indicated by a mean of 4.83, 4.70, 4.69 and 4.66 with standard deviation of 0.76, 0.65, 0.56 and 0.69. This implied that adoption of the information technology improves management practices and ease service delivery by the employees to the customers therefore gaining competitive advantages. The findings were in line with Gumbo, (2006) who found out that technology adoption influences employees in delivery quality work as it provides tools which enabled them to offer high quality products and services

4.3.3 Extent to which bank adopted the latest technologies for the bank applications

Table 4. 5 Extent to which bank adopted the latest technologies for the bank applications

Statement on the latest technologies for the bank applications	Mean	Std deviation
Internet banking	4.76	0.77
Mobile banking	4.71	0.67
Automated Teller Machines	4.73	0.69
Automated credit referencing	4.64	0.73

The respondents were requested to indicate the extent to which the bank adopted the latest technologies for the given bank applications. From the findings, bank adopted the latest technologies for iinternet banking, Automated Teller Machines, Mobile banking and automated credit referencing to a very great extent as indicated by a mean of 4.76, 4.73, 4.71 and 4.64 with standard deviation of 0.77, 0.69, 0.67 and 0.73. This clearly indicated that adoption of the information technology in banking system improved innovation of new delivery channels and production of competitive products in the market. The finding concurred with Domegan, (1995) who indicated that adoption of information technology enables banks to meet such high expectations of the customers who are more demanding and are also more techno-savvy compared to their counterparts of the yester years and facilitates the introduction of new delivery channels in the form of Automated Teller Machines, Net Banking and Mobile Banking.

4.3.4 Other information technologies adopted in bank

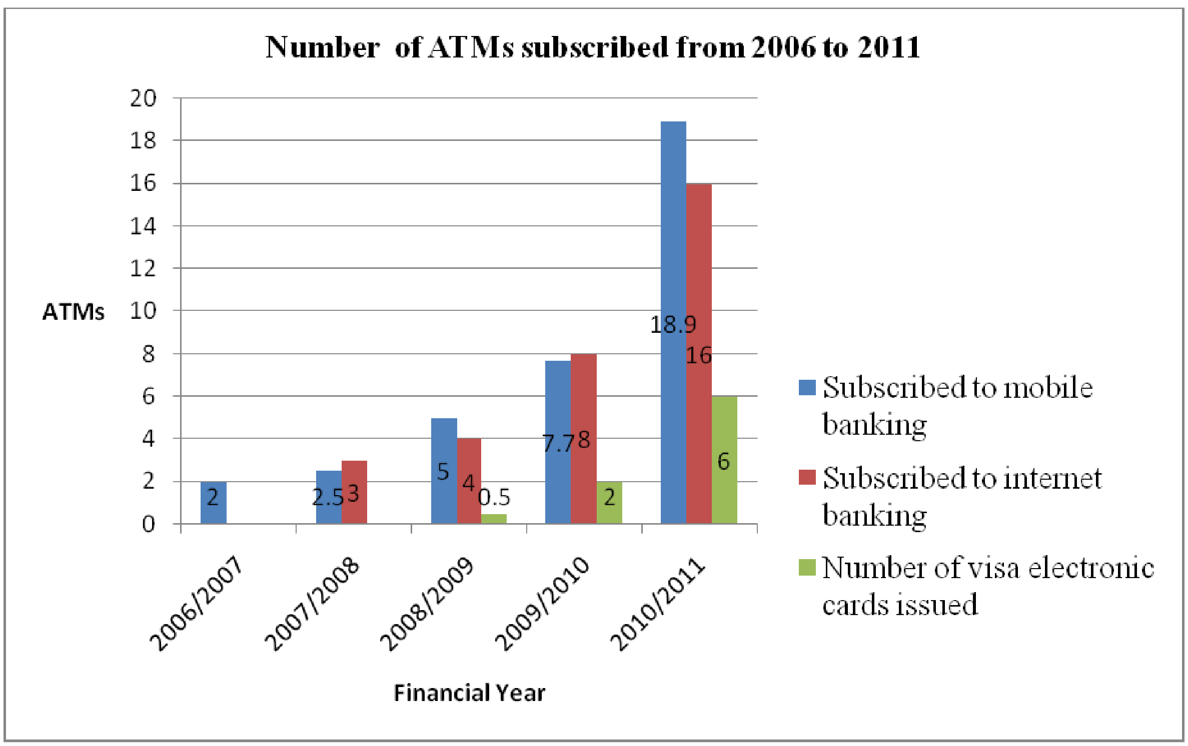
The respondents were also required to state other information technologies that have been adopted in commercial banks. From the findings, the respondents suggested that there has been quick and efficient transmission of information, paper work has reduced greatly hence availability of space and an environment free of dust, more customers have been created, automated meter reading as opposed to manual, better work processes due to technological advancement, there has been improved communication, improved systems analysis, increase in speed of performance and also easy accountability. Operations are now online and real-time; customer data is more secure and properly stored in an organized manner, records and information is readily available online and also there has been improved flow of customer application and processing of the same.

4.4 Adoption of Information Technology and Competitiveness

The second objective of the study sought to determine whether the extent of adoption of information technology by commercial banks in Kenya is related to bank competitiveness.

4.4.1The number of ATMs subscribed from 2006 to 2011

Figure 4. 1 The number of ATMs subscribed from 2006 to 2011



The respondents were requested to indicate the number of ATMs subscribed from 2006 to 2011. From the results, most of the respondents indicated in 2006/2007, there were about 2 million customers subscribed to mobile banking in Kenya. 3 million customers had subscribed to mobile banking while 2.5 customers had subscribed to internet banking in 2007/2008 financial year.

The study further found that there were 5million account for mobile banking subscribers, 4 million for internet banking and 0.5 million visa electronic cards had been issued in 2008/2009 financial year.

From the findings, most of the respondents indicated that in 2009/2010 financial year, 7.7 million subscribers joined mobile banking, 8 million subscribed for internet banking and 2 million visa electronic cards had been issued. From the results, most of the respondents indicated that the 18.9 million customers subscribed to mobile banking, 16 million customers subscribed to internet banking and 6 million visa electronic cards have been issued by 2010/2011 financial year. From the findings, customers are able to make loan payments, send money from their bank accounts to their mobile phones and check account balance and mini-statements. This implied that the commercial banks in Kenya are competing to embrace mobile banking following the rise in the number of people who own mobile phones and have subscribed to mobile money transfer services

4.4.2 Financial statistics about the given measures of performance in the last five financial years

Table 4. 6 Measures of performance in the last five financial years

Financial statistics	Financial Year				
Financial Power (Million KSh)	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
Assets	6,437,308	12,189,289	21,664,721	31,140,688	42,147,508
Debts	3,736,681	10,741,570	8,723,230	26,628,396	35,286,657
Equity	594,104	1,222,612	2,944,965	4,501,568	6,543,456
Earnings	80.01	81.48	82.07	83.95	84.32
Net Income	5.11%	5.76%	6.09%	6.39%	6.81%
Investment in Information Technology	1,142	11,269	27,597	223,622	2, 524,160

The study sought to know the financial statistics about the given measures of performance in the commercial banks in the last five financial years. From the findings, in the year 2006/2007 the average financial statistics for the assets, debts, equity, earnings, net Income and investment in Information Technology was 6,437,308, 3,736,681, 594,104, 80.01, 5.11% and 1,142 respectively.

The average financial statistics for the assets, debts, equity, earnings, net Income and investment in Information Technology in the 2007/2008 financial year was 12,189,289, 10,741,570, 1,222,612, 81.48, 5.76%, 1,269

The average financial statistics for the assets, debts, equity, earnings, net Income and investment in Information Technology in the 2008/2009 financial year was 21,664,721, 8,723,230, 2,944,965, 82.07, 6.09% and 27,597.

The average financial statistics for the assets, debts, equity, earnings, net Income and investment in Information Technology in the 2009/20010 financial year was 31,140,688, 26,628,396, 4,501,568, 83.95 , 6.39%, 223,622.

The average financial statistics for the assets, debts, equity, earnings, net Income and investment in Information Technology in the 2010/2011 financial year was 42,147,508, 35,286,657, 6,543,456, 84.32, 6.81%, and 2, 524,160.

4.4.3 Financial performance of bank areas for the last five financial years

Table 4. 7 Financial performance of bank in the given areas for the last five financial years

Financial Year	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
Profitability (Million KSh)	114,546	304,491	576,645	800,805	1,220,115
Market Share (Million KSh)	74,819	219,873	487,619	843,809	1,343,072

The study sought to know the financial performance of commercial banks in the given areas for the last five financial years. From the findings, average profitability of commercial banks was 114,546 million, 304,491 million, 576,645 million, 800,805 million and 1,220,115 million for 2006/2007, 2007/2008, 2008/2009, 2009/2010 and 2010/2011 financial years.

Average market share of commercial banks was 74,819 million, 219,873 million, 487,619 million, 843,809 million and 1,343,072 million for 2006/2007, 2007/2008, 2008/2009, 2009/2010 and 2010/2011 financial years.

4.4.4 Extent to which information technology influenced overall performance of bank

Table 4. 8 Extent to which information technology influenced overall performance of bank

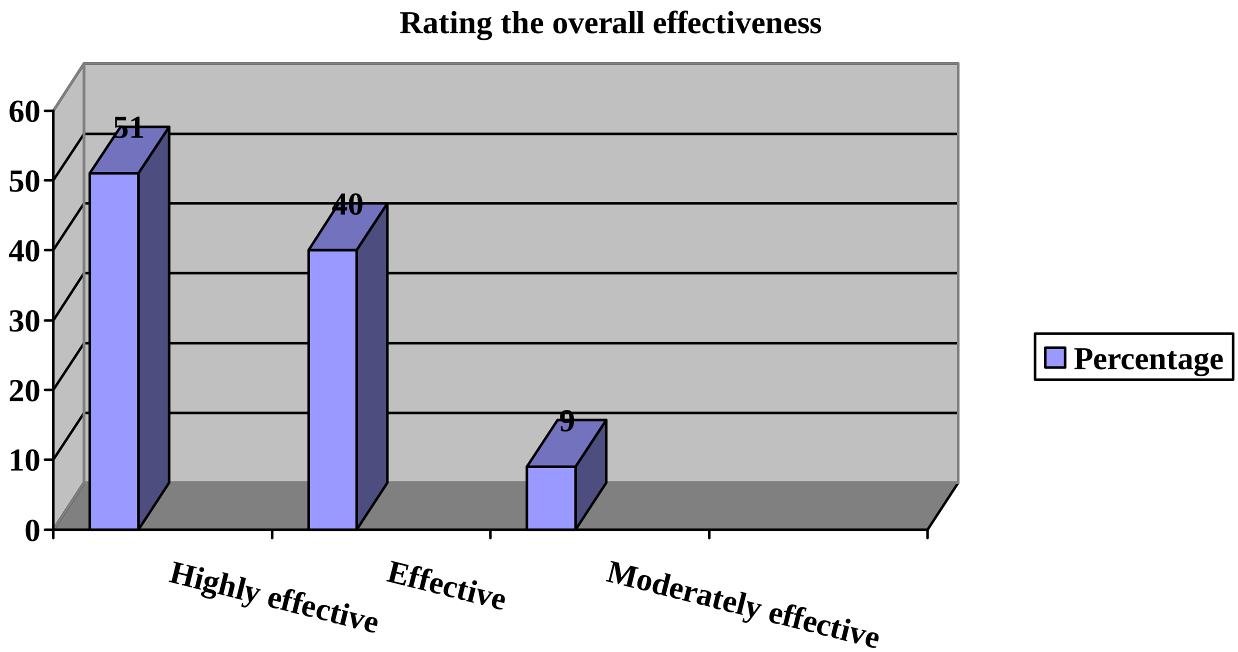
Statement on extent to which information technology influenced overall performance of bank	Mean	Std deviation
Information Communication Technology	4.53	0.55
Human Resource	3.99	0.34
Marketing Department	4.67	0.63
Customer Relations	4.03	0.41
Finance	4.61	0.53
Credit	4.64	0.73

The table 4.10 indicates the respondent's response on the extent to which information technology influenced overall performance of bank and performance in each of the given departments. From the finding, majority of the respondents indicated that information technology influenced overall performance of bank and performance in marketing, credit, finance and Information Communication Technology departments to a very great extent as indicated by a mean of 4.67, 4.64, 4.61, 4.53 supported by standard deviation of 0.63, 0.53 and 0.55 respectively.

The study further found that most of the respondents indicated that information technology influenced overall performance of bank and performance in customer relations and human resource departments to a great extent as indicated by a mean of 4.03 and 3.99 supported by standard deviation of 0.41 and 0.34 respectively. This implied that commercial banks had adopted the information technology as a business strategy of gaining competitive advantage over rivals in the market and meets and beat the performance of its competitor. This concurred with Grant, (2005) who stated that competitiveness is about ensuring the survival and prosperity of a firm by implementing strategies to fulfill stakeholder expectations in an uncertain future. Porter, (1985) confirmed that firms that engage in strategic planning and have appropriately designed and applied competitive strategies tend to have higher performance than those that do not.

4.4.5 Rating the overall effectiveness of Information Technology competitiveness

Figure 4. 2 Rating the overall effectiveness of Information Technology competitiveness



The study rated the overall effectiveness of Information Technology in enhancing bank competitiveness in the last five years. From the findings majority 51% of the respondents indicated that there was a highly effective Information Technology in enhancing bank competitiveness in the last five year, 40% of the respondents indicated that there was a highly effective Information Technology while 9% of the respondents indicated that there was a highly effective Information Technology in enhancing bank competitiveness in the last five year. This implied that Information Technology is a most powerful strategic tools management in commercial banks can possess to create sustainable competitive advantage. this concurred with Clemons and Row (1991) underlined this point by noting that there is a widespread and continuing interest in IT and its effect on business strategy, particularly in those IT applications that can confer sustainable competitive advantage for innovative firms.

4.4.6 Enhancing competitiveness through adoption Information Technology

The study sought to know how else the banks enhanced their competitiveness through adoption Information Technology. From the findings, majority of the respondents indicated that adoption Information Technology enhanced competitiveness as it enabled the bank to practices had retail-banking, automated banking and other financial services, calculate profitability of customers through MIST and retain customers through strengthening customer relationships. This implied that Information Technology provides benefits to both the bank, as it decreases the cost per transaction, and the customer, who is offered increased convenience. This concurred that Farquhar and Panther, (2007) who stated that a service delivery evolution has occurred as customers move toward technology-based self-service as an alternative to the traditional inter-personal service encounter.

4.4.7 Regression Analysis

To determine whether the extent of adoption of information technology by commercial banks in Kenya is related to bank competitiveness, a multivariate regression model was applied.

The logistic regression used in this model was:

$Y = \alpha + \beta_1 X_1 + \beta_1 X_2 + \beta_1 X_{3} + ẹ$

Where

Y= Firms Performance

α = Constant Term

β_1= Beta Coefficients

X_1= Internet operational cost

X_2=Transaction Costs

$X_{3=}$Internet loan cost application

Model Summary of Regression Analysis

Table 4. 9 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.817(a)	.787	.753	0.34	1.762	5	.214	7.106	.001(a)

a Predictors: (Constant) Internet operational cost, income growth and Internet loan cost
Dependent: Financial Performance

R is the square root of R-Squared and is the correlation between the observed and predicted values of dependent variable implying that the association of 0.87 between internet banking factors influence financial performance that include internet operational cost, income growth and internet loan cost was strong.

R-Squared is the proportion of the variance in the dependent variable financial performance that was explained by variations in the independent variables internet operational cost, income growth and internet loan cost. This implied that there was 78.7% of variance or correlation between variables in general.

Adjusted R^2 is called the coefficient of determination which indicates how the financial performance varies with variation in use of internet banking influencing financial performance which included internet operational cost, income growth and internet loan cost. From table above, the value of adjusted R^2 is 0.753. This implies that, there was a variation of 75.3% of financial performance varied with variation in internet banking affecting financial performance which includes internet operational cost, income growth and internet loan cost and was statistically significance with P-Value of 0.01 which was less than 0.05 at a confidence level of 95%.

ANOVA (b)

Table 4. 10 ANOVA (b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.104	9	.227	5.231	0.01(a)
	Residual	1.762	36	.021		
	Total	6.466	45			

a Predictors: (Constant) Internet operational cost, income growth and Internet loan cost
Dependent: Financial Performance

The Total variance (11.556) was the difference into the variance which can be explained by the independent variables (Model) and the variance which was not explained by the independent variables (Error). The strength of variation of the predictor values of internet operational cost, income growth and internet loan cost influence the financial performance of commercial banks at 0.01 significant levels. From the study, the mean of the dependent variable differs significantly among the variables.

From the Analysis, the study sought to establish the extent to which internet banking influence financial performance of commercial banks. From the findings, the strength of variation of the predictor values of Internet operational cost, income growth and Internet loan cost influence financial performance of commercial banks significantly as P Value was 0.01 less than 0.05 confidence level.

Regression Coefficients (a)

Table 4. 11 Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.000	.535		4.601	0.01
	Internet operational cost	0.823	.455	.797	3.191	0.002
	Income growth	0.701	.626	.691	3.383	0.004
	Internet loan cost	0.753	.248	.725	2.606	0.03

Predictors: Internet operational cost, Income growth and Internet loan cost

Dependent: Financial Performance

$Y = 6.000 + 0.823 X_1 + 0.701X_2 + 0.753X_3 + e$

Where $X1_=$ Internet operational cost, $X_{2=}$Income growth, $X3_=$Internet loan cost growth

The values, 0.823, 0.701 and 0.753 are the unstandardized coefficients and indicated the extent to which the dependent variable varied with variation in predictors values Internet operational cost, income growth and internet loan cost

The first variable constant of 7.000 represented the constant which predicted value of financial performance when commercial banks gad not adopted internet banking .The effort made to use of internet banking to reduce operations cost improving bank profitability by a factor of 0.823 with a P Value of 0.002. The study found that internet banking led to increase income growth improvingfinancial performance in commercial banks by factor of 0.701 with P value of 0.002 while use of internet banking lead to decrease in loan costs influencing bank profitability by a factor 0.753 with P value of 0.004. This clearly indicated that there existed a positive relationship between effects of internet banking and financial performance in commercial banks clearly indicating that internet banking improve financial performance of commercial banks through encouraging lowering operating costs, increased income and reducing loans costs . The results were statistically significant with a P-Value of 0.02, 0.04 and 0.03 at 95% confidence level.This concurred with Genay, (2000) who found that the internet banks show higher asset quality as compared to non-Internet banks and that Internet banks were having lower net Non Performing Assets (NPAs) to net advances as compared to non- Internet banks. And that Internet banks generated a higher proportion of their income and concluded that there existed a positive relationship between internet banking and commercial bank financial performance.

4.5 The Challenges Faced In Adoption of Information Technology

The third objective of the study was to determine the challenges faced in adoption of information technology by commercial banks in Kenya

4.5.1 Extent to which bank encountered the given challenges in adoption Information Technology

Table 4. 12 Banks encountering challenges in adoption Information Technology

Statement on Extent to which bank encountered the given challenges in adoption Information Technology	Mean	Std deviation
Incompatibility of various technologies	4. 79	0.83
Complexity in the use of new technologies	4.45	0.35
Perceived risks in IT	4.52	0.87
High cost of installation	4. 61	0. 95
Lack of affordability of technological devices such as computers and mobile phones by customers	3. 92	0.38
Lack of proper regulatory policies	4.48	0.59
Resistance in acceptance of new technology	4.63	0.71

The study sought to know the extent to which bank encountered the given challenges in adoption Information Technology. From the findings, bank encountered incompatibility of various technologies, resistance in acceptance of new technology, high cost of installation and perceived risks challenges in adoption Information Technology to a very great extent as indicated by a mean of 4.79, 4.63, 4.61 and 4.52 supported by strong standard deviation of 0.83, 0.71, 0.95 and 0.87. The commercial banks lack of proper regulatory policies and complexity in the use of new technologies were the challenges faced by commercial banks in adoption Information Technology to a great extent as indicated by a mean of 4.48 and 4.45 with standard deviation of 0.59 and 0.35. The study further found that most of the respondents indicated that lack of affordability of technological devices such as computers and mobile phones by customers to a moderate extent as indicated a mean of 4.48 and 4.45 with standard deviation of 0.59 and 0.35. This implied that commercial banks encountered various challenges in adoption of Information Technology. This concurred by Clemons and Row, (1991) who suggested that there is a growing realization that achieving competitive advantage through IT may be more difficult as there are implementation problems.

The study sought to know the other challenges that are encountered in adoption Information Technology. From the findings majority of the respondents indicated that Software errors, an inadequate security function, contradictory data, low speed of the product, and insufficient support was encountered. Commercial banks face barriers to, and constraints on, organizational change, as well as uncertainty about the efficacy and effects of technology applications. A resistance to change might come from denial of the need to change, the inability to manage change, uncertainties about the types of changes needed and how best to make them, mistaken assessments of optimal changes, and failures in executing changes. From the findings, the distillation of truth from an overload of information is an error-prone and inefficient process and that managers attempting to learn about the performance, maturity, and potential of new technologies are often confronted with exaggerated claims. This implied that significant technological changes can create major dislocations, rendering adoption of Information Technology in existing technologies obsolete. This concurred with Clemons and Row, (1991) who stated that the IT implementation problems must be overcomed in order to provide sustainable competitive advantage and reward far greater in relation to increased market share and a shift in the industry balance of power.

4.5.2 Overcoming challenges encountered in adoption Information Technology

The study sought to know could be done to overcome challenges encountered in adoption Information Technology. From the findings majority of the respondents indicated that management should help the staff member to know that the information technologies are effective and that they do not materially damage the bank system and consumers. There should be model policies and procedures for the effective management of adoption of Information Technology as this would enable the banks to address the issues before they become problems. Assessment of the information technology capability to resolve (or not resolve) the bank system's persistent difficulties with implementing and managing older information technologies would provide guidance on the value added. Case studies of the staffing levels and skills needed to develop, implement, and support technological applications could assist planning for adoption of Information Technology. This implied that there should be a research done for developing information and guidance to promote a positive competitive advantage of the commercial banks. This concurred with Colgate, (1998) who stated that Marketing Information System Technology enables financial institutions calculate profitability of customers and to retain customers through strengthening customer relationships, cross-selling and the creation of switching costs.

4.6 Discussions of Findings

The adoption of the information technology improves management practices and ease service delivery by the employees to the customers therefore gaining competitive advantages. The study established that commercial banks had succeeded in adoption of the latest technologies applied in marketing, customer relationship management, corporate governance and financial management to a very great extent as indicated by a mean of 4.83, 4.70, 4.69 and 4.66. The finding were consistent with Gumbo, (2006) findings that technology adoption influences employees in delivery quality work as it provides tools which enabled them to offer high quality products and services.

Adoption of the information technology in banking system improved innovation of new delivery channels and production of competitive products in the market. From the findings, bank adopted the latest technologies for iinternet banking, Automated Teller Machines, Mobile banking and automated credit referencing to a very great extent as indicated by a mean of 4.76, 4.73, 4.71 and 4.64 with to gain competitive advantage. The finding concurred with Domegan, (1995) who indicated that adoption of information technology enables banks to meet such high expectations of the customers who are more demanding and are also more techno-savvy compared to their counterparts of the yester years and facilitates the introduction of new delivery channels in the form of Automated Teller Machines, Net Banking and Mobile Banking.

Adoption of new technology has influence quick and efficient transmission of information, paper work has reduced greatly hence availability of space and an environment free of dust, more customers have been created, automated meter reading as opposed to manual, better work processes due to technological advancement, there has been improved communication, improved systems analysis, increase in speed of performance and also easy accountability. Operations are now online and real-time; customer data is more secure and properly stored in an organized manner, records and information is readily available online and also there has been improved flow of customer application and processing of the same.

Adoption of technology has improved bank financial performance. The average financial statistics for the assets, debts, equity, earnings, net Income and investment in Information Technology in the 2007/2008 financial year was 12,189,289, 10,741,570, 1,222,612, 81.48, 5.76%, 1,269The average financial statistics for the assets, debts, equity, earnings, net Income and investment in Information Technology in the 2008/2009 financial year was 21,664,721, 8,723,230 , 2,944,965, 82.07 , 6.09% and 27,597.The average financial statistics for the assets, debts, equity, earnings, net Income and investment in Information Technology in the 2009/20010 financial year was 31,140,688, 26,628,396, 4,501,568, 83.95 , 6.39%, 223,622. The average financial statistics for the assets, debts, equity, earnings, net Income and investment in Information Technology in the 2010/2011 financial year was 42,147,508, 35,286,657, 6,543,456, 84.32, 6.81%, and 2, 524,160.This clearly depict that adoption of new technology has enabled bank to gain competitive advantage and improve assets, debts, equity, earnings, net Income and investment.

The adoption of information technology influenced overall performance of bank and performance in marketing, credit and financial management. Adoption of Information Technology enhanced competitiveness as it enabled the bank to practices had retail-banking, automated banking and other financial services, calculate profitability of customers through MIST and retain customers through strengthening customer relationships. Therefore Information Technology provides benefits to both the bank, as it decreases the cost per transaction, and the customer, who is offered increased convenience. The adoption of IT has an effects in reducing as the internet banks improve asset quality and lower net Non Performing Assets (NPAs) to net advances as compared to non- Internet banks. This clearly led to establishment that there existed a positive relationship between internet banking and commercial bank financial performance.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary of the findings from the previous chapter and also it gives the conclusions and recommendations of the study based on the terms of reference of the survey.

5.2 Summary of the findings

From the findings, the study established that commercial banks periodically upgraded technology used in various departments. The study revealed that the banks succeeded in adoption of the latest technologies applied in marketing, customer relationship management, corporate governance and financial management to a very great extent.

From the findings, bank adopted the latest technologies for internet banking, Automated Teller Machines and mobile banking. This has enabled the banks to transmit information efficienttly and effectively, reduce paper work, create more customers and automate meter reading. The banks have also been able to improve working processes, communication, systems analysis, increase in speed of performance and also easy accountability.

The study revealed that commercial bank were operationing online and real-time, secure customer data and properly organize and store records. This has improved flow of customer application and processing of the same. It is evident that there has been a rise of the number of ATMs subscribed by customers from 2006 to 2011. From the findings, the study revealed that banks increase efficiency, visibility, control and security through adopting of information technology.

The study found that commercial bank's overall performance was influenced by information technology adoption in specifically marketing, credit, finance, Information Communication Technology departments, customer relations and human resource departments. From the findings majority 51% of the respondents indicated that there was a highly effective Information Technology in enhancing bank competitiveness in the last five year.

The study revealed that adoption Information Technology enhanced competitiveness as it enabled the bank to practices had retail-banking, automated banking and other financial services, calculate profitability of customers through MIST and retain customers through strengthening customer relationships.

From the finding the study revealed that bank encountered incompatibility of various technologies, resistance in acceptance of new technology, high cost of installation and perceived risks challenges in adoption Information Technology to a very great extent. The commercial banks lack of proper regulatory policies and complexity in the use of new technologies were the challenges faced by commercial banks in adoption Information Technology to a great extent

The study established that Commercial banks faced barriers such as software errors, inadequate security function, contradictory data, low speed of the product, and insufficient support in adoption Information Technology.

From the regression analysis, the study revealed that there existed a positive relationship between effects of internet banking and financial performance in commercial banks clearly indicating that internet banking improve financial performance of commercial banks through encouraging lowering operating costs, increased income and reducing loans costs

5.3 Conclusions of the Study

The study concludes that information technology reduces operation costs in commercial banks through minimizing staff costs, reducing average transaction costs, increasing banks savings and efficiency thus improving banks profitability due to the quality products and services offered by employees. The study concluded that information technology adopted by commercial banks enables the bank to facilitate through various delivery channels. This has made the banks to increase sales, income earned through interest from loans, savings, therefore improving profit margin.

Significant technological changes can create major dislocations, rendering adoption of Information Technology in existing technologies obsolete therefore there should be a research done for developing information and guidance to promote a positive competitave advantage of the commercial banks.

The study concluded that that the charges for internet bill payments, real-time access to products and services increasing banks income, increase profits and internal cash reserves improving bank financial performance.

The study revealed that adoption of internet banking reduces loan costs as it reduces the banks cost of loan administration transaction and staff cost improving banks financial performance. The study also concluded that bank earns more interest from the loan, increased the bank’s net interest income, improve asset quality improving bank financial performance.

The study concluded that information technology is a business strategy to gain competitive advantage over rivals in the market and improve the return on assets through encouraging lowering operating costs, increased income and reducing loans costs.

5.4 Limitations of the Study

The study was constrained by limited financial and time resources. The researcher drew a time schedule and a budget that to enable the study to be completed using the budget drawn and within the required time of the study.

The study also encounters unwillingness by respondent's financial managers and credit officers to reveal information, which may be thought confidential. However, the researcher assured the respondents that the information they offered would held confidentially and would be used for academic purposes only in seeking to assess the effects of mortgage financing on financial performance of commercial banks.

5.5 Policy Recommendations

The study recommend that commercial banks should enhance and employ more resources in use of information technology to reduces loan costs, cost of loan administration transaction and staff cost bank earns more interest from the loan, increased the bank's net interest income, improve asset quality gaining the competitave advantages.

As noted earlier banking through information technology has emerged as a strategic resource for achieving higher efficiency, control of operations and reduction of cost by replacing paper based and labour intensive methods with automated processes thus leading to higher productivity and profitability. Therefore, banking institutions should integrate the use of internet for exploring and finding new customers, enhancing speedy of communication, developing new products, collecting and managing information, generating a wide range of product ideas from a wider range of sources, access documents and share technical information.

The study further recommends that in order to help banks improve their competitive advantage, they need to heighten awareness to the public through regular open day forums, media and exhibitions on the need and uses of internet banking, mobile banking and visa cards. This will be a developed strategy that will capture new customers to the banks. Public awareness initiatives will let the public know about the advantages of internet banking, mobile banking and visa cards. The public becomes aware of how they can access banking facilities and services and go about their businesses from the comfort of their space. There is need to encourage the public and set up education initiatives especially directed to the rural people to dispel the notion that internet banking is only accessible to the people living in urban areas.

5.6 Recommendations for further research

The study analyzed the adoption of information technology and competitiveness of commercial banks in Kenya. The study recommend that a further study should be carried out to establish effects of information technology in other banking institutions such as credit Unions and Microfinance so as a broad analysis on impact of information technology in banking industry can be provided.

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APPENDICES

Appendix i: Questionnaire

Dear Sir/Madam,

My name is Alec Mose Onchwari and a student perusing Masters Degree in Business Administration at the School of Business, University of Nairobi. Currently, I am conducting a research project *"Entitled Information Technology and Competitiveness of Commercial Banks in Kenya"* in partial fulfillment of requirements for the award of masters degree. You have been chosen to provide information and your kind response is highly appreciated. The information collected will be treated with high confidentiality and used for academic purpose only.

Section A: Background Information of the bank

a) Name of the bank …………………………………………………………….

b) The period the bank has been in operation:

Less than 5 years [ ] 5-10 years [ ] 11-15 years [ ] 16-20 years [ ] Over 20 years [ ]

c) Number of Branches: Less than 50 [ ] 51– 100 [ ] 100-150 [ ] 151-200 [ ] Above 200 [ ]

Section B: The Extent of Adoption of Information Technology by Commercial Banks in Kenya

1. Does your bank periodically upgrade technology used in various departments?

Yes [ ] No [ ]

2. To what extent has your bank succeeded in adoption of the latest technologies applied in the following areas? Rate your response on a scale where 1=Not at all, 2= Little extent, 3=Moderate extent, 4= Large extent and 5 Very large extent.

	Not at all	Little extent	Moderate extent	Great extent	Very great extent
Marketing					
Customer relationship management					
Financial management					
Operations management					
Corporate governance					

3. To what extent has your bank adopted the latest technologies for the following bank applications? Rate your response on a scale where 1=Not at all, 2= Little extent, 3=Moderate extent, 4= Large extent and 5 Very large extent

	Not at all	Little extent	Moderate extent	Great extent	Very great extent
Internet banking					
Mobile banking					
Automated Teller Machines					
Automated credit referencing					

4. Which other information technologies have been adopted in your bank?

(i)...

(ii) ....

(iii) ....

(iv) ....

(v) ....

Section C: The Relationship between Adoption of Information Technology and Competitiveness of Commercial Banks in Kenya

5. Please indicate the number ATMs, number of customers subscribed to mobile banking, number of customers subscribed to internet banking in the following years, number of visa electronic cards issues in the last five financial years.

Financial Year	**2006/2007**	**2007/2008**	**2008/2009**	**2009/2010**	**2010/2011**
ATMs					
Customers subscribed to mobile banking					
Customers subscribed to internet banking					
Number of visa electronic cards issued					

6. Kindly provide financial statistics about the following measures of performance in your bank in the last five financial years.

	Financial Year				
Financial Power (Million KSh)	**2006/2007**	**2007/2008**	**2008/2009**	**2009/2010**	**2010/2011**

Assets					
Debts					
Equity					
Earnings					
Net Income					
Investment in Information Technology					

7. Please indicate financial performance of your bank in the following areas for the last five financial years.

Financial Year	**2006/2007**	**2007/2008**	**2008/2009**	**2009/2010**	**2010/2011**
Profitability (Million KSh)					
Market Share (Million KSh)					

8. Kindly provide performance indices for the following departments an overall performance index in your bank for the last five financial years.

	Performance Indices per Financial Year

Department	**Jan 2006-Dec 2006**	**Jan 2007-Dec 2007**	**Jan 2008-Dec 2008**	**Jan 2008-Dec 2008**	**Jan 2009-Dec 2009**
Information Communication Technology					
Human Resource					
Marketing Department					
Customer Relations					
Finance					
Credit					
Overall performance index for the bank					

9. To what extent has information technology influenced overall performance of your bank and performance in each of the following departments?

Department	**Not at all**	**Little extent**	**Moderate extent**	**Great extent**	**Very great extent**

Information Communication Technology					
Human Resource					
Marketing Department					
Customer Relations					
Finance					
Credit					
Overall performance of the bank					

10. Rate the overall effectiveness of Information Technology in enhancing bank competitiveness in the last five years.

a) Highly effective [ ]

b) Effectives [ ]

c) Moderately effective [ ]

d) Less effective [ ]

e) Not effective [ ]

11. How else can banks enhance their competitiveness through adoption Information Technology?

(i)...

(ii) ....

(iii) ....

(iv) ....

(v) ....

Section D: The Challenges Faced In Adoption of Information Technology by Commercial Banks in Kenya

12. To what extent has your bank encountered the following challenges in adoption Information Technology? Rate your response on a scale where 1=Not at all, 2= Little extent, 3=Moderate extent, 4= Large extent and 5 Very large extent

	Not at all	**Little extent**	**Moderate extent**	**Large extent**	**Very large extent**
Incompatibility of various technologies					
Complexity in the use of new technologies					
Perceived risks in IT					
High cost of installation					
Lack of affordability of technological devices such as computers and mobile phones by customers					
Lack of proper regulatory policies					
Resistance in acceptance of new technology					

13. Which other challenges are encountered in adoption Information Technology?

(i)..

(ii) ....

(iii) ....

(iv) ....

(v) ....

14. What can be done to overcome challenges are encountered in adoption Information Technology

(i)...

(ii) ....

(iii) ....

(iv) ....

Appendix ii: List of Commercial Banks

1. ABC Bank
2. Bank of Africa Kenya
3. Bank of Baroda
4. Bank of India
5. Barclays Bank of Kenya
6. Chase Bank
7. Citibank N.A.
8. City Finance Bank
9. CFC-Stanbic Bank
10. Co-operative Bank of Kenya
11. Commercial Bank Of Africa
12. Consolidated Bank of Kenya
13. Credit Bank
14. Development Bank of Kenya
15. Diamond Trust Bank of Kenya
16. Dubai Bank Kenya
17. Equatorial Commercial Bank
18. Equity Bank
19. Ecobank
20. Family Bank
21. Fidelity comm. Bank
22. First Community Bank
23. Fina Bank
24. Guardian Bank
25. Giro Commercial Bank
26. Gulf African bank
27. Habib A.G. Zurich
28. Habib Bank Kenya
29. Imperial Bank

30. I & M. Bank
31. K-Rep Bank
32. Kenya Commercial Bank
33. Middle East Bank
34. National Bank of Kenya
35. N.I.C. Bank
36. Oriental Commercial Bank
37. Paramount Universal bank
38. Prime Bank
39. Southern Credit bank
40. Standard Chartered Bank
41. Trans-National Bank
42. UBA bank
43. Victoria Commercial Bank

Source: Central Bank of Kenya (2012). Registered Commercial Banks. Available at

http://www.centralbank.go.ke/financialsystem/banks/Register.aspx.