

**INFORMATION TECHNOLOGY INVESTMENT AND
PERFORMANCE OF COMMERCIAL BANKS IN KENYA**

BY

BETH NYAGA

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DECLARATION

This is my original work and has not been presented for a degree in any other university.

Signature Date

BETH NYAGA

D61/75494/2009

This project has been submitted for examination with my approval as the University
Supervisor:

Signature Date

MR. JOEL LELEI

LECTURER

DEPARTMENT OF MANAGEMENT SCIENCE

SCHOOL OF BUSINESS

UNIVERSITY OF NAIROBI

DEDICATION

I dedicate this work to God who has kept me in good health throughout the whole process, including the completion of this research project. Secondly, I dedicate this research project to my family and friends.

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Utmost thanks to the almighty God for the good health and ability to undertake and accomplish this research project.

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ABSTRACT

Over the years, technology in business has been changing rapidly as the global environment becomes highly competitive and innovative. The use of information technology (IT) then has become very vital to all organizations that intend to remain competitive in the market. Organizations therefore are increasingly investing in IT. Despite this rapid growth in investment in information technology, there is no evidence to prove that there is a convincing link between investment in information technology and organizational performance. The need for this study therefore arises, the objectives of the study are to establish the level of IT investment in commercial banks in Kenya, to determine the level of integration of IT into business functions of commercial banks in Kenya, to determine the relationship between IT investment and performance of commercial banks in Kenya. Several studies have been undertaken internationally on information technology investment and performance. The population of the study comprise of all the commercial banks operating in Kenya. According to Central Bank of Kenya (2014) there are 43 commercial banks operating in Kenya and all of them participated hence the study was a census. The study used primary data which was collected using questionnaires. Data were analyzed using frequencies, percentages, mean, standard deviation and regression analysis. The study findings established that, Investment in information Technology is inevitable. Organizations are increasingly recognizing the importance of an effective IT infrastructure. Further conclusions are made that skills and experience enable firms to coordinate activities and make use of their resources. Different firms may have differential technical IT skills and experiences that enable them to manage their IT investment risk better. A firm's experience improves the quality of products and services and lowers its costs. Limited skills and experience within an organization will typically limit responses to rapid environmental change. It is critical that a firm's IT staff hold a combination of skills knowledge of IT elements and knowledge of technology management for the efficient management of a firm's IT resources.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

In today's marketplace full of fierce competition, managers find the need to make swift and high quality business decisions almost every day, and they need high quality data in their decision making process. As the world economy continues to globalize and competition increases, the key challenges of today's banks are both how to respond more quickly to challenges and how to handle uncertainty. Today, most banks use information technology not only to manage their business, but also to keep in contact with world markets (Peppard and Ward, 2013). Information technology (IT) is no longer just another cog in the enterprise but a major component of the organization and according to Freitas, Luciano and Testa (2010), the adoption and integration of Information Technology (IT) into business processes is increasing at a fast rate.

The banking industry in Kenya has in the recent past witnessed drastic changes and one profound change has been the adoption of information technology in their operations due to the demanding customers that have limited their visits to the physical bank branches. In line with rendering quality and acceptable services, most commercial banks in Kenya are investing large sums of money in information and communication Technology due to the shifting nature of the customers and also because many of the customers tend to prefer transacting electronically (CBK, 2013). While the rapid development of information technology has made some banking tasks more efficient and cheaper, technological investments are taking a larger share of bank's resources.

Currently, apart from operational costs, technology is usually the biggest item in the budget of a bank, and the fastest growing one. Banks need to manage costs and risks associated with electronic banking. Despite the potential benefits of IT, there is debate about whether and how their adoption improves bank performance (Orudho, 2014).

1.1.1 Information Technology Investments

Information Technology (IT) is a term used to refer to the use of computers or any other process that helps to produce, manipulate process, store, communicate, and/or disseminate information and it includes hardware, software, databases, networks and

other related components which are used to build information systems (Shaukat and Zafarullah, 2010). Traditionally, IT investments includes IT equipment, communications equipment and software (pre-packaged software, customized software and software developed in-house) (Freitas, Luciano and Testa, 2010).

Present-day IT investments include intellectual capital structure and complementary assets such as human capital, organizational capital, process capital, innovation capital, customer capital and financial capital (Derrick, Gurbaxani, and Kraemer, 2013). Achieving high performance also requires good IT infrastructure supported by good IT management practice (Chen and Galbraith, 2009).

1.1.2 Organizational Performance

Organizational performance is the final achievement of an organization and contains a few things, such as the existence of certain targets, has a period of time in achieving these targets and the realization of efficiency and effectiveness (Gibson *et al.*, 2010). Thus, organizational performance refers to ability of an enterprise to achieve such objectives as high profit, quality product, large market share, good financial results, and survival at pre-determined time using relevant strategy for action. Performance provides the basis for an organization to assess how well it is progressing towards predetermined objectives, identify areas of strength and weakness and decide on the future initiatives with the goal of how to initiate performance improvement (Vanweele, 2006).

Organizational performance includes multiple activities that help in establishing the goals of the organization, and monitor the progress towards the target (Johnson *et al.*, 2006). Hopkins and Hopkins (2007) used three measures in the financial performance of banks, namely, profits (or net income), return on investment and return on shareholder equity (ROE). Rowley (2011) used both financial and non-financial indicators. The financial indicators were a percentage growth in sales, labeled as sales growth and percentage profit margin labeled as profitability. They use public image and goodwill, quality of services and efficiency of operations as the non-financial indicator.

Allan, Chakrabarti and De (2007) noted that performance can be evaluated with qualitative criteria such as job satisfaction, organizational commitment, and

perception of justice and quantitative criteria such as profitability, investment return ratio, and sales growth in the studies. The relationship between investment in IT and firm's performance may not necessarily be positive according to productivity paradox. Productivity paradox is the discrepancy between measures of investment in IT and measure of output at the national level (Solow, 1987).

1.1.3 Commercial Banks in Kenya

A commercial bank means a company which carries on, or proposes to carry on banking business in Kenya, it provides transactional, savings, and money market accounts and accepts time deposits (CBK, 2015). According to the Central Bank of Kenya, there are 43 licensed commercial banks in Kenya and 1 mortgage finance company (CBK, 2015). The Banking industry in Kenya is governed by the Companies Act, the Banking Act, the Central Bank of Kenya Act, and the various prudential guidelines issued by the Central Bank of Kenya (CBK). Central Bank of Kenya publishes information on Kenya's commercial banks and non-banking financial institutions, interest rates and other publications and guidelines (CBK, 2011).

Banks represent a significant and influential sector of business worldwide that plays a crucial role in the global economy. They channel funds needed by business and household sectors from surplus spending to deficit spending units in the economy. A well-developed efficient banking sector is an important prerequisite for saving and investment decisions needed for rapid economic growth. A well-functioning banking sector provides a system by which a country's most profitable and efficient projects are systematically and continuously funded. The role of banks in an economy is paramount because they execute monetary policy and provide means for facilitating payment for goods and services in the domestic and international trade (Nyaoke, 2007).

The CBK (2015) annual supervision report emphasizes that the financial institutions will need to cope continuously with changing business environment and a continuous flood of new requirements via a robust IT platform, while staying sufficiently agile. Consumers will continue to demand individualized services, and to demand them faster than ever (CBK, 2014). The banking industry in Kenya has found it necessary to embrace business integration as one way of responding to the changing needs of the

customers. Contemporary customers have become more informed and require efficient and faster service delivery than before.

Nyaoke (2007) indicates that there are some challenges that are encountered by the banking industry in Kenya such as money laundering, but such kind of challenges are easily overcome once banks embrace integration since various departments are able to share real time information. The banking industry in Kenya has been in a process of significant transformation backed by innovation in information technologies. Information technology is at the centre of this global change curve of electronic banking system in Kenya today. It is against this background, that this study investigates the relationship between information technology and performance of the Kenyan banking sector.

1.2 Research Problem

Over the years, technology in business has been changing rapidly as the global environment becomes highly competitive and innovative. The use of information technology (IT) then has become very vital to all organizations that intend to remain competitive in the market. Organizations therefore are increasingly investing in IT. Despite this rapid growth in investment in information technology, there is no evidence to prove that there is a convincing link between investment in information technology and organizational performance.

Several studies have been undertaken internationally on information technology investment and performance. These studies include Shu and Stressmann (2005) survey on 12 banks in the US for the period of 1989-1997. They noticed that even though information and communication technologies have been one of the most essential dynamic factors relating all efforts, it cannot improve banks' earnings in terms of return on assets. Richard, Devinney, Yip (2011) study on the relationship among information technology investment, firm performance, innovation and firm growth, among largest Iranian manufacturers established that IT increases the innovation of the firm. Innovation improves firm performance in terms of financial and operational aspects. The results indicate that IT impact on firm performance is through innovation.

The study of Ajlouni (2010) was applied on the evaluation of management information systems at Arab Bank and Royal Jordanian. The researcher found that the availability of appropriate information at reasonable time increases the efficiency in management decision-making, and provides sufficient flexibility to respond to developments in business and increase the size. Saloner and Shepard (2012) study on the relationship between information and communication technology investment on banks' performance in the United States of America established that information technology brings down the operational costs of the banks (the cost advantage). The context in which the above studies were done was different from Kenyan situation and thus need to look at Kenyan.

The Kenyan banking industry has continued to grow both in terms of new local and foreign entrants, customer and deposit base, regionalization and increased scrutiny from the regulators specifically the Central Bank of Kenya. With this growth has come the need for the banks to explore other avenues from which their performance can be increased. In line with rendering quality and acceptable services, most banks in Kenya are investing large sums of money in information and communication technology. While the rapid development of information technology has made some banking tasks more efficient and cheaper, technological investments are taking a larger share of bank's resources. Contribution of IT to performance of commercial banks in Kenya therefore needs to be understood given that positive contribution is not guaranteed as shown by productivity paradox.

Local studies that have been undertaken on information technology investment on performance include Makumi (2013) study on the effect of information technology investment on the financial performance of healthcare facilities in Nairobi County. The study established that there is a positive correlation between number of IT labour, IT budget and performance of Healthcare facilities. Onchwari (2012) researched on information technology and competitiveness of Commercial banks in Kenya and found out 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. Nyang'au (2014) study on the impact of information and communication technology on KenGen performance established that IT had facilitated production of ad hoc reports, improved quality of work, enabled availability of reliable information

on power generation and facilitated knowledge sharing and building on each other's ideas in real time. However, from the above studies, it is evident that they have not explored to linking the effect of information technology investment on the performance of commercial banks in Kenya. This therefore leads to the following research questions; what is the level of integration of information technology into business functions of commercial banks in Kenya? What is the relationship between IT investment and performance of commercial banks in Kenya?

1.3 Research Objective

The objectives of the study were;

- i. To establish the level of IT investment in commercial banks in Kenya
- ii. To determine the level of integration of information technology into business functions of commercial banks in Kenya
- iii. To determine the relationship between IT investment and performance of commercial banks in Kenya.

1.4 Value of the Study

This study is of great importance considering the fact that entry barriers to the banking industry have been greatly lowered by leveraging on ICT. In theory this study is justified in the sense that it highlights the imperative of ICT and its inherent dynamism. The study may be important to commercial banks in Kenya as it explains the impact of IT investment on performance. By clearly exposing the positive relationship between technology investment and improved performance, the study will serve as a reference for justifying investment in information technology and to dispel the fear that banks were suffering from productivity paradox experienced in other industries.

The policy makers could use the results of the study to formulate policies that would help enhancing contribution of information technology invest to performance. The findings of this study are expected to contribute to research and practice, by elaborating the effect of information technology on performance by the commercial banks in order to be competitive in the industry. The study may also add to the existing body of knowledge by stimulating new areas for further research through the findings and subsequent recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter is structured based on the research objectives. It reviews the relevant literature available that focuses on the theoretical framework, information technology investment, effect of information technology investment on organizational performance, summary and conceptual framework of the study.

2.2 Theoretical Foundation of the Study

A theoretical framework is a collection of interrelated concepts, like a theory but not necessarily so well worked-out. Theoretical frameworks are obviously critical in deductive, theory-testing sorts of studies. A theoretical framework is used by scientists when performing research studies to formulate a theory. The theoretical framework is a foundation for the parameters, or boundaries, of a study. This study is grounded on Technology Acceptance Model Theory and the Theory of Planned Behavior.

2.2.1 Unified Theory of Acceptance Use of Technology

Unified Theory of Acceptance Use of Technology or UTAUT is a theoretical model used in information systems research. The UTAUT has four predictors of behavioral intention or usage - performance expectancy, effort expectancy, social influence and facilitating conditions. The predictors are defined as follows (Venkatesh et al., 2003).

Performance expectancy (PE) in the UTAUT model was derived from a combination of five similar constructs including perceived usefulness, extrinsic motivation, job-fit, relative advantage and outcome expectations. Performance expectancy is the strongest predictor of intention within each of the individual models reviewed and was found significant at all points for both voluntary and mandatory settings in Venkatesh *et al.*, (2003) model-validation. In the UTAUT model also, effort expectancy (EE) captures the notions of perceived ease of use and complexity. In validation of the UTAUT, EE was significant in both voluntary and mandatory usage contexts, although only for the first period of usage. Since practice increases one's comfort with software, effort-oriented constructs logically would become less salient after learning hurdles are overcome (Payne *et al.*, 2008).

2.2.2 The Technology Acceptance Model

The TAM Model was advanced by Davis (1986) and specifically addresses the determinants of computer acceptance among end users. TAM theorizes that an individual's behavioral intention to use a system is affected by two beliefs: perceived usefulness and perceived ease of use. Perceived usefulness is the extent to which a person believes that using the system will improve his or her job performance while perceived ease of use is the extent to which a person believes that using the system was free from error (Venkatesh and Davis, 2010). TAM posits that both beliefs are of primary relevance to computer acceptance behaviors. The goal of TAM is to provide an explanation of the determinants of computer acceptance that is in general capable of explaining user behavior across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified.

Technology Acceptance Model claims that user's adoption of ICT is determined by intention to use, which in turn is driven by the user's attitude and belief about the system. TAM further explains that perceived usefulness and perceived ease of use are helpful in explaining difference in users' intention. TAM incorporates four influences (performance expectancy, effort expectancy, social influence, and facilitating conditions) on behavioral intentions, which then affect technology use. Moreover, these relationships are moderated by gender, age, experience, and voluntary of use and have demonstrated strong validity, reliability, and predictive power (Bhattacharjee and Sanford, 2006).

2.2.3 Theory of Planned Behavior

Theory of planned behavior (TPB) proposes that a person's intention to perform a behavior was the central determinant of that behavior because it reflects the level of motivation a person is willing to exert to perform the behavior (Ram and Acharya, 2007). The TPB has been largely used by researchers to understand a variety of health-related behaviors in various population groups. Connel and Saleh (2004) suggest that there is a predictable link between health care professional's intention to engage in behavior and their subsequent behavior.

A fundamental tenet of social technical systems thinking is that technology on its own had little meaning for purposes of organizational analysis, being truly comprehensible

only in terms of the context in which it was embedded and by extension, the organization goals or transformations that it serves or enables (Pasmore, 2004). Moving beyond a concern with one user and an interface, social technical systems theory argues that a network of social relationships surround all working practices. The gainful employment of any technology hinges on the ability and the willingness of users to employ it for worthwhile tasks (those deemed central to the organizations goals). Accordingly any technology cannot be analyzed or understood in isolation of the goal oriented organization it is intended to support. In order to jointly optimize both the social and technical attributes of any organization, allowance must be taken at the engineering level of the social dynamics of any organization or sub-unit within it (Ashrafi & Murtaza, 2008).

2.3 Information Technology Investment

Investment in Information Technology has become important for both public and private organizations, and studies confirm the importance of spending to create and establish IT because of the benefits achieved for companies and the economy in general (Becchetti, Bedoya & Paganetto, 2013). To increase the benefits of IT, an organization should consider the factors related with in investment, in order to own the suitable IT. This IT resource includes organizational capital, human capital, innovation capital, and customer relationship.

2.3.1 Organizational Capital

Information Technology infrastructure in today's large organizations use ever more advanced hardware, software, and applications to provide data and information through networks and access for organizational use (Saloner and Shepard, 2012). IT infrastructure covers components such as hardware, software, telecommunications technologies and databases.

IT use has strategic potentials. Rowley (2011) identified the strategic potential of IT resources as sharable and reusable possessions of a firm. For this to be maintained, IT resources need to be upgraded. As Allen and Berger (2011) noted, existing IT applications and platforms may not keep up with a rapidly changing environment, so upgrading the infrastructure may be the key to improving an organization's effectiveness.

Organizations are increasingly recognizing the importance of an effective IT infrastructure (Byrd and Turner, 2011). The effectiveness of infrastructure can be evaluated using criteria such as reliability, flexibility, and upgrade ability. Chen and Galbraith, (2009) posit that a firm with high infrastructure flexibility could make rapid changes to information systems in support of changing business needs while firms with low flexibility infrastructures was unable to imitate the IT innovations of its competitors. IT infrastructure can link entire organizations, suppliers, and customers.

2.3.2 IT Human Capital

Skills and experience enable firms to coordinate activities and make use of their resources. Different firms may have differential technical IT skills and experiences that enable them to manage their IT investment risk better. According to Shaukat and Zafarullah (2010), a firm's experience improves the quality of products and services and lowers its costs. Limited skills and experience within an organization will typically limit responses to rapid environmental change.

It is critical that a firm's IT staff hold a combination of skills knowledge of IT elements (knowledge about operating systems, databases, networks security and programming), and knowledge of technology management for the efficient management of a firm's IT resources. However, IT personnel expertise becomes an intangible asset for firms when IT personnel understand how the firm's business strategies are combined with IT skills (Feeny and Willcocks, 2008). As IT becomes an integral part of business operations, IT personnel who hold business knowledge are able to formulate effective IT solutions and leverage their technical skills to align the firm's strategies to changing environments. Therefore, firms with competent IT personnel have a higher chance of meeting the demands of changing environments by aligning IT strategies with business strategies, developing reliable and cost effective systems, and anticipating IT needs for business services better than their competition (Bhatt and Grover, 2011).

Superior firm performance depends on a firm's ability to effectively utilize its resources. Human resources include training, education, judgment, intelligence, relationships, creativity, and insights of individuals, all of which help to sustain a

competitive advantage (Iraz, 2008). Firms must have more efficient and effective human resources to implement new strategies to achieve high performance. Kim and Davison (2011) argue that IT successes generally reflect an effective relationship between business managers and information services managers and their staffs. Bharadwaj (2010) noted that human IT resources include technical and managerial skills in planning and developing reliable and cost-effective IT applications for a long-term competitive advantage. It may take years for a firm to build its technical and management IT skills while it continues to keep up with technological changes and new systems.

2.3.3 Innovation Capital

In an increasingly complex, dynamic, competitive, and global environment, the success of IT-intensive organizations, such as commercial banks, hinge on the effectiveness of knowledge workers (Patnayakuni, Ruppel, and Rai, 2009). Technical knowledge refers to the know-how needed to build and use IT applications, including, for example, knowledge of computer languages, computer programming, operating systems, communication protocols, and products (Chen and Galbraith, 2009). Firms with superior knowledge are able to coordinate their resources and capabilities to sustain their advantage. Organizations need to invest in personnel training constantly to ensure worker effectiveness in providing IT-based support to both internal and external customers. Effective knowledge workers possess decision-making abilities and customer-centric behaviors that improve financial performance of organizations eventually. Beccalli (2012) noted that effective employee training enables employees and knowledge workers to develop and implement IT solutions that help organizations to increase the benefits of IT investments. As employee capabilities increase so does a firm's ability to increase the benefits of the investment.

Callahan, Gabriel and Smith (2009) noted that managers must have up-to-date technical and management knowledge to coordinate their resources if they are to properly implement IT. Such knowledge enhances a firm's ability to discover and exploit new opportunities. Because of the IT-investment involving with IT staff and firm's governance, the chief information officer and IT staff are important and complementarities between them. The management should have management skill,

ability to define the corporate strategies, and background with understanding of both IT skill and good governance for direct IT staffs to reach the returns to IT-investment.

2.3.4 Customer Capital

McKenzie (2011) noted that business organizations can improve their performance by developing a good relationship with their customers. Ramaseshan (2004) points out the pressure in the competitive environment of retail banking to innovate and develop new ways to improve customer service. IT plays a major role in the economy by enabling sellers and buyers to create economic value through exchange of information, goods/services, and payments and the importance of the customer relationship potential in e commerce has been stressed by many authors and specifically in the banking industry (Duncan and Elliot, 2012).

The internet provides constant access between activities, to suppliers and customers, and enables firms to provide detailed specifications of products and services to global customers. Richard *et al.* (2011) established that technology allows firms to know more about their customers and to attract customers in highly customized, unique ways, such as sending personally relevant information to customers or providing rewards that would be highly valued by a particular customer. Responding to customers' needs is perhaps the most important strategy for creating superior customer loyalty. Customers have so many choices available to them that they can be more demanding than before, and firms need to have the ability to track and predict changes in customer preferences, and provide timely responsiveness (Kim and Davison, 2011).

Chen and Galbraith (2009) noted that maintaining a customer is more challenging on the IT, suggesting that the level of perceived customer loyalty affects business organizational success. They argued that the level of competition in IT affects the likelihood of retaining customers in the long run. In their study, they identified three dimensions of customer loyalty: reduction in consumers' search costs; lower barrier of entry; and reduced distinctiveness of firms. Their focus, however, was on how perceived customer loyalty could affect business organizational success and they found that customers were more likely to deal with large organizations than small ones because of perceptions that these large organizations had the capability to offer better services. In a study of customer contact personnel in retail banking services in

Australia. Julian and Ramaseshan (2004) argued that to gain competitive advantage in a competitive banking industry, customer service is very important. They suggested that banks would need to address the issue of retaining customers through good service (hence IT use) so that the risk of switching banks could be minimized.

2.4 Challenges of Integrating Information Technology with Business Functions

Business organizations use IT to develop new products, services, improve existing products and processes so as to achieve a competitive edge in the market or to effect significant improvements in internal operations. The potential importance of IT for an organization depends upon the information intensity of processes and the information content of the products. The strategic use of IT in an organization is therefore necessary for the bending of the IT strategy into the corporate strategy (Pan, 1996).

However, Thomas *et al.* (2002) stated that although technology opens up new dimensions of scope and timing, it creates the possibility for crimes to be committed very quickly. Technology provides benefits for banks but it worsens traditional banking risks. As the amount of products and services offered by technology grows rapidly, consumers are more and more concerned about security and privacy issues. The banking industry has declared information privacy and security to be major obstacles in the development of consumer electronic commerce. Continuous vigilance and revisions will therefore be essential as the scope of technology on banking increases. However, the ease with which capital can potentially be moved between banks and across borders in a technology environment pose a greater sensitivity to economic policy management.

According to O'Leary *et al.* (1989), two issues come to mind when banks talk about security. They are privacy and security, controlling who gets access to the bank's computer system and its programmes, and what time to access it. Studies regarding technology on banking examined barriers such as, security, privacy, and trust of Web system (Rotchanakitumnuai and Speece, 2003). A lack of privacy and security were found to be significant obstacles to the adoption of technology on banking services (Sathye, 1999). Also, as Schechter (2002) notes, breaches of security and disruptions to the system's availability can damage a bank's reputation; this can potentially affect other technology banking services and its usage.

According to Ravindran (2009), for the enterprises to succeed in protecting their business data and to achieve a secure IT environment they have to develop an IT Strategy with centralized approach. Some organizations are facing problems in managing their IT environment and protecting the business data because they are trying to achieve this by deploying multiple point tools to manage the IT environment. Cinoy (2009) noted that it is possible for organizations to work effectively, give constant communication to customers and create close collaboration between customers and organizations if they make proper use of IT. IT leaders use technology to solve real business problems by aligning efforts with business goals and using collaboration tools to manage projects more efficiently. They also use IT to make smart sourcing decisions to maximize limited resources.

The development of an efficient monetary transfer system is associated with so many factors. These problems are infrastructural deficiency such as erratic power supply and communication link especially in developing countries. In this case it requires government or organizations to provide stable and efficient power supply and telecommunication system (Oleka, 2009). Inadequate skilled managers and requisite tools on end users and client systems, here efforts should be done in provision of infrastructure and skilled man power, another problem is the large accumulation of cash in the economy and in this the government should compel legislation that would charge the dominance of cash usage to electronic payments.

There is high charge or cost for the e-payment terminals (ATMs) so the banking legislation should set out standard charges for e-payment services (Littler, 2006). Non-provision of adequate security for fraud prevention, banks should endeavor to provide stand-by-camera in every ATMs machine for confirming identify of operators account and employ a good computer wizard in dictating and preventing frauds committed by computer hackers. Lack of government support for the improvement of e-banking, there should be an involvement of central banks in public awareness campaign and escalating infrastructural challenges to the relevant government agencies.

2.5 Effect of Information Technology Investment on Organizational Performance

The expected impact of ICT is that the new ICT based technologies and processes would lead to commercial banks improvement in their operating efficiencies and

customer service levels (Saloner and Shepard, 2012) They noted that the positive effect of ICT on firm performance not only in terms of productivity, profitability, market value, and market share, but also in intermediate performance measures, such as process efficiency, service quality, cost savings, organizational and process flexibility, and customer satisfaction. Duncan and Elliot (2012) noted that IT has produced changes in the structure of bank income. As a result of increased competition that has lowered margins in lending operations (the banks' traditional business) banks have diversified their sources of income and rely increasingly on income from fees services rather than interest rate spreads. Fees charged for services include typical banking activities like payment transactions, safe custody and account administration (Hallam-Baker, (1996). These activities are, in general, less volatile than fees and commissions charged on activities which are affected by economic and cyclical developments (underwriting activities, brokerage services, treasury management, transactions on derivatives, private banking, and credit card business). This change is also reflected in the increasing size of off-balance sheet items in the banks' financial accounts.

Adeosun et al. (2009) state that the use of IT enables strategic management, communication, collaboration, information access, decision making, data management and knowledge management in organizations. IT can provide powerful strategic and tactical tools for organizations, which, if properly applied and used, could bring great advantages in promoting and strengthening their competitiveness (Buhalis, 2004). Hengst and Sol (2011), state that IT enables organizations to decrease costs and increase capabilities and thus assist to shape inter organizational coordination. The use of IT can assist to lower coordination cost and increase outsourcing in organizations. Ramsey et al. (2003) note that organizations generally stand to gain from IT in areas such as reduced transaction costs, information gathering and dissemination, inventory control, and quality control.

Oliner and Sichel (2010) suggested that IT investments results in great triumph and pay-off when the firm enjoys a quality management team committed to IT initiatives, whereas attributed the superior firm performance to the superior number of information workers. Scott (2011) noted that IT can be a means of facilitating communication and the exchange of information between various departments and

functions in the organization and in this light IT acts as an enhancer of collaboration and networking tool amongst employees, customers and partners because it removes the barriers to real-time communication and effective information sharing (Scott, 2011).

In view of the foregoing observation, investment in IT is necessary. The relationship between investment in information technology and institutional innovation on one hand and strategic excellence on the other hand needs to be understood (Hagen, 2010).

2.6 Summary of the Literature and Research

IT is increasingly integrated into the core of businesses and may satisfy the organization's desire of having a competitive edge, but that require IT investments to compete for scarce resources of the organization which adds pressure on decision makers to have better justification for the investments. Although that sound good, evaluating an IT investment is not an easy task, and so its contribution may not be evident. Thus, although IT is being adopted in many commercial banks, assessment of its appropriateness and effects on performance has not been fully understood hence the need to assess the relationship between information technology investment and performance of commercial banks in Kenya.

2.7 Conceptual Framework

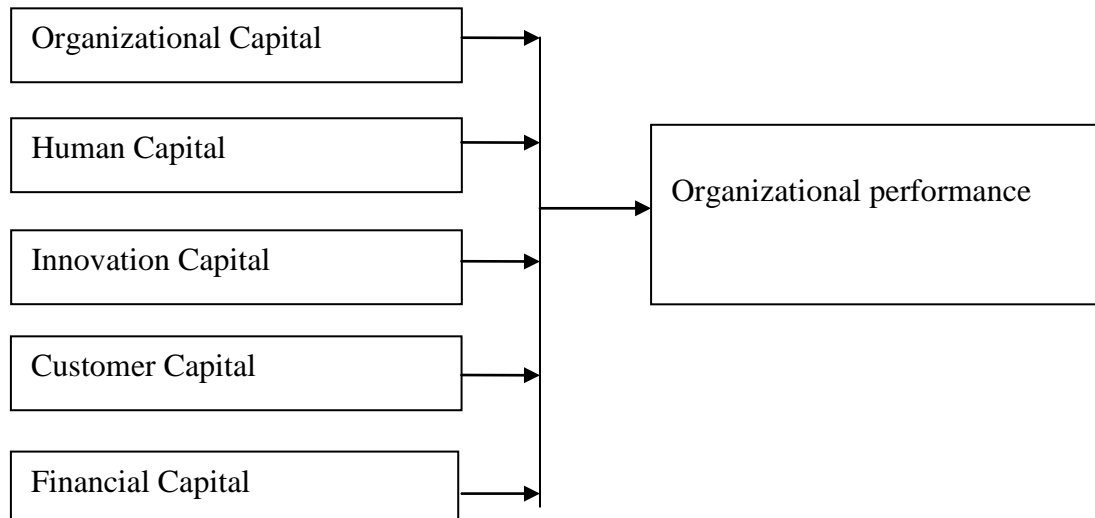
The interrelationship among the key variables in the study is illustrated in Fig. 2.1. The dependent variable is organizational performance while the independent variables are IT investments.

This study adopts a conceptual framework of digital marketing strategies on performance. In particular, it investigates the significance of marketing communication, transaction channel, distribution channel and organizational performance.

Figure 2.1: Conceptual Framework

Independent Variable

Dependent Variable



CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The section covers research methodology steps. The steps include; research design, identifying the target population, data collection instruments, data collection procedures and finally data analysis.

3.2 Research Design

The study used descriptive cross sectional survey. A descriptive cross sectional study attempts to describe or define a subject, often by creating a profile of a group of problems, people, or events, through the collection of data and tabulation of the frequencies on research variables or their interaction (Cooper and Schindler, 2003). The decision to apply descriptive cross sectional survey research design is based on the fact that in the study, the researcher's interest was on the state of affairs already existing in the field and that no variable is to be manipulated.

Descriptive cross sectional survey designs are used in preliminary and exploratory studies to allow researchers to gather information and summarize, present and interpret data for the purpose of clarification (Sekaran and Bougie, 2010). The design was chosen for this study due to its ability to ensure minimization of bias and maximization of reliability of evidence collected.

3.3 Population of the Study

The population of the study comprise of all the commercial banks operating in Kenya. According to Central Bank of Kenya (2014) there are 43 commercial banks operating in Kenya and all of them participated hence the study was a census. (See Appendix 2)

3.4 Data Collection

The study used primary data which was collected using questionnaires. The questions were rated using a 5-point Likert scale ranging from 1 (not at all) to 5 (very large extent). A 5-point Likert scale was used in the survey to achieve higher statistical variability among responses. The questionnaire was divided into four sections. Section A covers the respondents demographic and organizational information, Section B covers elements of information system, Section C covers challenges faced in integrating information technology to the banks business process while Section D

covers the effects of investment in information technology on the performance of commercial banks. The target respondents were operation managers in all the commercial banks.

3.5 Data Analysis

Before processing the data completed questionnaires were verified for completeness and consistency. Demographics data were analyzed by the use frequencies and percentages. As for extent of IT investment and challenges in integrating IT and banks business functions analysis was by means and standard deviations. The information were displayed by use of tables and graphs. Analysis of bank performance was also done using mean and standard deviation.

To establish the relationship between IT investment and bank performance, regression analysis was done. The regression model assumed the following form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \alpha$$

Where:

Y is organizational performance;

β_i ($i = 0 - 6$) is the regression coefficient;

X₁ - Organizational Capital

X₂ - Human Capital

X₃ - Innovation Capital

X₄ - Customer Capital

X₅ - Financial Capital

α - Unexplained variables not explained by the model

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter entirely covers the findings, data presentations and analysis of the findings on the effect of information technology investment on the performance of commercial banks in Kenya. The data presented and analyzed is based on the questionnaires that were answered by the respondents. Analysis is done using frequencies and percentages and the flow of data presentation and analysis follow the ranking of objectives of the study. Primary data was collected using a questionnaire. All the forty three commercial banks participated in the study.

Out of 43 questionnaires distributed to the banks, 40 were filled and returned an equivalent of 93%, further, 3 were unreturned which was equivalent to 7%. The response rate is considered adequate given the recommendations by Saunders, Lewis and Thornhill (2007) who suggest a 30-40% response, Sekaran (2003) who document 30%, Mugenda and Mugenda (2003) advise on response rates exceeding 50% and Hager, Wilson, Pollack and Rooney (2003) recommend 50%. Based on these assertions, this implies that the response rate for this study was adequate.

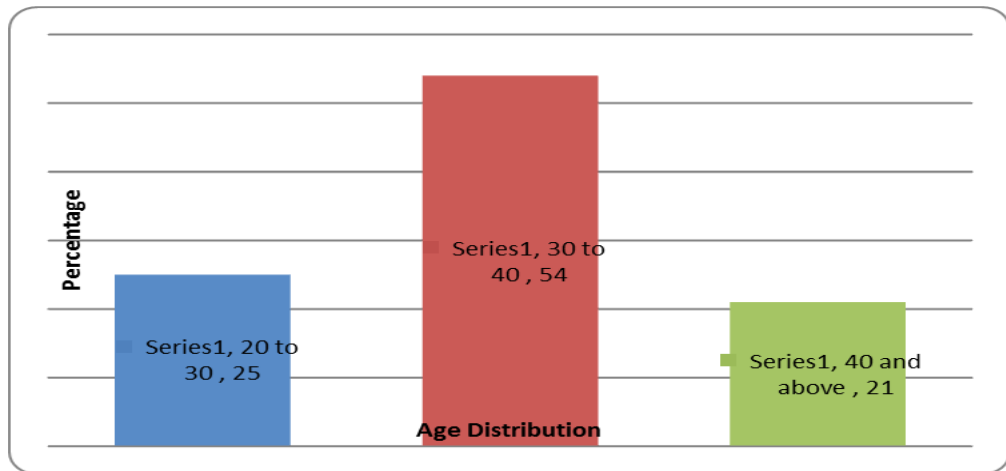
4.2 Demographic Characteristics

The study sought to establish the information on the respondents employed in the study with regards to the age, academic background and duration of service. These bio data points at the respondents' appropriateness in answering the study questions.

4.2.2 Distribution of Age Group

The respondents were asked to disclose their age. Figure 4.2 shows the study finding on the distribution of age of respondents.

Figure 4.1: Distribution of Age Group

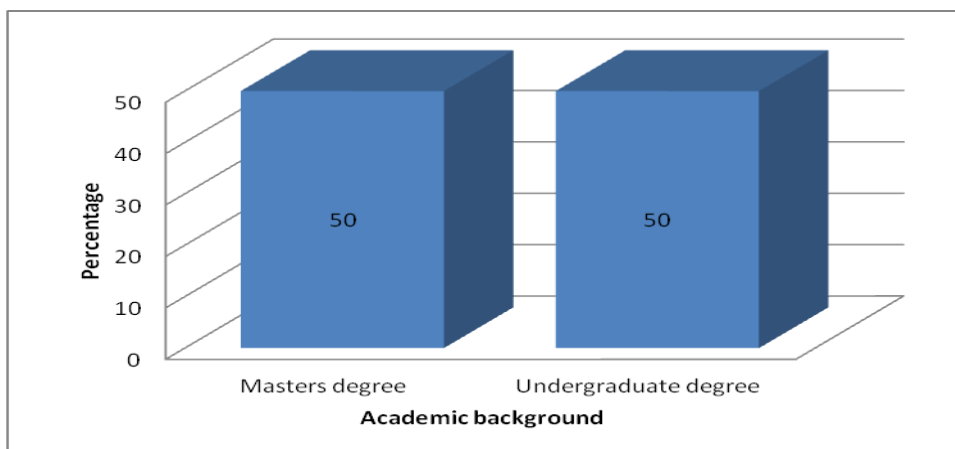


The results presented in Figure 4.3 show that a large proportion of 54% the respondents were aged from the ages of 30 to 40 years; this was followed by a significant 25% who were aged from 20-30 years while 21% of the respondents were aged above 40 years. The age composition shows that most of the respondents were of the 30 to 40 years and therefore had rich experiences, could also appreciate the importance of the study.

4.2.3 Level of Education

The respondents were asked to indicate their academic background. Figure 4.3 shows the study findings on the respondents academic background.

Table 4.1: Academic Background



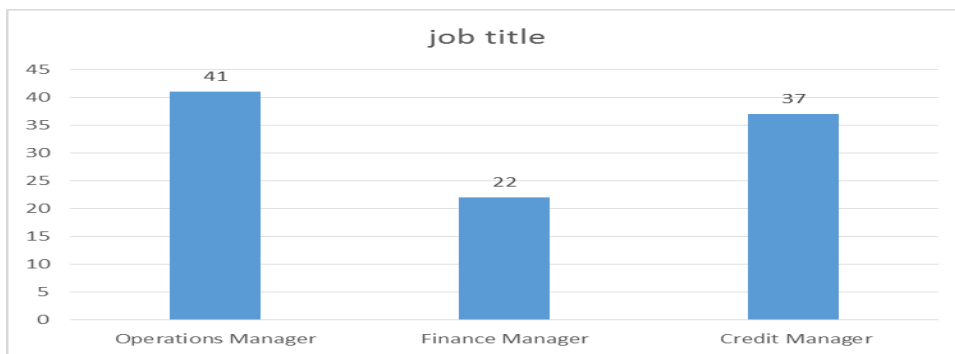
The study findings indicate that 50% of the respondents are undergraduates and another 50% are master's degree holders. All of the Managers are degree holders

therefore, provided information based on the academic and experience they have gain in management. The findings indicate that majority of the respondents had attained their undergraduate studies and therefore were in a good position to respond effectively and give rich information to our study.

4.2.4 Department of Operation

The respondents were asked to indicate their current department in the bank. Figure 4.4 show the results of the respondents.

Figure 4.2: Job Title



Forty one percent of the respondents were operation mangers, 22% were finance officers whereas 37% percent work credit managers.

4.2.5 Length of Continuous Service

The results of data analysis on length of continuous service of the respondents with the bank are shown in the Table 4.1

Table 4.1 Length of Continuous Service

Education level	Frequency	Percentage (%)
Less than two years	12	30
2-5 years	15	38
6- 10 years	8	20
Over 10 years	5	12
Total	40	100

The study shows that 30% had worked for less than two years, 38% had worked for between 2 and 5 years, 20% had worked for 6 and 10 years while 12% had worked for over 10 years.

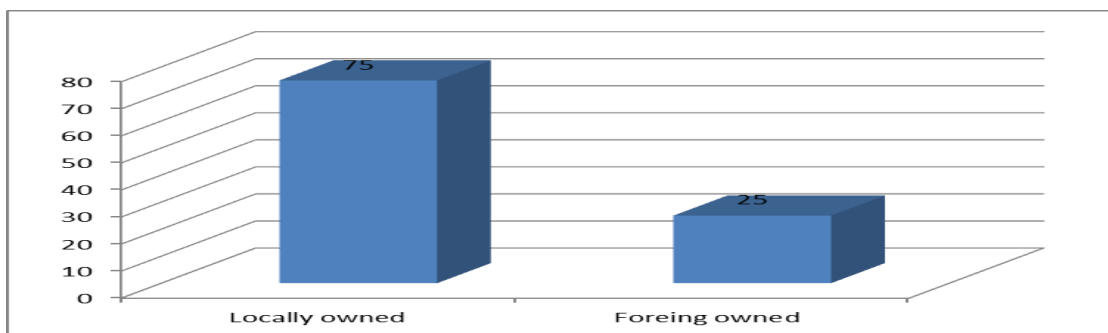
The study shows that majority of the respondents had worked for between 2 and 5 years as supported by 38% of the respondents. The work experience was adequate and advantageous to the study since they were able to understand the organisational dynamics accordingly.

4.2.6 Type of Ownership

The type of ownership was mainly two locally and foreign owned.

Figure 4.4 shows the type of ownership of the bank.

Figure 4.4 Type of Ownership

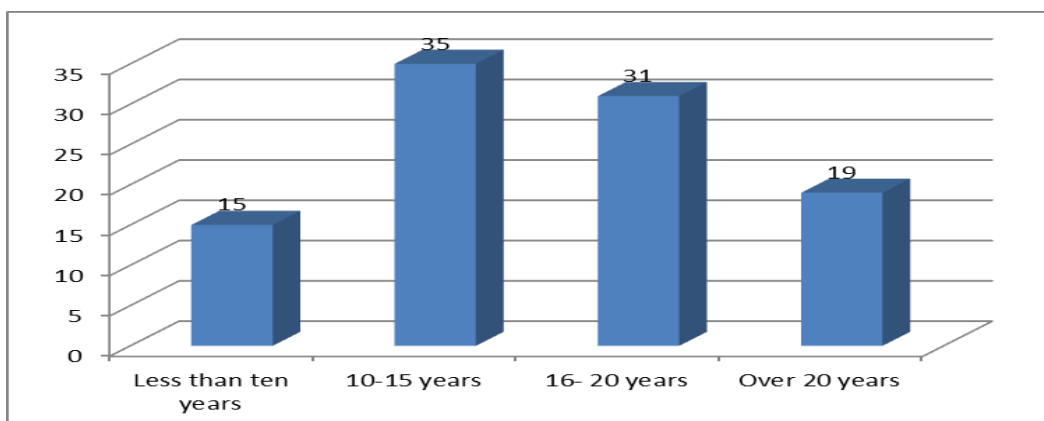


The research shows that 75% of the respondents agreed that the banks were locally owned while 25% were for internationally owned. Further the researcher sought to establish the total number of employees in the prescribed bank. There was an average of 300 employees per bank.

4.2.7 Length of operation

The Figure 4.5 shows the length of operation of the banks.

Figure 4.5 Length of operation



The study shows that 15% of the banks were in operation for less than ten years, 35% were for between 10 and 15 years, 31% were for between 16 and 20 years while 19% were for over 20 years.

It therefore clear that majority of the respondents were for the idea that the banks were in operation for between 10 and 15 years.

4.3 IT Investments

Data collected on extent to which the bank has invested IT on a scale of 1 to 5 means and standard deviation are interpreted according to the scale. The results are shown in Table 4.2

Table 4.2 Organizational Capital

Statements	Mean	Std. Dev.
Integration of IT infrastructure with new technologies.	4.253	.874
Alignment of IT resources to business strategies	4.045	.541
Agile IT infrastructure	3.985	.461
Linkage of IT infrastructure with stakeholders.	3.487	.823
Upgrading of IT infrastructure	4.254	.451

The study shows that integration of IT infrastructure with new technologies had a mean of 4.253 and standard deviation of .874. Further, respondents agreed that alignment of IT resources to business strategies with a mean of 4.045 and standard deviation of .541. Agile IT infrastructure had a mean of 3.985 and standard deviation of .461. Linkage of IT infrastructure with stakeholders had a mean of 3.487 and standard deviation of .823. While upgrading of IT infrastructure had a mean of 4.254 and standard deviation of .451. The researcher further had to establish the banks investment in human capital. The results were recorded in table 4.3 below for interpretation purposes.

Table 4.3 Investment in human capital

Statements	Mean	Std. Dev.
Risk management skills	4.225	.4644
Timely response to environmental changes skills	4.201	.5411
Efficient use of the bank's IT resources	4.347	.6854
Formulation of effective IT solutions by IT personnel by leveraging on their technical skills.	3.984	.3204
Skills for alignment of IT strategies with business strategies	3.968	.3964
Skills for developing reliable and cost effective systems	3.862	.3212

The study shows that respondents agreed that risk management skills was a form of investment in human capital with a mean of 4.225 and a standard deviation of .4644. Further, timely response to environmental changes skills had a mean of 4.201 and a standard deviation of .5411. Efficient use of the bank's IT resources had a mean of 4.347 and a standard deviation of .6854.

Formulation of effective IT solutions by IT personnel by leveraging on their technical skills had a mean of 3.984 and a standard deviation of .3204. Skills for alignment of IT strategies with business strategies had a mean of 3.968 and a standard deviation of .3964. While Skills for developing reliable and cost effective systems had a mean of 3.862 and a standard deviation of .3212.

The researcher established whether the banks engaged in Innovation Capital as shown in table

Table 4.4 Innovation Capital

Statements	Mean	Std. Dev.
Better coordination of resources and capabilities to realize competitive advantage.	4.206	.541
Personnel training constantly to ensure worker effectiveness in providing IT-based support to both internal and external customers	4.214	.674
Observation of the transitions and changes in external markets to identify opportunities and threats available and this is as a result of the technological capabilities they have	4.654	.652
Appropriate skill, ability to define the corporate strategies, and background with understanding of both IT skill and good governance for direct IT staffs to reach the returns to IT-investment	4.358	.574

The study indicates that innovative capital results to better coordination of resources and capabilities to realize competitive advantage with a mean of 4.206 and standard deviation of .541. Personnel training constantly to ensure worker effectiveness in providing IT-based support to both internal and external customers with a mean of 4.214 and standard deviation of .674.

Observation of the transitions and changes in external markets to identify opportunities and threats available and this is as a result of the technological capabilities they have with a mean of 4.654 and standard deviation of .652. While appropriate skill, ability to define the corporate strategies, and background with understanding of both IT skill and good governance for direct IT staffs to reach the returns to IT-investment with a mean of 4.358 and standard deviation of .574. The researcher had to assess the extent to which the banks have invested in Customer Capital

Table 4.5 Customer Capital

	Mean	Std. Dev.
Application of IT in enabling sellers and buyers to create economic value through exchange of information, goods/services, and payments and as a result supports the system	4.251	.5421
Provision of constant access between activities, to suppliers and customers, and enables firms to provide detailed specifications of products and services to global customers	4.411	.5451
Ability of the banks IT infrastructure to track and predict changes in customer preferences, and provide timely responsiveness	4.354	.5744
Customer retention through quality service	4.621	.6875

The study shows that application of IT in enabling sellers and buyers to create economic value through exchange of information, goods/services, and payments and as a result supports the system with a mean of 4.251 and standard deviation of .5421. Provision of constant access between activities, to suppliers and customers, and enables firms to provide detailed specifications of products and services to global customers with a mean of 4.411 and standard deviation of .5451. Ability of the banks IT infrastructure to track and predict changes in customer preferences, and provide timely responsiveness with a mean of 4.354 and standard deviation of .5744. Finally, customer retention through quality service with a mean of 4.621 and standard deviation of .6875.

4.4 IT Integration with Business Functions

The preceding section describes the level of agreement in relation to integration of information technology into the banks business functions.

Table 4.6 IT infrastructure

Statements	Mean	Std. Dev.
The banks IT infrastructure tends to evolve independently, integrating with new technologies.	4.225	.4644
The banks IT infrastructure tends to support the continuous changes in the alignment of IT resources to business strategies.	4.201	.5411
The banks IT infrastructure is flexible	4.347	.6854
The banks IT infrastructure enables the bank to accommodate required changes and maximize the advantages provided by their existing resources more effectively	3.984	.3204
The banks IT infrastructure enables linkage with stakeholder systems	3.968	.3964

The study shows that respondents agreed that the banks IT infrastructure tends to evolve independently, integrating with new technologies with a mean of 4.225 and a standard deviation of .4644. Further, the banks IT infrastructure tends to support the continuous changes in the alignment of IT resources to business strategies had a mean of 4.201 and a standard deviation of .5411.

The banks IT infrastructure is flexible had a mean of 4.347 and a standard deviation of .6854. The banks IT infrastructure enables the bank to accommodate required changes and maximize the advantages provided by their existing resources more effectively had a mean of 3.984 and a standard deviation of .3204. While the banks IT infrastructure enables linkage with stakeholder systems had a mean of 3.968 and a standard deviation of .3964.

Table 4.7 Technical IT skills

Statements	Mean	Std. Dev.
The bank employs different technical IT skills and experiences that enable them to manage their IT investment risk better	4.206	.541
The extensive skills and experience within the bank enables the bank to respond effectively to the environmental changes	4.214	.674
The banks knowledge of IT management facilitates efficient use of the firms IT resources	4.654	.652
The banks IT personnel are able to formulate effective IT solutions by leveraging on technical skills	4.358	.574
With a competent pool of IT personnel, the bank has a higher chance of meeting the demands of changing environments by aligning IT strategies with business strategies.	4.214	.674
With a competent pool of IT personnel, the bank is able to develop reliable and cost effective systems	4.206	.541

The study indicates that the bank employs different technical IT skills and experiences that enable them to manage their IT investment risk better with a mean of 4.206 and standard deviation of .541. The extensive skills and experience within the bank enables the bank to respond effectively to the environmental changes with a mean of 4.214 and standard deviation of .674. The banks knowledge of IT management facilitates efficient use of the firms IT resources with a mean of 4.654 and standard deviation of .652.

The banks IT personnel are able to formulate effective IT solutions by leveraging on technical skills with a mean of 4.358 and standard deviation of .574. With a competent pool of IT personnel, the bank has a higher chance of meeting the demands of changing environments by aligning IT strategies with business strategies had a mean of 4.214 and standard deviation of .674. While with a competent pool of IT personnel, the bank is able to develop reliable and cost effective systems had a mean of 4.206 and standard deviation of .541.

Table 4.8 Knowledge on the IT system

Statements	Mean	Std. Dev.
With the bank having a superior knowledge on the IT system it is able to coordinate its resources and capabilities better and therefore realize a competitive advantage	3.205	.542
The bank is able to realize improved turnaround time due to efficient processes	4.200	.673
The banks are able to integrate with stakeholders system and thus improving efficiency.	4.542	.540
The bank has got a wide range of products due to product diversification	4.305	.474
The bank is able to reach more customers as a result of globalization	3.674	.874

The Table shows that with the bank having a superior knowledge on the IT system it is able to coordinate its resources and capabilities better and therefore realize a competitive advantage. This had a mean of 3.205 and standard deviation of .542. Further on, the bank is able to realize improved turnaround time due to efficient processes had a mean of 4.200 and standard deviation of .673. The banks are able to integrate with stakeholders system and thus improving efficiency had a mean of 4.542 and standard deviation of .540. The bank has got a wide range of products due to product diversification had a mean of 4.305 and standard deviation of .474. Finally, the bank is able to reach more customers as a result of globalization had a mean of 3.674 and standard deviation of .874.

Table 4.9 Information Technology

Statements	Mean	Std. Dev.
The bank recognizes the role that IT in enabling sellers and buyers to create economic value through exchange of information, goods/services, and payments and as a result supports the system	4.200	.342
The banks' integration with numerous systems has improved customer satisfaction	4.263	.674
The banks IT infrastructure has the ability to track and predict changes in customer preferences, and provide timely responsiveness	4.500	.440
The bank uses its information system as a tool of retaining customers through offering of quality services	4.205	.374

The study shows that the bank recognizes the role that IT in enabling sellers and buyers to create economic value through exchange of information, goods/services, and payments and as a result supports the system had a mean of 4.200 and standard deviation of .342. The banks' integration with numerous systems has improved customer satisfaction had a mean of 4.263 and standard deviation of .674.

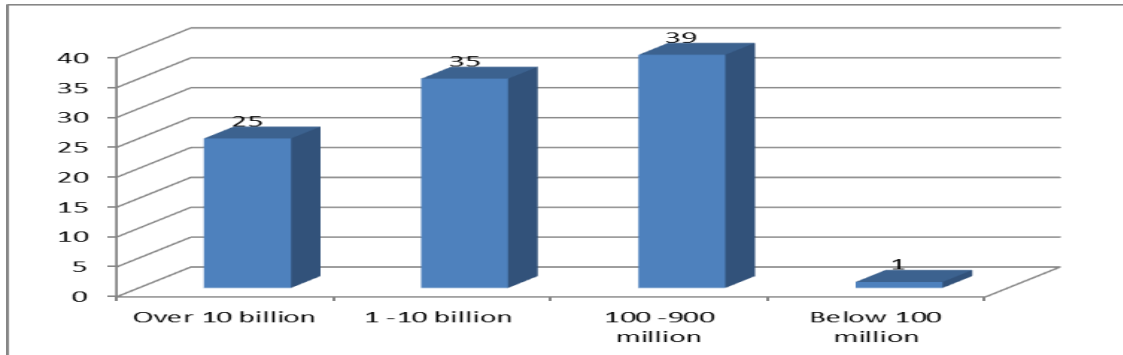
The banks IT infrastructure has the ability to track and predict changes in customer preferences, and provide timely responsiveness had a mean of 4.500 and standard deviation of .440. While on whether the bank uses its information system as a tool of retaining customers through offering of quality services had a mean of 4.205 and standard deviation of .374.

4.5 Bank's Performance as a Result of IT Investment

The preceding section records respondents' views on Bank's Performance as a result of IT investment.

4.5.1 Profit in Kenya shillings

Figure 4.6 Profit in Kenya shillings

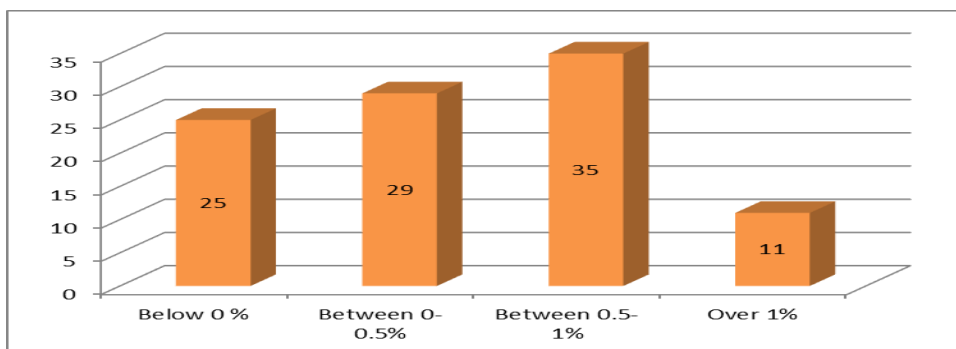


The study shows that 25% of the respondents were for the idea that the profits were over 10 billion, 35% said it was between 1 and 10 billion, 39% were for the idea that it was between 100 and 900 million while the least were for below 100 million as shown by 1%.

It therefore clear that majority of the respondents were for the idea that the banks made profits of between 100 and 900 million as supported by 39% of the respondents.

4.5.2 Return on investment

The figure indicates return on investment of banks in the last financial year.



The figure shows that 25% were for below 0%, 29% were for between 0.5 and 1% while 11% were for 1%.

4.6 Investment in IT system

The preceding section shows the extent to which each of the investment in IT system has influenced bank's performance.

Table 4.7 Investment in IT system

Statements	Mean	Std. Dev.
Integration of IT infrastructure with new technologies.	4.200	.542
Alignment of IT resources to business strategies	4.211	.674
Agile IT infrastructure (Flexible to enable the bank to accommodate required changes and maximize the advantages provided by their existing resources more effectively than their competition)	4.650	.651
Linkage of IT infrastructure with stakeholders.	4.308	.574
Upgrading of IT infrastructure	3.174	.974

The study shows that respondents agreed to the idea that integration of IT infrastructure with new technologies with a mean of 4.200 and standard deviation .542. Further on alignment of IT resources to business strategies had a mean of 4.211 and standard deviation .674. The respondents further agreed that agile IT infrastructure (Flexible to enable the bank to accommodate required changes and maximize the advantages provided by their existing resources more effectively than their competition this had a mean of 4.650 and standard deviation .651. further on Linkage of IT infrastructure with stakeholders had a mean of a mean of 4.308 and standard deviation .574. The researcher sought response on upgrading of IT infrastructure which had a mean of 3.174 and standard deviation .974. The researcher had to establish how human capital has influenced bank's performance. This is recorded in Table 4.8.

Table 4.8 Human Capital

Statements	Mean	Std. Dev.
Risk management skills	3.780	.553
Timely response to environmental changes skills	4.200	.543
Efficient use of the bank's IT resources	4.210	.604
Formulation of effective IT solutions by IT personnel by leveraging	4.650	.602
Skills for alignment of IT strategies with business strategies	3.308	.674

The study shows that respondents agreed that Risk management skills enhanced bank's performance with a mean of 3.780 and standard deviation .553. On whether human capital results to timely response to environmental changes skills had a mean of 4.200 and standard deviation .543. On efficient use of the bank's IT resources had a mean of 4.210 and standard deviation .604. Respondents agreed that formulation of effective IT solutions by IT personnel by leveraging on their technical skills with a mean of 4.650 and standard deviation .602. Finally on skills for alignment of IT strategies with business strategies had mean of 3.308 and standard deviation .674. The researcher had established whether innovation capital influenced bank's performance as recorded in Table 4.9.

Table 4.9 Innovation Capital

Statements	Mean	Std. Dev.
Better coordination of resources and capabilities to realize	4.780	.553
Personnel training constantly to ensure worker	4.201	.543
Observation of the transitions and changes in external	4.113	.603
Appropriate skill, ability to define the corporate strategies,	4.600	.612

The study shows that innovation in capital led to better coordination of resources and capabilities to realize competitive advantage which had mean of 4.780 and standard deviation .553. Personnel training constantly to ensure worker effectiveness in providing IT-based support to both internal and external customers had mean of 4.201

and standard deviation .543. Further observation of the transitions and changes in external markets to identify opportunities and threats available and this is as a result of the technological capabilities they have had mean of 4.201 and standard deviation .543.

Finally, appropriate skill, ability to define the corporate strategies, and background with understanding of both IT skill and good governance for direct IT staffs to reach the returns to IT-investment had mean of 4.600 and standard deviation .612. The table below indicates results on whether customer capital led to bank’s performance.

Table 4.10 Customer Capital

Statements	Mean	Std. Dev.
Application of IT in enabling sellers and buyers to create economic value through exchange of information,	4.200	.542
Provision of constant access between activities, to suppliers and customers, and enables firms to provide	4.211	.674
Ability of the banks IT infrastructure to track and predict changes in customer preferences, and provide timely	4.650	.651
Customer retention through quality service	4.308	.574

The results show that application of IT in enabling sellers and buyers to create economic value through exchange of information, goods/services, and payments and as a result supports the system had mean of 4.200 and standard deviation .542. Further, provision of constant access between activities, to suppliers and customers, and enables firms to provide detailed specifications of products and services to global customers had a mean of 4.211 and standard deviation .674. Ability of the banks IT infrastructure to track and predict changes in customer preferences, and provide timely responsiveness had a mean of 4.650 and standard deviation .651. Finally, customer retention through quality service had a mean of 4.308 and standard deviation .574.

4.7 Performance as a result of IT Investment

The researcher sought to establish the extent to which the bank’s performance has been affected as a result of its Investment in IT as shown in table 4.11 below.

Table 4.11 Performance as a result of IT Investment

Statements	Mean	Std. Dev.
Decision making	4.200	.502
Availability of information	4.202	.673
Competitive Advantage	4.342	.530
Empowerment of employees	4.205	.574
Ability to analyze performance	3.573	.474
Efficiency of communication.	4.201	.573
Exchange of information	3.572	.454
Customer satisfaction	4.200	.544

The study shows that IT Investment resulted to better a quicker Decision making which had a mean of 4.200 and standard deviation .502. Availability of information had a mean of 4.202 and standard deviation .673. Competitive advantage had a mean of 4.342 and standard deviation.530. Empowerment of employees had a mean of 4.205 and standard deviation .530. Ability to analyze performance had a mean of 3.573 and standard deviation .474. Efficiency of communication had a mean of 3.573 and standard deviation .474. Exchange of information had a mean of 3.572 and standard deviation .454. Finally, customer satisfaction had a mean of 4.200 and standard deviation .544.

4.9 Regression Analysis

The regression model assumed the following form:

The regression model was:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \alpha$$

Whereby Y is organizational performance; β_i ($i = 0 - 6$) is the regression coefficient; X_1 -Organizational Capital; X_2 -Human Capital; X_3 -Innovation Capital; X_4 -Customer Capital; X_5 -Financial Capital; α -Unexplained variables not explained by the model. B_0 is the model's constant, and $\beta_1 - \beta_4$ are the regression coefficients while ε is the model's significance from f-significance results obtained from analysis of variance (ANOVA).

Table 4.12: Model's Goodness of Fit Statistics

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.734 ^a	.539	.503	.1752	1.421

a. Predictors: (Constant), Organizational Capital, Human Capital, Innovation Capital, Customer Capital and Financial Capital

Table 4.12 shows that there is a good linear association between the dependent and independent variables used in the study. This is shown by a correlation (R) coefficient of 0.734. The determination coefficient as measured by the adjusted R-square presents a moderately strong relationship between dependent and independent variables given a value of 0.503. This depicts that the model accounts for 50.3% of the total observations while 49.7% remains unexplained by the regression model.

Durbin Watson test was used as one of the preliminary test for regression which to test whether there is any autocorrelation within the model's residuals. Given that the Durbin Watson value was close to 2 (1.421), there was no autocorrelation in the model's residuals.

Table 4.13: Analysis of Variance (ANOVA)

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.164	4	.541	11.657	.039 ^a
	Residual	9.775	115	.085		
	Total	11.939	119			

a. Predictors: (Constant), Organizational Capital, Human Capital, Innovation Capital, Customer Capital and Financial Capital

b. Dependent Variable: Organizational performance;

The ANOVA statistics presented in the table above was used to present the regression model significance. An F-significance value of $p = 0.039$ was established showing

that there is a probability of 3.9% of the regression model presenting a false information. Thus, the model is significant.

Table 4.14: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.544	.425		8.545	.045
Organizational Capital	.541	.154	.656	5.574	.035
Human Capital	.644	.874	.241	2.486	.049
Innovation Capital	.148	.441	.282	1.031	.038
Customer Capital	.504	.685	.257	2.412	.043
Financial Capital	.140	.402	.262	1.031	.038

a. Dependent Variable: organizational performance;

The following regression result was obtained:

$$Y = 3.544 + 0.541X_1 + 0.644X_2 + 0.148X_3 + 0.504X_4 \quad P=0.039^a$$

From the model, when other factors (Organizational Capital, Human Capital, Innovation Capital, Customer Capital and Financial Capital) are at zero, the organizational performance was 3.544. Holding other factors constant, a unit increase in Organizational Capital would lead to 0.541 (p=.035) increase in organizational performance.

However, holding other factors constant, a unit increase in Innovation Capital would lead to a 0.644 (p=0.049) increase in organizational performance. The table above also shows that holding other factors constant, a unit increase in regulatory framework and policy would lead to a 0.148 (p=0.038) increase in organizational performance. The findings, further, shows that unit increase in Customer Capital would lead to a 0.504 increase in organizational performance. These results show that when acting jointly, Organizational Capital, Human Capital, Innovation Capital, Customer Capital and Financial Capital and would improve the organizational performance.

CHAPTER FIVE: CONCLUSION, SUMMARY AND RECOMMENDATIONS

5.1 Introduction

On the basis of the research results and analysis, discussions have been made which contained in this chapter. Finally, recommendations also, are part of this chapter.

5.2 Summary

The age composition shows that most of the respondents were of the 30 to 40 years and therefore had rich experiences, could also appreciate the importance of the study. The study findings indicate that 50% of the respondents are undergraduates and another 50% are master's degree holders. All of the Managers are degree holders therefore, provided information based on the academic and experience they have gain in management. The findings indicate that majority of the respondents had attained their undergraduate studies and therefore were in a good position to respond effectively and give rich information to our study.

The study above shows that integration of IT infrastructure with new technologies had a mean of 4.253 and standard deviation of .874. The study shows that respondents agreed that the banks IT infrastructure tends to evolve independently, integrating with new technologies with a mean of 4.225 and a standard deviation of .4644. Further, the banks IT infrastructure tends to support the continuous changes in the alignment of IT resources to business strategies had a mean of 4.201 and a standard deviation of .5411. The banks IT infrastructure is flexible had a mean of 4.347 and a standard deviation of .6854. The banks IT infrastructure enables the bank to accommodate required changes and maximize the advantages provided by their existing resources more effectively had a mean of 3.984 and a standard deviation of .3204. While the banks IT infrastructure enables linkage with stakeholder systems had a mean of 3.968 and a standard deviation of .3964.

The study indicates that the bank employs different technical IT skills and experiences that enable them to manage their IT investment risk better with a mean of 4.206 and standard deviation of .541. The extensive skills and experience within the bank enables the bank to respond effectively to the environmental changes with a mean of 4.214 and standard deviation of .674. The banks knowledge of IT management facilitates efficient use of the firms IT resources with a mean of 4.654 and standard

deviation of .652. The banks IT personnel are able to formulate effective IT solutions by leveraging on technical skills with a mean of 4.358 and standard deviation of .574. With a competent pool of IT personnel, the bank has a higher chance of meeting the demands of changing environments by aligning IT strategies with business strategies had a mean of 4.214 and standard deviation of .674. While with a competent pool of IT personnel, the bank is able to develop reliable and cost effective systems had a mean of 4.206 and standard deviation of .541.

With the bank having a superior knowledge on the IT system it is able to coordinate its resources and capabilities better and therefore realize a competitive advantage. This had a mean of 3.205 and standard deviation of .542. Further on, the bank is able to realize improved turnaround time due to efficient processes had a mean of 4.200 and standard deviation of .673. The banks are able to integrate with stakeholders system and thus improving efficiency had a mean of 4.542 and standard deviation of .540. The bank has got a wide range of products due to product diversification had a mean of 4.305 and standard deviation of .474. Finally, the bank is able to reach more customers as a result of globalization had a mean of 3.674 and standard deviation of .874.

The study shows that innovation in capital led to better coordination of resources and capabilities to realize competitive advantage which had mean of 4.780 and standard deviation .553. Personnel training constantly to ensure worker effectiveness in providing IT-based support to both internal and external customers had mean of 4.201 and standard deviation .543. Further observation of the transitions and changes in external markets to identify opportunities and threats available and this is as a result of the technological capabilities they have had mean of 4.201 and standard deviation .543. Finally, appropriate skill, ability to define the corporate strategies, and background with understanding of both IT skill and good governance for direct IT staffs to reach the returns to IT-investment had mean of 4.600 and standard deviation .612

5.3 Conclusion

Investment in information Technology is inevitable. Organizations are increasingly recognizing the importance of an effective IT infrastructure.

Further conclusions are made that skills and experience enable firms to coordinate activities and make use of their resources. Skilled and well-motivated IT personnel in a bank ensures that the IT strategies are aligned to the banks strategies which leads to better performance. Limited skills and experience within an organization will typically limit responses to rapid environmental change. It is critical that a firm's IT staff hold a combination of skills knowledge of IT elements and knowledge of technology management for the efficient management of a firm's IT resources.

Superior firm performance depends on a firm's ability to effectively utilize its resources. Human resources include training, education, judgment, intelligence, relationships, creativity, and insights of individuals, all of which help to sustain a competitive advantage. Firms must have more efficient and effective human resources to implement new strategies to achieve high performance. IT successes generally reflect an effective relationship between business managers and information services managers and their staffs.

Firms with superior knowledge are able to coordinate their resources and capabilities to sustain their advantage. Organizations need to invest in personnel training constantly to ensure worker effectiveness in providing IT-based support to both internal and external customers. Effective knowledge workers possess decision-making abilities and customer-centric behaviors that improve financial performance of organizations eventually. Effective employee training enables employees and knowledge workers to develop and implement IT solutions that help organizations to increase the benefits of IT investments.

5.4 Recommendations

The researcher recommends that to increase the benefits of IT, an organization should consider the factors related with in investment, in order to own the suitable IT. This IT resource includes organizational capital, human capital, innovation capital, and customer relationship. IT resources need to be upgraded. Existing IT applications and

platforms may not keep up with a rapidly changing environment, so upgrading the infrastructure may be the key to improving an organization's effectiveness.

The effectiveness of infrastructure can be evaluated using criteria such as reliability, flexibility, and upgrade ability. A firm with high infrastructure flexibility could make rapid changes to information systems in support of changing business needs while firms with low flexibility infrastructures was unable to imitate the IT innovations of its competitors. IT infrastructure can link entire organizations, suppliers, and customers.

5.5 Limitations of the Study

Owing to the nature of the working conditions in the organization, it was not possible to get 100% focus of the employees in terms of answering the questionnaires. This somehow compromised the results of the research as some respondents were doing lots of guess work.

As per the results of the research, a good percentage of the respondents fall under the age group of about 30 to 40. This contributed heavily towards the results of the research as the research lacked variety of answers that would have emanated different kind results altogether. A majority of the respondents being technologically exposed answered the questionnaire based on what should have been rather than what was the actual on the ground. This affected the finding of the research and did not conceive the results that the research was trying to prove.

5.6 Suggestions for future research

Plan on the time the respondents will work on the questionnaires to allow them ample time to actually think and evaluate their responses. Select the population very carefully to avoid results that are skewed towards a particular direction. The researcher ought to be careful about the background of the respondents and to ensure that the target population is in line with expected results to avoid guess work and preemptions.

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APPENDIX I: LIST OF COMMERCIAL BANKS IN KENYA

1. UBA Kenya Bank Ltd
2. The Co-operative Bank
3. Suntra Investment Bank Ltd
4. Sterling Investment Bank
5. Standard Investment Bank
6. Standard Chartered
7. Prime Bank
8. Paramount Bank
9. Oriental Commercial Bank Ltd.
10. NIC Bank
11. ABC Bank
12. National Bank
13. K-Rep Bank
14. Kenya Post Office Savings Bank
15. KCB Bank
16. Investments & Mortgages Bank Limited – I&M Bank
17. Imperial Bank Limited
18. Housing Finance
19. Guardian Bank Ltd.
20. Giro Commercial Bank Ltd
21. Fina Bank
22. Fidelity Bank
23. Faida Investment Bank – FIB
24. Equity Bank
25. Equatorial Investment Bank
26. Equatorial Commercial Bank Limited
27. Dyer & Blair Investment Bank
28. Dubai Bank Kenya Ltd
29. Dry Associates Limited
30. Development Bank Of Kenya Ltd
31. Co-operative Bank
32. Consolidated Bank
33. Commercial Bank of Africa
34. Citibank N A
35. Chase Bank
36. CFC Stanbic Bank Limited
37. Central Bank of Kenya
38. Bank Of Baroda (Kenya) Ltd.
39. Bank of Africa Kenya Ltd
40. Afrika Investment Bank
41. African Development Bank Group
42. African Banking Corporation

APPENDIX II: RESEARCH QUESTIONNAIRE

Please give answers in the spaces provided and tick (✓) in the box that matches your response to the questions where applicable.

Section A: Demographic Information

Personal

1. What is your age group?

- | | | | |
|--------------------|-----|---------------|-----|
| 25 years and below | [] | 20to 30 years | [] |
| 31 to 40 years | [] | Over 41 years | [] |

2. What is your level of Education?

- | | | | |
|------------------|-------|-----------------|-----|
| Degree level | [] | Master's Degree | [] |
| Diploma | [] | | |
| Others (Specify) | _____ | | |

3. What is your job title?

- | | | | |
|--------------------|-------|-----------------|-----|
| Operations Manager | [] | Finance Manager | [] |
| Credit Manager | [] | | |
| Others (Specify) | _____ | | |

4. Length of continuous service with the bank?

- | | | | |
|---------------------|-----|---------------|-----|
| Less than two years | [] | 2-5 years | [] |
| 6- 10 years | [] | Over 10 years | [] |

Bank

5. What type of ownership is the bank?

Locally Owned [] Foreign Owned []
 Others (Specify) _____

6. Total number of employees in the bank? _____

7. What is the asset base of the bank in Kenya Shillings? _____

8. What is the length of operation of the bank in Kenya?

Less than ten years [] 10-15 years []
 16- 20 years [] Over 20 years []

9. What is the total number of customers? _____

Section B: IT Investments

Please indicate the extent to which the bank has invested in each of the following areas. Indicate using the scale:

- 1) No extent 2) Low extent 3) Moderate extent
 4) Great extent 5) Very great extent

Organizational Capital	1	2	3	4	5
Integration of IT infrastructure with new technologies.					
Alignment of IT resources to business strategies					
Agile IT infrastructure (Flexible to enable the bank to accommodate required changes and maximize the advantages provided by their existing resources more effectively than their competition)					
Linkage of IT infrastructure with stakeholders.					
Upgrading of IT infrastructure					
Human Capital					
Risk management skills					
Timely response to environmental changes skills					
Efficient use of the bank’s IT resources					
Formulation of effective IT solutions by IT personnel by leveraging on their					

technical skills.					
Skills for alignment of IT strategies with business strategies					
Skills for developing reliable and cost effective systems					
Innovation Capital					
Better coordination of resources and capabilities to realize competitive advantage.					
Personnel training constantly to ensure worker effectiveness in providing IT-based support to both internal and external customers					
Observation of the transitions and changes in external markets to identify opportunities and threats available and this is as a result of the technological capabilities they have					
Appropriate skill, ability to define the corporate strategies, and background with understanding of both IT skill and good governance for direct IT staffs to reach the returns to IT-investment					
Customer Capital					
Application of IT in enabling sellers and buyers to create economic value through exchange of information, goods/services, and payments and as a result supports the system					
Provision of constant access between activities, to suppliers and customers, and enables firms to provide detailed specifications of products and services to global customers					
Ability of the banks IT infrastructure to track and predict changes in customer preferences, and provide timely responsiveness					
Customer retention through quality service					

Section C: IT Integration with business functions

Please indicate the degree to which you agree with each of the following statements in respect of integration of information technology into the banks business functions.

Use the scale:

- 1) Strongly Disagree 2) Disagree 3) Neither Agree nor Disagree
 4) Agree 5) Strongly Agree

	1	2	3	4	5
The banks IT infrastructure tends to evolve independently, integrating with new technologies.					
The banks IT infrastructure tends to support the continuous changes in the alignment of IT resources to business strategies.					
The banks IT infrastructure is flexible					
The banks IT infrastructure enables the bank to accommodate required changes and maximize the advantages provided by their existing resources more effectively					
The banks IT infrastructure enables linkage with stakeholder systems					
The bank employs different technical IT skills and experiences that enable them to manage their IT investment risk better					
The extensive skills and experience within the bank enables the bank to respond effectively to the environmental changes					
The banks knowledge of IT management facilitates efficient use of the firms IT resources					
The banks IT personnel are able to formulate effective IT solutions by leveraging on technical skills					
With a competent pool of IT personnel, the bank has a higher chance of meeting the demands of changing environments by aligning IT strategies with business strategies.					
With a competent pool of IT personnel, the bank is able to develop reliable and cost effective systems					

With the bank having a superior knowledge on the IT system it is able to coordinate its resources and capabilities better and therefore realize a competitive advantage					
The bank is able to realize improved turnaround time due to efficient processes					
The banks is able to integrate with stakeholders system and thus improving efficiency.					
The bank has got a wide range of products due to product diversification					
The bank is able to reach more customers as a result of globalization					
The bank recognizes the role that IT in enabling sellers and buyers to create economic value through exchange of information, goods/services, and payments and as a result supports the system					
The banks' integration with numerous systems has improved customer satisfaction					
The banks IT infrastructure has the ability to track and predict changes in customer preferences, and provide timely responsiveness					
The bank uses its information system as a tool of retaining customers through offering of quality services					

Section D: Bank's Performance as a result of IT investment

1. Please provide responses to the following questions in regards to the performance of the bank.

a) What was your profit in Kenya shillings in the last financial year

Over 10 billion [] 1 -10 billion []

100 -900 million [] below 100 million []

b) What was your cost to income ratio in the last financial year

80-100 % [] 65-80% []

50-65% [] below 50% []

c) What was your return on investment in the last financial year

Below 0 % [] Between 0-0.5% []
 Between 0.5-1% [] Over 1% []

2. Please indicate the extent to which each of the investment in IT system (given in the table below) by the bank has influenced bank's performance. Indicate for each of the investment below using the scale:

1) No extent 2) Low extent 3) Moderate extent
 4) Great extent 5) Very great extent

Organizational Capital	1	2	3	4	5
Integration of IT infrastructure with new technologies.					
Alignment of IT resources to business strategies					
Agile IT infrastructure (Flexible to enable the bank to accommodate required changes and maximize the advantages provided by their existing resources more effectively than their competition)					
Linkage of IT infrastructure with stakeholders.					
Upgrading of IT infrastructure					
Human Capital					
Risk management skills					
Timely response to environmental changes skills					
Efficient use of the bank's IT resources					
Formulation of effective IT solutions by IT personnel by leveraging on their technical skills.					
Skills for alignment of IT strategies with business strategies					
Skills for developing reliable and cost effective systems					
Innovation Capital					
Better coordination of resources and capabilities to realize competitive advantage.					
Personnel training constantly to ensure worker effectiveness in providing IT-based support to both internal and external customers					
Observation of the transitions and changes in external markets to identify					

opportunities and threats available and this is as a result of the technological capabilities they have					
Appropriate skill, ability to define the corporate strategies, and background with understanding of both IT skill and good governance for direct IT staffs to reach the returns to IT-investment					
Customer Capital					
Application of IT in enabling sellers and buyers to create economic value through exchange of information, goods/services, and payments and as a result supports the system					
Provision of constant access between activities, to suppliers and customers, and enables firms to provide detailed specifications of products and services to global customers					
Ability of the banks IT infrastructure to track and predict changes in customer preferences, and provide timely responsiveness					
Customer retention through quality service					

3. Please indicate the extent to which the bank's performance has been affected as a result of its Investment in IT. Indicate for each of the attributes of performance (in the table below) using the scale:

- 1) No extent 2) Low extent 3) Moderate extent
4) Great extent 5) Very great extent

	Performance as a result of IT Investment	1	2	3	4	5
1	Decision making					
2	Availability of information					
3	Competitive Advantage					
4	Empowerment of employees					
5	Ability to analyze performance					

6	Efficiency of communication.					
7	Exchange of information					
8	Customer satisfaction					

THANK YOU SO MUCH FOR YOUR TIME