

**IMPLEMENTING STRATEGIC INFORMATION SYSTEMS
IN COMMERCIAL BANKS IN KENYA**

BY

KANINI, RACHAEL

**A Management Research Project Submitted in Partial Fulfillment of the Requirements
for the Award of Master of Business Administration (MBA) Degree, School of Business,
University of Nairobi**

University of NAIROBI Library



0339080 4

November, 2008

DECLARATION

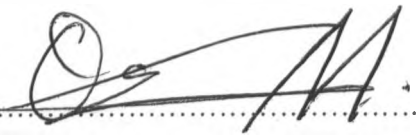
This project is my original work and has not been submitted for a degree in this or any other University.

Signed..........Date. 16/11/08.....

KANINI, RACHAEL

D61/P/8827/04

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

Signed..........Date. 17/11/2008.....

Dr. Martin Ogutu

Senior Lecturer, Department of Business Administration

School of Business,

University of Nairobi

DEDICATION

To my loving parents; Wairimu, Giancarlo and Natalina, my brother Karangatha, my sister Njeri and my fiancé Njiru. You inspire me with your love, support, patience, prayers and encouragement.

ACKNOWLEDGEMENT

My special gratitude to God for the gift of life, good health and His great faithfulness and providence throughout my studies. For answered prayers and the gift of intellectual ability to carry out this research and to successfully complete it. To you Lord be all glory, all honor and praise forever more.

I'd like to thank my supervisor, Dr Ogutu for his invaluable advice, patience and guidance throughout the project. Your input, inspiration, encouragement and support are highly appreciated. Thank you for leading me to a successful completion of my MBA programme.

I'm deeply grateful to my family: Mary, Giancarlo, Natalina, John, Joseph, Samuel, Anthony, David, Joan, Anne and Lucy. Thank you for allowing me space to study with all your understanding, immeasurable support and encouragement.

Finally, My great appreciation to the Africa American Institute for granting me financial support through the First Data Western Union Foundation, Africa Scholarship Fund. Thank you to all the bank managers who gave their input by responding to questionnaires, my classmates and friends for their support in one way or another towards the successful completion of my studies.

ABSTRACT

Several banks have started projects aiming at introducing interoperable Strategic information systems (SISs), thereby making banking operations more efficient and reducing banking errors based on insufficient or wrong data. Implementing the SISs is an enormous task, and there are many parties involved in implementing these systems that all have their own goals and interests. The SISs also forces processes and procedures to be changed, something that is very difficult in banking operations. As indicated by the mounting costs and severe delays in the implementation of SISs, there are many challenges faced before we can expect an operational SIS. Even the relatively simple and straightforward bank operations suffer from delays due to technical and organizational difficulties.

Although the banking industry has embraced information and communication technology in its operations, the underlying factors inhibiting it the implementation of SISs are not well understood. This paper presents the challenges inhibiting SISs implementation and how banks are responding to these challenges. The targets of the study were the commercial banks in Kenya. This study gives a brief overview of the academic literature on the challenges faced and the responses that organizations employ in system implementation and the extent of such systems' use. The findings from the Kenya Commercial Banks are then reported.

This paper concludes that there exist various challenges to the implementation of Strategic Information Systems (SISs) in commercial banks in Kenya. The banks have thus employed various responses to overcome these challenges with some of the responses being more popular than the rest depending on the impact they have on the implementation process. Lack of required infrastructure, resources and specialized skills, commitment from the senior management team and fear of adopting the system by both the bank employees and customers were some of the major challenges that were identified while training of bank employees and customers, employing specialized technology and staff and lowering electronic banking charges were some of the popular responses that banks have been using.

LIST OF ABBREVIATIONS

- CAD – Computer Aided Design
- CAM - Computer Aided Manufacturing
- CRM - Customer Relationship Management
- DSS - Decision Support Systems
- ERP- Enterprise Resource Planning
- ESS -Executive Support Systems
- ICT - Information and Communication Technology
- IRS - Information Reporting Systems
- IS - Information System
- IT - Information Technology
- Ksh –Kenya Shilling
- MIS - Management Information Systems
- SIS - Strategic Information Systems

TABLE OF CONTENTS

DECLARATION.....	I
DEDICATION.....	II
ACKNOWLEDGEMENT.....	III
ABSTRACT.....	IV
LIST OF ABBREVIATIONS.....	V
LIST OF TABLES.....	VII
LIST OF CHARTS.....	VII
CHAPTER 1: INTRODUCTION.....	1
1.1. Background.....	1
1.2. Statement Of The Research Problem.....	5
1.3. Research Objectives.....	6
1.4. Importance Of The Study.....	6
CHAPTER 2: LITERATURE REVIEW.....	8
2.1. Strategic Information Systems.....	8
2.2. Information Systems For Strategic Advantage.....	13
2.3. Implementation Of Strategic Information Systems.....	15
2.4. Challenges Of Implementing Siss.....	17
CHAPTER 3: RESEARCH METHODOLOGY.....	22
3.1. The Research Design.....	22
3.2. Population.....	22
3.3. Data Collection.....	22
3.4. Data Analysis.....	23
CHAPTER 4: DATA ANALYSIS AND INTERPRETATIONS.....	24
4.1. Demographic Information.....	24
4.2. Challenges Faced During The Implementation Of Strategic Information System..	26
4.3. Responses To Challenges In Implementing Strategic Information System.....	28
CHAPTER 5: SUMMARY, DISCUSSIONS AND CONCLUSION.....	31
5.1. Summary, Discussions And Conclusions.....	31
5.2. Limitations Of The Study.....	34
5.3. Suggestion For Further Study.....	34
5.4. Implications For Policy And Practice.....	34
REFERENCES.....	36
APPENDICES.....	40
Appendix A: Letter To The Respondents.....	40
Appendix B: Sample Questionnaire.....	41
Appendix C: List Of Commercial Banks In Kenya.....	46

LIST OF TABLES

Table 1: Examples of Information Technology (IT) Applications to Porter's Strategic Stances	11
Table 2: Period of Organization Existence.....	24
Table 3: Extent of use strategic information systems	25
Table 4: Possible challenges faced during the implementation of SISs	27
Table 5: Responses to SISs Implementation Challenges.....	29

LIST OF CHARTS

Chart 1 Number of customers served	25
--	----

CHAPTER 1: INTRODUCTION

1.1. Background

1.1.1. Strategic Information Systems Implementation in Business

Information has become an important resource in all organizations and is being viewed as a competitive tool that is making many organizations to invest in information systems that will facilitate the collection, processing, storage, and sharing of information across the organization. Laudon (2000) notes that until recently, information was not considered an important asset for a firm. However this has changed. Today, many organizations are investing in information systems to help them harness and manage information. Effective management in organizations involves a lot of decision-making. In order to carry out effectively the management functions of planning, organizing, staffing, directing and controlling, management needs to make sound decisions. However, decision-making has to be based upon sound information. Availability of quality information to management enhances sound decision-making leading to good performance of the company in meeting its objectives (Zwass, 2001).

Many definitions of information systems abound. According to Laudon (2000), an information system is a set of inter-related components that collect, retrieve, process, store and disseminate information to support decision-making and control in an organization. These systems can also help managers and workers to analyse problems, visualize complex subjects and create new products. Modern information systems utilize information technology (IT) to undertake the activities of data gathering, processing, storage, retrieval and dissemination. Information technology (IT) incorporates a set of technologies that utilize computers, telecommunications and related technology in the management of information.

Organizations have different information systems for different applications. Business information systems can be classified broadly into operation support systems (OSS) and management support systems (MSS). The OSSs focus on the day-to-day activities of the enterprise and include systems for transaction processing, process control and office automation. The MSS on the other hand are mainly focused on middle and senior management and provide capabilities for decision support and control. Examples of these

systems include Information Reporting Systems (IRS), Decision Support Systems (DSS) and Executive Information Systems (EIS) (Lucey, 1998). There are also knowledge management systems, which offer support to personnel at both operations and management levels. These systems support the creation, organization and dissemination of business knowledge to employees and managers (O'Brien, 1999).

Information systems are established with the goal of creating competitive advantage and improving the competitive position of an organization. A strategic information system supports and shapes the corporate strategy of an organization, often leading to innovation in the way the organization conducts its business, the creation of new business opportunities, or the development of products and services based on information technology. Strategic information systems represent a development in organizational use of information systems, following in the wake of Management information systems, EISs, and decision support systems.

1.1.2. Challenges in implementing Strategic Information Systems

Strategic Information Systems (SISs) are computer systems at any level of the organization that change the goals, operations, products, services, or environmental relationships to help the organization gain a competitive advantage (Laudon and Laudon 2007). O'Brien defines a SIS as any kind of information system that helps an organization gain a competitive advantage, reduce a competitive disadvantage and meet other strategic enterprise's objectives.

Since mid 1980s, Information has been regarded as a strategic resource, a potential source of competitive advantage, or a strategic weapon to defeat and frustrate the competition. These changing conceptions of information reflect advances in strategic planning and theory (Porter, 1985). The belief that information is a resource to be managed is behind the Paperwork Reduction Act of 1980, which requires federal government agencies to develop an information resource officer. The kinds of systems being built to support this concept of information are called strategic systems, and their purpose is to ensure the survival and prosperity of the organization in the near future.

The role of information technology in contemporary organizations continues to expand in scope and complexity and has a dramatic effect on business operations. Information systems are widely used in the banking sector, these systems are particularly appropriate because banking organizations are, by their nature, information intensive. The use of, and investment in, information management systems by banking organizations will continue to increase for two reasons; firstly, today, virtually every one is using some kind of information systems in their day-to-day activities. Banking organizations cannot afford to be left behind technologically, since many customers and bank employees are using these systems to manage their money, accounts and to backup or save information. Secondly, virtually every effort to enhance the effectiveness and efficiency of banking organizations mandates the use of information systems to improve service delivery and reduce costs.

Implementing strategic systems often requires organizational change and a transition from one social technical level to another. Such changes are called strategic transitions and are often difficult and painful to achieve. Moreover, not all strategic systems are profitable, and they can be expensive to build. Other firms easily copy many strategic information systems so that strategic advantage is not always sustainable. A strategic systems analysis is helpful to assist managers identify the types of systems that provide a strategic advantage to their firms (Laudon and Laudon 2007). Management needs to find solutions to these challenges that are posed by formulation, implementation and use of information systems for strategic advantage.

1.1.3. Commercial Banks in Kenya

The Central bank of Kenya manages the two categories of the banking sectors, which are the public and private financial institutions. The public financial institutions are three, which include National bank of Kenya, Consolidated bank of Kenya and Development bank of Kenya. The Private financial institutions are both local and foreign with locals having thirty-eight commercial banks, two mortgage financial institutions, two building societies and one financial institution. There are eleven foreign commercial banks in Kenya (Central Bank of Kenya, 2005).

Overall the banking sector has remained stable over the period, mainly due to favorable prevailing macroeconomic conditions (Central Bank of Kenya, 2007). Faced with good economic prospects, the banking sector has improved its asset quality portfolio and has

retained high capital adequacy ratios. The sector also registered growth in deposits and profitability. The improved performance resulted from increased income on loans and advances and a significant inflow of foreign deposits. Total assets expanded by 17.3 percent or Ksh 114.5 billion, from Ksh 661.3 billion at the end of February 2006 to Ksh 775.8 billion at the end of February 2007. The major assets were loans and advances and Government securities that constituted 53 percent and 21 percent, respectively, of total assets.

There was a banking sector fragility in 1999 which resulted from poor management, and worsening economic conditions. In 1998, several major Kenyan banks collapsed, including Trust Bank, Reliance Bank, Prudential Bank, Bullion Bank; and the giant National Bank almost folded. In 1999, Richard Leaky was named director of the Central Bank of Kenya under pressure from the World Bank in order to stem corruption in the banking system. Some of the drivers of the industry's deteriorating performance during this period were identified as heavy investments occasioned by the "millennium bug", power shortage, changing customer tastes and preferences, bank robberies, falling interest rates and the controversial Central Bank 2000 (Amendment) bill also referred as the Donde bill (Marketing Intelligence, 2001). Commercial banks play a very important role for the economic development of the country. They increase savings from increased investments in a country by offering loans, they contribute to employment in a country, facilitate the transfer of money from one party to another, offer loan to the government and the general feasible public, they increase capital formation and they encourage balanced development. Commercial banks mostly specialize in short term business credit but also make consumer loans and mortgages and have a broad range of financial powers. A planned banking system is indispensable for economic growth and development of the country.

The banking sector has witnessed stiff competition forcing banks to re-package their services and products to satisfy the needs of the customers and retain their market share. Institutions are therefore increasingly offering efficient and effective services for both residents and non-residents (Central Bank of Kenya, 2005). As the competition intensified on the backdrop of declining profits, the institutions went out more aggressively to capture the retail depositors and maintain corporate clients, the deposit liabilities grew by 11 percent from 303 billion to 335 billion in 2001 and 2002 respectively. To fight competition, Islamic banking has emerged as a new market product with banks like Barclays Bank of Kenya offering it in Kenya. In response to this, some of the institutions have redefined their business strategies

while leveraging on innovative and affordable products to capture this new market segment. In the long run, the success and soundness of the financial institutions and the entire sector will depend on the achievement of operational efficiency through the application of prudential practices, good corporate governance and robust risk management framework.

It is in this line that this paper aims to uncover the challenges that the commercial banks face in implementing strategic information systems and how banks have responded to the challenges faced in implementing these systems.

1.2 Statement of the Research Problem

Information Systems are gaining popularity as strategic resources in the banking sector. At the same time, customer needs are changing and generally the environment that the banks are operating in is changing (Lagoutte, 1996). Into this scenario arrived the Internet, another radical technological innovation with the potential to change the structure and nature of banking. It is acknowledged that strategic information systems technologies are innovations that can provide the needed transformation for a business success in today's increasingly global business environment (Turban et al., 2002; Chang and Hyung, 2002; Hamel, 2000; Castells, 2001). In developing and implementing strategic information systems, commercial banks in Kenya are facing various challenges that if not well managed will see them fail in implementing these systems or they might not derive the value intended from the banking service.

Information Systems related studies undertaken in Kenya in the past focus more on Information and Communication Technology (ICT) in general, but not on Strategic Information Systems in particular. Different studies have been done focusing on different aspects of information systems as cited here. Kipngetich (1991) studied management satisfaction with information systems; Gatune (1993) studied the factors considered important in implementing local area networks. Nyambane (1996) studied the evaluation of the extent of and factors limiting information technology usage in publicly quoted companies in Kenya, Ochieng (1998) studied the factors considered important in the Implementation of information systems. Ndung'u (2000) looked into the challenges facing Internet growth in Kenya, Nyambati (2001) studied information technology planning practices in Kenyan banks and Nyandiere (2000), studied the challenges facing Enterprise resource planning systems Implementation in Kenya. Munguti (2001) in his study of Enterprise Resource Planning (ERP) Systems and Related Database Management Systems, strategic developments in

information technology pointed out that in Kenya, SAP R3 (an ERP system) has been implemented by a number of companies but did not identify challenges the companies have faced in the ERP implementation and use. Vishal (2006) carried out a survey of application of information and communication technology (ICT) for competitive advantage in firms listed in Nairobi Stock Exchange.

There are substantial steps toward planning and implementation of information systems that support business operations in Kenya. For instance, Nyambati (2001) found out that 25 out of 28 of the commercial banks in Kenya studied had plans in place for information Systems acquisitions, which were updated regularly and which were business oriented. One can deduce that some of these plans could involve SIS implementation. However, none of the researchers has explicitly focused on challenges faced in implementing SIS and response strategies to challenges faced in implementing specific strategic information systems used in organizations. These studies however formed a basis for the current study.

What are some of the challenges that Kenyan banks face while implementing Strategic Information Systems? What are the response strategies to these challenges? This study seeks to address these questions.

1.3 Research Objectives

The research objectives of the study are:

- i) To establish the challenges faced by commercial banks in Kenya in implementing Strategic Information Systems.
- ii) To determine how commercial banks in Kenya are responding to the challenges of implementing Strategic Information Systems.

1.4 Importance of the Study

The study will be of significant importance to various groups who are involved or affected by implementation and use of information systems in the global economy. These groups include:

- i) The banks under study; the research findings will help the commercial banks clearly identify the root challenges and find out how they can respond to the same.

- ii) Technology innovators; The study will help the technology innovators in inventing solutions that will help the banks in implementing Strategic Information Systems in order to gain competitive advantage in the Industry.
- iii) Other research students and scholars; The findings in this study will provide an insight and basis of further research by the intellectuals and researchers on Information Systems

CHAPTER 2: LITERATURE REVIEW

2.1 Strategic Information Systems

Strategic Information Systems (SISs) are Information Systems that are aligned with business strategy and structure. The alignment increases the capability to respond faster to environmental changes and thus creates a competitive advantage. Laudon asserts that SISs often change the organization as well as its products, services and operating procedures, driving the organization into new behavioral patterns. Successfully using Information systems (ISs) to achieve competitive advantage is challenging and requires precise coordination of technology, organization and management. An early example was the favorable position afforded by American and United Airlines by their reservation systems, Sabre and Apollo. For many years these two systems ensured that the two carriers' flights appeared on the first screens observed by travel agents, thus increasing their bookings relative to competitors. A major source of controversy surrounding SISs is their sustainability. The competitive advantages SISs confer do not necessarily last long enough to ensure long-term profitability. Because competitors can retaliate and copy strategic systems, competitive advantage is not always sustainable. Markets, customer expectations and technology change; globalization has made these changes even more rapid and unpredictable. The Internet can make competitive advantage disappear very quickly because virtually all companies can use this technology. (Laudon & Laudon, 2007).

Strategic Information Systems (SISs) are systems used to manage information and assist in strategic decision-making. A strategic information system has been defined as, "The information system to support or change enterprise's strategy." (Wiseman 1985). Porter (1985) devotes a significant part of his competitive advantage: creating and sustaining superior performance, to the ways in which technology in general, and information technology in particular, can have an impact upon competitive advantage.

In today's competitive world, information systems provide competitive advantage to a business. Whether a business follows cost leadership strategy or differentiation strategy, information systems have a strategic impact by reducing production costs and identifying the potential market segments. Communication is a key element in operating a business successfully. Information systems go a long way in simplifying things for a business by effective management of information. Information systems provide several important benefits

to a business. With better management of information, a business can make strategic decisions with more certainty about the outcome. Another benefit is improved service to the customers. They help in satisfying the diversified needs of a business's customer base. Information systems increase productivity through optimum utilization of resources. With the growth and development in communication technologies, information systems are having a strategic impact on a business. (Porter, 1985)

Wiseman 1985, extends Porter's thinking in many practical ways in the Information Systems area, and discusses many examples of strategic systems. He emphasizes that companies have begun to use information systems strategically to reap significant competitive advantage. He feels that the significance of these computer-based products and services does not lie in their technological sophistication or in the format of the reports they produce; rather, it is found in the role played by these information systems in the firm's planning and implementation in gaining and maintaining competitive advantage. Strategic information systems are different from other systems as: - they change the way the firm competes, they have an external (outward looking) focus, they are associated with higher project risk, they are innovative (and not easily copied). Wiseman argued that in the past, information used to be considered a bureaucratic nuisance and a limited tool for management decision-making. Today, information systems can so dramatically boost a firm's productivity and efficiency that businesses view information as a weapon against competition and a strategic resource.

Laudon and Laudon 2007, describes the changing role of Information systems from the 1960's to date. By the 1960s, organizations started viewing information differently, recognizing that information could be used for general management support. The information systems of the 1960s and 1970s were frequently called management information systems (MIS) and were thought of as an information factory churning out reports on weekly production, monthly financial information, inventory, accounts receivable, accounts payable, and the like. By the 1970s and early 1980s information and the systems that collected, stored, and processed it were seen as providing fine-tuned, special purpose, customized management control over the organization. The information systems that emerged during this period were called decision support systems (DSS) and executive support systems (ESS). Their purpose was to improve and speed up the decision-making process of specific managers and executives in a broad range of problems

The context within which SIS theory emerged was the competitive strategy framework put forward by Porter (1980, 1985), which was based on industrial organization economics. The basis of strategic information systems theory will then be shown to be concerned with the use of information technology to support or sharpen an enterprise's competitive strategy. Competitive strategy is an enterprise's plan for achieving sustainable competitive advantage over, or reducing the edge of, its adversaries. In Porter's view, the performance of individual corporations is determined by the extent to which they cope with, and manipulate, the five key 'forces' which make up the industry structure: the bargaining power of suppliers; the bargaining power of buyer; the threat of new entrants; the threat of substitute products; and rivalry among existing firms.

Porter's Enterprises, through their strategies, can influence the five forces and the industry structure, at least to some extent. There are two basic strategic stances that enterprises can adopt: low cost; and product differentiation. In the long run, firms succeed relative to their competitors if they possess sustainable competitive advantage in either of these two, subject to reaching some threshold of adequacy in the other. In Figure 1, Somogyi & Galliers (1987) provide examples of applications of information technology, which are consistent with these two strategic stances, mapped against the particular enterprise activities to which they contribute. Another important consideration in positioning is 'competitive scope', or the breadth of the enterprise's target markets within its industry, i.e. the range of product varieties it offers, the distribution channels it employs, and the types of buyers it serves, the geographic areas in which it sells, and the array of related industries in which it competes. Under Porter's framework, enterprises have four generic strategies available to them whereby they can attain above-average performance. They are: cost leadership; differentiation; cost focus; and focused differentiation.

Table 1: Examples of Information Technology (IT) Applications to Porter's Strategic Stances

IT Applications	Low Cost	Differentiation
Product Design and Development Systems	Production engineering systems, Project control systems	R&D databases, Professional work stations, Electronic mail, CAD, Custom engineering systems, integrated systems to manufacturing
Operations	Process engineering Systems, Process control systems, Labor control systems, inventory management systems and Procurement Systems	CAM for flexibility Quality assurance systems to suppliers, Quality monitoring systems for suppliers
Marketing	Streamlined distribution systems, Centralized control systems, Econometric modeling systems	Sophisticated marketing, Market databases, IT display and promotion, Telemarketing, Competition analysis systems, Modeling Capabilities, High service level distribution system
Sales	Sales control systems, advertising monitoring systems, systems to consolidate sales function, strict incentive-monitoring Systems	Differential pricing, Office-field communication systems, custom-sales support, Dealer support systems, systems to customers

[Source: Somogyi & Galliers, 1987]

Some recent developments of information systems used in business are briefly discussed below. Electronic Commerce Systems, which provide for sale of goods and services electronically. E-commerce reduces the cost of transactions because it is all electronic and saves the manual work involved in a transaction. It provides for a customized version of the products and services to meet the diversified needs of the customers. As there is no physical storage of products involved, it is possible to reach different segments of the market. Further,

this system provides access to customers all over the world and thus eliminating the geographic constraint (Tan and Teo 2001). E-commerce systems are not meant only for products but are equally effective in providing services and its application are found in various service industries like banking, universities, travel industries and others.

Supply Chain Management Systems - These information systems help to share information among the various partners in the supply chain thus increasing efficiency and greater inventory control. The focus of this system is to streamline the flow of products. Supply chain management systems facilitate accurate forecasting by providing accurate information of the products (Turban et al 2002).

Customer Relationship Management System (CRM) -This system not only combines information from all the websites, call centers and catalogues but also updates the information instantaneously. This valuable information from the customer relationship management system can be used to get repeat sales from the existing customers and also to attract potential customers. Having information on a shopper's most recent transaction will enable the business to know its target market's preferences. Having access to this kind of up-to-the-second information helps businesses to improve quality of customer service. It also provides opportunity for additional sales by offering products of interest to the specific customers at the appropriate time. (Laudon & Laudon, 2007)

Smart Chip Technology System -These systems provide highly interactive experience and enhance customer relationships at the time of purchase (Zwass, 2001). With these systems, businesses can track customers' buying habits by linking their purchases to their system identification through the smart card. Smart cards are a step toward focused marketing and customer relationship management. Smart card has an inbuilt security feature and holds a computer chip that can download coupon information from the Internet onto the card, which customers can use to save on purchases. Smart cards help to keep track of customer demographics and this information is crucial for a company to maintain its competitive edge. Wal-Mart's advance chip technology will add new levels of convenience to customers by providing additional functions to its smart card platform. Adoption of this system by Wal-Mart signals that this technology could soon become part of mainstream retailing (Turban et al, 2002). Target Corporation in conjunction with Visa USA Inc. offered smart card versions of its visa credit cards throughout the US (2001). Another example is the Mobil speed pass

from Exxon Mobil Corporation, which can be used at gas stations, is one smart card that is already in use.

2.2 Information systems for strategic advantage

The strategic role of information systems involves using information technology to develop products, services, and capabilities that give a company major advantage over the competitive forces it faces in the global marketplace. This creates strategic information systems, information systems that support or shape the competitive position and strategies of an E-business enterprise. So a strategic information system can be any kind of information system (transaction processing system, management information systems, decision support systems, etc.) that helps an organization gain a competitive advantage, reduce a competitive disadvantage, or meet other strategic enterprise objectives (Zwass, 2001). A firm can survive and succeed in the long run if it successfully develops strategies to confront five competitive forces that shape the structure of competition in its industry. These are: rivalry of competitors within its industry, threat of new entrants, threat of substitutes, the bargaining power of customers, and the bargaining power of suppliers.

Businesses can counter the threats of competitive forces that they face by implementing five basic competitive strategies (Laudon and Laudon 2007); Cost Leadership Strategy. Becoming a low-cost producer of products and services in the industry. Also, a firm can find ways to help its suppliers or customers reduce their costs or to increase the costs of their competitors. A firm can use IT to substantially reduce the cost of business processes.

Differentiation strategy involves developing ways to differentiate a firm's products and services from its competitors' or reduce the differentiation advantages of competitors. This may allow a firm to focus its products or services to give it an advantage in particular segments or niches of a market.

Innovation strategy entails finding new ways of doing business. This may involve the development of unique products and services, or entry into unique markets or market niches. It may also involve making radical changes to the business processes for producing or distributing products and services that are so different from the way a business has been

conducted that they alter the fundamental structure of an industry. It may also create new products and services that include IT components.

Growth strategies significantly expand a company's capacity to produce goods and services, expanding into global markets, diversifying into new products and services, or integrating into related products and services. A firm could also use IT to manage regional and global business expansion

Alliance strategies require establishing of new business linkages and alliances with customers, suppliers, competitors, consultants, and other companies. These linkages may include mergers, acquisitions, joint ventures, forming of "virtual companies," or other marketing, manufacturing, or distribution agreements between a business and its trading partners. A firm could develop inter-enterprise information systems linked by the Internet and extranets that support strategic business relationships with customers, suppliers, subcontractors, and others

Information technology can be used to support a firm's competitive strategies; several key strategies that are implemented with information technology are: locking in customers or suppliers, building switching costs, raising barriers to entry, and leveraging investment in information technology.

Investments in information technology can allow a business to lock in customers and suppliers (and lock out competitors) by building valuable new relationships with them. This can deter both customers and suppliers from abandoning a firm for its competitors or intimidating a firm into accepting less profitable relationships. Early attempts to use information systems technology in these relationships focused on significantly improving the quality of service to customers and suppliers in a firm's distribution, marketing, sales, and service activities. Then businesses moved to more innovative uses of information technology.

A major emphasis in strategic information systems has been to find ways to build switching costs into the relationships between a firm and its customers or suppliers. That is, investments in information systems, technology, can make customers or suppliers dependent on the continued use of innovative, mutually beneficial inter-enterprise information systems. Then,

they become reluctant to pay the costs in time, money, effort, and inconvenience that it would take to change to a company's competitors.

By making investments in information technology to improve its operations or promote innovation, a firm could also erect barriers to entry that would discourage or delay other companies from entering a market. Typically, this happens by increasing the amount of investment or the complexity of the technology required to compete in an industry or a market segment. Such actions would tend to discourage firms already in the industry and deter external firms from entering the industry.

Investing in information technology enables a firm to build strategic IT capabilities that allow it to take advantage of strategic opportunities when they arise. In many cases, this results when a company invests in advanced computer-based information systems to improve the efficiency of its own business processes. Then, armed with this strategic technology platform, the firm can leverage investment in information technology by developing new products and services that would not be possible without a strong IT capability. An important current example is the development of corporate intranets and extranets by many companies, which enables them to leverage their previous investments in Internet browsers, PCs, servers, and client-server networks.

2.3 Implementation of Strategic Information Systems

To manage the organizational change surrounding the introduction of a new information system effectively, organizations must examine the process of implementation. Implementation refers to all organizational activities working toward the adoption, management and reutilization of an innovation such as a new Information system. In the implementation of an information system, the system analyst is the change agent. The analyst not only develops technical solutions but also redefines the configurations, interactions, job activities and power relationships of various organizational groups. The analyst is the catalyst for the entire change process and is responsible for ensuring that all parties involved accept the changes created by a new system. The change agent communicates with user, mediates between competing interest groups, and ensures that the organizational adjustment to such changes is complete. (Laudon & Laudon, 2007)

Laudon & Laudon 2007, assert that the introduction or alteration of a SIS has a powerful behavioural and organizational impact. Changes in the way the Information is defined, accessed and used to manage the organizations resources often leads to new distributions of authority and power. This internal organizational change breeds resistance and opposition and can lead to the demise of an otherwise good system. A very large percentage of IS projects stumble because the process of organization process of change surrounding system building was not properly addressed. Successful System building requires careful change management. Olio (1999), noted that the computer industry in Kenya is one of the fastest growing economic sectors in Kenya. He notes that of the specialized mission critical systems, banking systems dominate and are closely followed by Enterprise Resource Planning (ERP) systems installed in major manufacturing organizations mainly from SAP Corporation. These are examples of SISs used in businesses today.

A number of factors influence systems implementation including clear objectives, the expertise of the implementation team, and data quality most often as being important prerequisites for system integration success. IT managers are more likely to be more satisfied with software systems than organizational managers. Semi-technical problems experienced by IT department personnel include a lack of support from software and hardware vendors, a lack of employee training on integration technologies, a high complexity of business processes, and extra, unbudgeted costs of redesign and change to business structures (O'Brien, 2001).

Many of the above problems, however, have their basis in the relationship between Information technology (IT) and general management staff, with IT department personnel claiming a lack of high level management support, which may limit the effectiveness of their training and promotional efforts, hence lacking the support necessary to push through the redesign of complex business processes, which consequently imposed extra costs on system integration. The IT function often appears to be dominated by a corporate culture that does not commonly assign it a strategic role. General management mention strategic vision, an understanding of the relationship between business processes and organizational elements, adequate budgetary provision (many of them having experienced cost-overruns on projects) and the use of appropriate performance measures, as facilitators of SISs implementation. Adequate planning, an adequately specified and reliable communications infrastructure, and

the willingness to revise business procedures are part of the systems integration process, as facilitators.

2.4 Challenges of implementing SISs

A number of challenges to effective implementation and use of SISs have been documented. These include:

- i) **Interconnections/ Integration problems** - SISs create many interconnections among various business processes and data flows to ensure that any other unit of the organization can obtain information in one part of the business. Information that was previously maintained by different departments must be integrated and made available to the company as a whole. Business processes must be tightly integrated, jobs redefined and new procedures created throughout the company. The whole process of change is challenging and employees are often unprepared for new procedures and roles (Laudon & Laudon, 2007). Integration of existing stand-alone information systems with SISs is a major problem for many organizations. While client/server and open systems solve some technical difficulties, there are still problems of integrating different types of data and procedures used by functional areas. Also, there is an issue of information sharing, which may contradict existing practices and culture (O'Brien, 1999).

- ii) **Technological complexity** - SISs are built on new powerful technologies that require very different skill sets than do legacy systems. Most large organizations still require use of large scale, mainframe legacy systems. Managers find it very challenging to manage the technological complexity of different platforms and to harness the technological power of new technology. SIS implementation is so complex that it has proven to be too difficult for many organizations (O'Brien, 2001). The limitations of database management arise from its increased technological complexity. Thus, a database management approach can pose problems in data resource management. Developing large databases of complex data types and installing a Database Management System (DBMS) can be difficult and expensive. More hardware capability is required, since storage requirements for the organization's data, overhead control data, and the DBMS programs are greater. Longer processing times may result from high-volume transaction processing applications since an extra layer of software (the DBMS) exists between application programs and the

operating system. Finally, if an organization relies on centralized databases, its vulnerability to errors, fraud, and failures is increased. Yet problems of inconsistency of data can arise if a distributed database approach is used. Therefore, the security and integrity of an organization's databases are major concerns of an organization's data resource management effort. (O'Brien, 2001).

- iii) Lack of proper SIS management -Most managers are trained to manage a product line, a division, or an office. They are rarely trained to optimize the performance of the organization as a whole. But strategic information systems require managers to take a much larger view of their own behavior, to include other products, divisions, and departments and even outside business firms. SISs must be developed and implemented over time guided by a shared vision of objectives. For many firms, it is very difficult to develop a shared, enterprise wide vision of the firm to guide systems implementation (Laudon & Laudon, 2007).

Studies by Okumu (2003) found that the main barriers to the implementation problem included the lack of coordination and support from the levels of management and resistance from lower levels and poor planning activities. Employee commitment to strategic information system implementation programmes is crucial given that they actually execute implementation activities (Hansson et al., 2003). Low employee commitment could therefore obstruct acceptance of an implementation process (Saad and Siha, 2000). A range of intangible and therefore difficult to measure factors such as understanding, ownership and involvement, are also important in obtaining success. In some cases there might be no systematic plans developed for addressing resistance to the implementation of the new systems based on: fear of losing jobs (Hardwick and Winsor, 2002), negative experiences of previous problematic change projects, changes to their internal status (McAdam and McGeough, 2000), or because of the stressful work conditions that a new system may induce.

- iv) Cost of technology - SISs are generally expensive to purchase and implement in organizations. The move to SIS is a project of breath taking scope and the prices quoted are enough to make any financial manager twitchy. In addition to budgeting for software costs, financial executives should plan to write cheques to cover consulting, process rework, and integration testing and a long laundry list of other expenses before the

benefits of SIS start to manifest. The projects have a reputation of draining corporate resources and funds given the massive resources required (Slater, 1998).

- v) Security concerns - Some of the SISs empower customers to log onto the system and carry out transactions. Empowering customers to enter into a corporate database can make customers happy, since they get quick answers to the queries and can save money for a company. But it may raise security concerns. The systems may not have adequate security measures that can minimize occasions of hacking given the complexity of the system (Turban et al., 2001).

- vi) Organizational change - SIS implementation is not just a software project but also an organizational change project. The projects call for co-operation, teamwork, and planning for organizational change, which are difficult to do when senior management is too busy to give the project adequate attention. Installing SISs successfully is not an easy task because of the major changes to a company's business processes required by SIS software. The projects bring about massive organizational changes as they consist of many functional modules that can span the whole organization and yet share a database. Because departments are part of a larger organization, they are forced to share systems and act not as independent units but act as a larger organization, requiring a whole new understanding of their work (O'Brien, 1999). Adopting SISs generally requires changes in business goals, relationship with customers and suppliers and business processes. These social technical changes, affecting both social and technical elements of the organization can be considered strategic transitions – a movement between levels of social technical systems. Such changes usually involve blurring of organizational boundaries both external and internal. Suppliers and customers must become intimately linked and may share each other responsibilities. Managers will need to devise new business processes for coordinating their firm's activities with those of customers, suppliers and other organizations.

- vii) Staff layoffs - The introduction of any new technology may result in massive staff layoffs and morale problems. The integration of departments leads to reduced need for many staff to man operation hence leading to staff layoffs. The company may lack resources to compensate employees over their job loss. Therefore, managers must anticipate resistance to SISs, especially when combined to business process reengineering. (Zwass, 2001).

- viii) Product quality and vendor unreliability - Although SISs are becoming increasingly similar in functionality; they are still different in their quality, ease of implementation and vendor support. The stability of the current release of the program may not be guaranteed. System developers are changing hardware platforms, sometimes operating systems and database platforms, and other times overall system architecture. One vendor may have several versions of the same system. It may also mean that the version you want to buy is brand new, leading edge, but unstable, prone to crashing, and full of bugs (Munguti, 2001).

- ix) Lack of business awareness - perceived shortcomings of IT management include a failure to demonstrate business benefit, a lack of business focus, and a failure to communicate in business terms, while the general management side may fail to understand IT issues or relevance. These perceptions, along with factors such as a historical lack of power (Chang, 2002), a lack of participation in strategic planning, past implementation failures, poor user relations, and limited user awareness, have in the past had a significant impact on the general effectiveness of IT in many organizations, and partly motivated the large scale devolution or outsourcing of the IT function which took place in the 1990s.

- x) End user resistance and involvement - Any new ways of doing things generate some resistance by the people affected. Thus, the implementation of new SIS support technologies can generate fear and resistance to change by employees. Let's look at a real world example that illustrates this phenomenon. One of the keys to solving problems of end user resistance to new information technologies is proper education and training. Even more important is end user involvement in organizational changes, and in the development of new information systems. Organizations have a variety of strategies to help manage business change, and one basic requirement is the involvement and commitment of top management and all business stakeholders affected by the E-business

planning process. Direct end user participation in SIS planning and application development projects before a new system is implemented is especially important in reducing the potential for end user resistance. That is why end users frequently are members of strategic information systems development teams or do their own developments. Such involvement helps ensure that end users assume ownership of a system, and that its design meets their needs. Systems that tend to inconvenience or frustrate users cannot be effective systems, no matter how technically elegant they are and how efficiently they process data. (Reynolds, 1996).

CHAPTER 3: RESEARCH METHODOLOGY

3.1 The research design

A census survey was used for this study. This was because the census would give a more comprehensive and representative information regarding the objectives. A survey was also the most applicable in the study, as it facilitated comparison of data from the correspondents who formed a broad category. This design had been used for similar studies in Kenya (Nyambati, 2001) for Commercial Banks in Kenya.

3.2 Population

According to Central Bank of Kenya (2008), there are 44 commercial banks operating in Kenya. The target population of the study was all the commercial banks operating in Kenya. The information technology heads or contacts were targeted to give responses since this is the group that mainly dealt directly with the system analysts and programmers whose role was to develop and implement information systems.

3.3 Data collection

This study used primary data. The researcher used a questionnaire to help in data collection (refer to Appendix B). The questionnaire had four sections. Section A comprised of questions, which were demographic in nature. The questions sought to find out details about the organization and the expected respondents. Section B collected information on the extent of Strategic Information Systems use, Section C collected information on the challenges faced while implementing Strategic Information Systems, while Section D was mainly on the possible responses to the challenges faced while implementing Strategic Information Systems.

The questionnaires were hand delivered to the commercial banks with self-addressed envelopes enclosed. The Information Technology heads and managers working in the Information Technology department were targeted because they would give more comprehensive data on the research subject. For banks that had a functional website, the questionnaires were emailed. Two questionnaires were piloted and revisions made where necessary before the instrument was used to collect data for the study.

3.4 Data analysis

Once the questionnaires were administered, numerical codes were assigned to the various close-ended responses. However, coding for open-ended questions was done after the responses in the filled questionnaires were obtained. The data was then categorized and numerical codes assigned to the various categories. The researcher used thematic analysis where themes or topics of major subjects that came up in discussions was be used. Major concepts were identified and categorized for analysis as briefly outlined below.

Demographic data was analyzed using descriptive statistics such as frequency distribution to give general overall picture about the organization and the expected respondents.

Data on the extent of Strategic Information Systems use was analyzed using percentages to establish the various applications of SIS's by banks and to point out how the banks have used these systems to gain a competitive edge in the banking industry.

To address the objective regarding the challenges faced by Banks in implementing SISs data was analyzed through the use of mean scores to rate the respondent's opinions.

Data on responses to the challenges faced while implementing Strategic Information Systems from the respondent's view was analyzed using mean scores and tabulation. A report on the study was then be compiled based on the responses that are received from the respondents.

CHAPTER 4: DATA ANALYSIS AND INTERPRETATIONS

4.1 Demographic Information

A total of 40 questionnaires were distributed and 25 questionnaires were returned making a response rate of 63%. This was considered good since the industry under study is very restrictive on giving out information to the public. The first section of the questionnaire aimed to collect the demographic information of the respondents. It was aimed at collecting the respondent's personal information and that of the company. Most of the respondents chose not to give the name of their organizations probably for security reasons. 85% of the respondents were aged between the ages of 26-35, 5% were aged between the ages of 18-24 while the remaining 10% chose not to indicate their age. Respondents were also asked in which departments they worked for. Strategic Information Systems, information technology, bills and operation technology departments are some of the departments the respondents worked in. 72% of the respondents worked in Information technology departments, which was the main area of target. 90% of the respondents had worked in their current organization for more than two years while the remaining 10% had worked in their organization for less than two years. Table 1 illustrates the organizations' profile depicting the period it has been in operation.

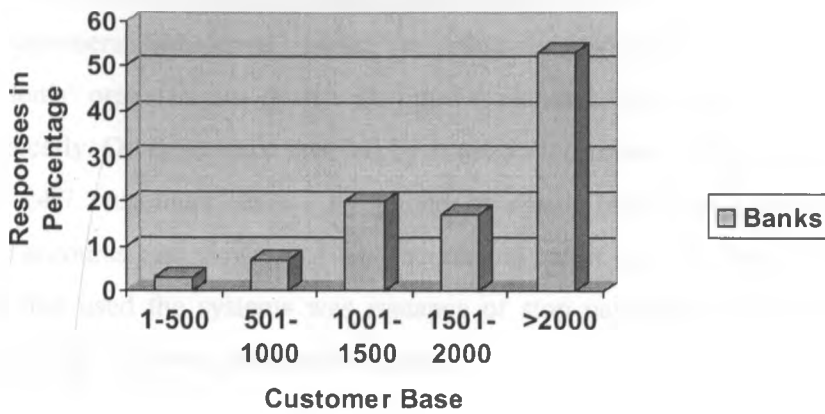
Table 2: Period of Organization Existence

Period of existence	Number of Banks	% Represented
Less than 25 year	4	16%
Over 25 years	21	84%

From table 1, data presented highlights that 16% of the banks have been in operation for less than 25 years. Those that had been in the operation for more than 25 years were represented by 84% of the respondents, 16% of the banks that responded were categorized as corporate meaning that they serve organizations only, while the remaining 84% were both corporate and personal bankers.

Chart 1 illustrates the number of customers that the respondent's banks serve. It is clear that most of the banks represented by the population serve more than 2000 customers.

Chart 1 Number of customers served



In attempting to determine the extent of strategic information systems use in banking industry, users were asked to state what services their banks offered to the customers they served by using the available systems. Table 2 shows the responses that were received from the respondents.

Table 3: Extent of use strategic information systems

Banking services	n	Percentages
Viewing of account balances	19	76
Ordering checks online	11	44
24/7 customer service by phone or email	13	52
Online mortgage application	3	12
Direct debits	3	12
Viewing of account history	17	68
Importing bulk payments to the system	4	16
Transfer of funds between accounts	18	72
Dealing with other banks	17	68
Online application for checking and savings accounts	14	56
Viewing of loan status and credit card account information	13	52
Accounts book reconciliation	6	24
Viewing of digital checks online	2	8
Issuing stop payment orders online	1	4

N = 25

As depicted on table 2, the most used service with strategic information systems is viewing of account statements. 76 % of the respondent asserted to this. 72% of the respondents said that their customers transferred money to other banks electronically while 68% of the respondents' organizations dealt with other banks and viewed the history of their accounts electronically. Other services enabled by strategic information systems were ordering checks online; 24/7 customers service by phone or email; online application for checking and savings accounts and viewing of loan status and credit card account information. The least service that used the systems was issuance of stop payment orders online with only one respondent having being affirmative on this.

In determining whether banks had set aside specific people to foresee the progress of strategic information system implementation, the respondents were asked if they had a committee in place for the same. 80% of respondents said that their bank had a strategic information systems implementation committee with some of its tasks given a technical support to their clients, transactional banking and follow up on system operations support, implementation of new system requirements, testing and maintenance of the system. Other duties that the committee were assigned include marketing the strategic information systems services through advertisements, setting changes and commissions, creating clients' electronic mobile pins and numbers and ensuring satisfactory running of clients' requests. Some of the respondents were not aware of the activities carried out by the committee. 15% of the respondent said that they did not have any strategic information systems committee in place while 5% opted not to answer the question.

4.2 Challenges faced during the implementation of strategic information system

The study aimed at getting the respondents' views of the challenges that their organizations faced while implementing strategic information systems (SISs), and those that prevented the bank from implementing the systems if at all the bank opted not to implement them. A question was asking respondents to rate their opinion on the challenges their banks faced while implementing SISs. A 5-point scale was used. 5 indicated very great extent, 4 for great extent, 3 for moderate extent, 2 for less extent and 1 for none. Scores were assigned; 1,2,3,4, and 5 representing a score of 1,2,3,4, and 5 respectively. Mean score were then computed

based on the responses from the respondents and standard deviations computed for each challenge. Challenges with a high mean score and a lower standard deviation meant that the challenge had a greater impact to the banks under study and that it was dependable. Table 3 illustrates the responses that were obtained. The formula below was used to compute the standard deviation.

$$\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

σ = lower case sigma

\sum = capital sigma

\bar{x} = x bar

σ means 'standard deviation'.

\sum means 'the sum of'.

\bar{x} Means 'the mean'

Table 4: Possible challenges faced during the implementation of SISs

Possible challenges faced during the implementation of Strategic Information Systems	Mean Score	Standard Deviation
1. Lack of the resources and Infrastructure required to implement the system	5	4.2
2. Inadequate technological skills within the organization	4	3.1
3. The technology required is too expensive for the bank to budget for the cost.	2	3.6
4. Lack of cooperation and commitment from the senior management	5	4.2
5. Current organizational structure does not allow changes in the bank processes	2	4
6. Employees have negative attitude towards the use of the Information systems	3	2.5
7. Resistance from the customers who were being targeted during the implementation.	4	3.7

8	Fear of current employees loosing jobs after the system implementation.	2	3.8
9	The notion that use of information system raises security concerns.	4	2.5
10	The organization is hesitant to recruit specialized staff for the support of the strategic information systems.	3	2.5
11	The new information system having some incompatibility problems especially during the testing phase before actual changeover.	2	3.8
12	The organization is worried of the compensation that would be demanded incase of fraud or errors arising from use of the SIS.	3	1.5

From table 3, it is clear that the greatest challenges according to the mean scores and the standard deviations were lack of the resources and infrastructure required in implementing the systems, Lack of cooperation and commitment from the senior management. The fear of current employees loosing jobs after the system implementation and the new information system having some incompatibility problems especially during the testing phase before actual changeover were also greatly felt challenges with a mean score of 2 and a standard deviation of 3.8.

The least felt challenges were that the organization was worried of the compensation that would be demanded incase of fraud or errors arising from use of the SIS and the notion that use of information systems raises security concerns.

4.3 Responses to challenges in implementing strategic information system

The second objective of the study was to determine how commercial banks in Kenya are responding to challenges of implementing strategic information systems. in order to analyze this, the respondents were asked if a review of strategic information systems (SIS) was included in the annual management general meeting for which 80% of the respondents said it was included, 15% said it was not included and the remaining 5% chose not to answer the question. For the respondents whose SISs review was included in the general meetings, 60% of them said that there had been exceptions during the last meeting held in the organization for which 74% reported that the exceptions had already been addressed.

Users were also asked to rate various factors used to respond to the challenges faced while implementing SIS. A 5-point scale was used. 5 indicated Very great extent, 4 for great extent, 3 for moderate extent, 2 for less extent and 1 for none. Scores were assigned with 1,2,3,4 and 5 representing a score of 1,2,3,4 and 5 respectively. Mean scores were then computed based on the responses from the respondents and standard deviations computed for each response. Responses with a high mean score meant that the challenge had a great impact to the banks under study and those with low standard deviations meant that the responses were more reliable. Table 4 illustrates the responses that were obtained from the respondents.

From the table, the most popular responses among banks were training of bank employees on the use of Strategic Information Systems, reducing the electronic payments transaction changes (lower than manual transfers) and sourcing for specialized team for support of SISs to assist customers in their transactions. The results as shown on the table confirmed the reliability of the data. Outsourcing the project to a specialized supplier, allocation of a budget for SIS, involvement of senior management in the implementation program and sensitization of customers on the benefits of Strategic Information Systems each with a mean score of 4 were used greatly by the banks.

The least popular response strategies among banks were found to be stopping the implementation of the SIS with a mean score of 1, collaborating with other banks in the implementation of the strategy and entering into contract with a reliable stable Internet service provider, which had a mean score of 2 each.

Table 5: Responses to SISs Implementation Challenges

Responses to SISs Implementation Challenges	Mean	Standard Deviation
1. Training of Bank employees on the use of SISs	5	3.9
2. Sensitization of Customers on the benefits of SISs	4	4.2
3. Involvement of Senior management in the implementation program	4	4.1
4. A budget being allocated for SISs	4	5
5. Government involvement on the Implementation process	3	3.2
6. Specialized team for support of SISs to assist	5	3.5

customers in their transactions		
7. Entering into contract with reliable system analysts and programmers	2	3.1
8. Collaborating with other banks in the implementation of the strategic information systems	2	4
9. Outsourcing the project to a specialized developer	4	3.2
10. Reducing the electronic payments transactions charges (lower than manual transfers)	5	4
11. Stopping the implementation of the system	1	4.8

From the above sections, the following factors were given a lot of weight from respondents as being major challenges that were faced in implementing Strategic Information Systems; Lack of the resources and infrastructure required in implementing the systems, lack of cooperation and commitment from the senior management, the fear of current employees losing jobs after the system implementation and the new information system having some incompatibility problems especially during the testing phase before actual changeover.

Banks responded to the above challenges in various ways. The most popular ways of curbing the challenges were: Outsourcing the project to a specialized supplier, allocation of a budget for SISs, involvement of senior management in the implementation program and sensitization of customers on the benefits of Strategic Information Systems.

CHAPTER 5: SUMMARY, DISCUSSIONS AND CONCLUSIONS

5.1 Summary, Discussions and Conclusions

The two objectives of the study were met after conducting the study. The first objective was to establish the challenges faced by commercial banks in Kenya in implementing Strategic Information Systems. Commercial banks in Kenya have in the past taken up the Strategic Information Systems implementation, which is a substitute to the manual processes they have in place. However, in implementing the systems, the results indicate that several challenges exist. Lack of resources and the infrastructure required to implement the systems is one of the major challenges identified. These resources would include the capital required in terms of money, technological equipments and other resources that may be needed. This does not translate only to high costs to the banks but also long run round times during the implementation.

This study agreed with Galliers et al (1999) conclusions that changes in the use of bank delivery channels would occur as the population matures as knowledge, confidence and computer usage increases. Lack of technical knowledge by the targeted customers may lead to a breakdown of the equipment due to wrong operations thus adding up to the maintenance cost. Strategic Information Systems involves additional systems that in some cases are incompatible with the systems in place. This means that the two have to be configured to work together which might need a lot of capital. In other cases, totally new systems need to be acquired for compatibility. Lack of cooperation and commitment from the senior management has also been a major challenge. In many organizations major projects need the approval of the senior management, which is mostly done during the board meetings. This then means that if the management is not comfortable with the systems, it will be very hard if not impossible for implementation team to succeed.

In consistence with Keating (2002) findings, Kenya consumers tend to have low confidence towards strategic information systems and the Internet. Many people in Kenya resist any form of bank transaction that does not concern manual signing due to fear of fraud.

This means that security of Strategic Information Systems is of major concern in the country. This is not only from the bank customers but also from employees in the banking sector who

do not want to risk their jobs from fraudulent activities. The banks are also worried of the compensation that would be demanded in case of fraud arising from use of Strategic Information Systems. Negative attitude from the bank employees who are supposed to spearhead the project is also a major challenge to implementing the systems. This might be due to fear of loosing jobs after the automation of the major functions or the feeling that technology is too hard to cope with. Some are also not willing to train on any new development.

The second objective was to determine how commercial banks in Kenya are responding to the challenges of implementing strategic information systems. In order to succeed in strategic information systems implementation, banks facing the challenges identified in the study have come up with different responses. The results from the study, agree with Hanson et al (2003) conclusions from a previous study that the most popular response is training of the bank employees on the use of strategic information systems especially for non-committed employees. Employees are being sensitive on what to expect from the systems, why the system is being adopted (the benefits), the challenges the team is likely to face, the likely impact of the system and what is expected of the employees during and after the implementation. This then ensures that the employees are prepared for the reception of the system and are fully aware of what the system is about. They also feel part and parcel of the team implementing the system thus being committed to successful implementation of the System.

The target customers also need sensitization of the planned system. Banks in Kenya have continuously been training their employees to use their strategic information systems and the benefits of using these systems. The customer appreciates efficient and fast services enabled by such systems. This also ensures that the customer has all the information they require to run from banks at their own convenience. This makes them comfortable and in the long run the banks gain a competitive edge by being able to retain a good customer base.

In consistence with Chattopadhyay (2001), the study showed that the senior management has to be involved in the implementation of the strategic information systems since they are mostly concerned with the approval process of any project and more especially when there is need for funds. If they feel they do not have the information they need, they will be hesitant to approve of the system implementation. Once they are involved from the conceptualization

to the implementation phase and they are fully aware of the benefits the system is to bring to the organization, they will be so willing to fund the project and even give more ideas on how to cope with the challenges faced. The bank's management today has also appreciated the fact that the information systems department is a full department on its own and has now been allocating a budget for its maintenance. This then enabled the improvement of any service on offer especially based on customer feedback.

Banks are continuously hiring a specialized team for support of strategic information systems implementation so as to assist customers in their transactions. This also includes a fully skilled team to train the customers on the system. One way that banks have done this is by outsourcing the project to specialized suppliers who will in turn offer a team to the bank to offer the services to the bank's clients. The supplier is then paid a monthly fee from which the team is then paid. This also makes the team only concentrate on strategic information systems since that is what they have been hired for and their pay and stay at the bank depends on their delivery.

Some banks have also offered to enter into service delivery contracts, which outline what service levels are expected to the outsourced company and what is also expected of the bank. This agreement is then reviewed after a stipulated time and a decision made whether to continue with the contract or to terminate it. This is also the case with Internet service providers. Banks just like other businesses in Kenya are sourcing for reputable reliable Internet service providers for the provision of stable Internet services much needed for Strategic Information Systems to take place.

Bank's reduction of the electronic payments transactions charges in order to attract customers to using the system is also another popular response. Once a customer is told that there is a cheaper and faster way of transferring money than the manual ways, then they would choose the cheaper method in order to save on costs and to cut down on the time required to transfer money. The banks are also offering free bank statements online. All the client needs to do is log into the system and download the statement. Considering the banks in Kenya charge for the statements, then it would be logical for the customer to subscribe to the online system and get statements for free. All this is enabled by use of SISs. Some of the least popular response strategies that banks have employed include stopping the implementation of the systems and entering into contract with a reliable stable Internet service provider.

As for the responses that banks use, the most popular were training of bank employees on the use of strategic information systems; reducing the electronic payments transactions charges; sourcing for specialized team for support of strategic information systems implementation to assist customers in their transactions; outsourcing the project to a specialized supplier; A budget being allocated for strategic information systems; Involvement of senior management in the implementation program and sensitization of customers on the benefits of strategic information systems. Others included stopping the implementation of the system; collaborating with other banks in the implementation of the system and entering into contract with reliable stable Internet service providers.

5.2 Limitations of the study

Organizations have embraced strategic information systems in running their businesses. These may be non banking institutions which face challenges whose jurisdiction was not the interest of this research hence the limitation of this study to only financial institutions yet other non bank institutions also face far reaching challenges in implementing strategic information systems.

Some respondents failed to participate in the study by not responding to questionnaires sent to them. Some of the banks that had implemented SISs were not willing to provide vital information in various areas hence making it difficult to make informed opinion on those areas of SISs implementation, which was considered a critical challenge.

5.3 Suggestion for further study

Strategic information systems having been adopted by non-banking institutions, a study can be conducted on the challenges that the institutions have been facing, the responses they are employing and the impact the services have in the Kenyan economy. This then will be a broader look at the wider financial and non-financial group of companies.

5.4 Implications for Policy and Practice

This study has shown that there exist different challenges in implementing strategic information systems. Kenya Commercial banks should therefore be aware of what to expect during the implementation and maintenance of strategic information systems. Banks also

need to know the responses that work best to solve these challenges to ensure that the systems implementation does not stall and that it works to reap the maximum benefits. All stakeholders should be involved in the implementation and this would include the customers. Both the internal and external environment should also be considered during the implementation.

REFERENCES

- Awino, Z.B. (2000). "Effectiveness and Problems of Strategic Implementation of Financing Higher Education in Kenya by the Higher Education Loans Board", *Unpublished Masters of Business Administration research Project, University of Nairobi*.
- Beckhard, R. and Prichard, W. (1992). *Changing the Essence*. San Francisco, Jossey Inc
- Barodoel, E.A., Sohal, A. (1999). "The role of cultural audit in implementing quality improvement programs", *International Journal of Quality & Reliability Management, Vol. 16*
- Bennet, H., Durkin, M. (2000). "The effects of organizational change on employee psychological attachment", *Journal of Managerial Psychology, Vol. 15*
- Bryson, J., Bromiley, P. (1993). "Critical factors affecting the planning and implementation of major projects", *Strategic Management Journal, Vol. 14 No.2, pp.319-37*
- Castells, M. (1996, 2001). *The rise of the network Society*, Oxford, Blackwell.
- Central Bank of Kenya (2008). Central Bank of Kenya annual Report, <http://www.centralbank.go.ke>
- Chang, K.S and Hyung, S.L. (2000). "Analysis of Electronic Commerce Adoption from a Technological innovation Perspective," *Journal of electronic commerce (35) pp 88-96*
- Chattopadhyay, S.P. (2001). "Improving the speed of ISO 1400 implementation: a framework for increasing productivity", *Managerial Auditing Journal, Vol. 16*
- Commercial Bank of Kenya, – Banking supervision Annual Report 2008
- Freedman, M. (2003). "The genius is in the implementation", *Journal of Business strategy, Vol 24 No 2*
- Galliers, R et al (1999). *Strategic Information Management: Challenges and Strategies in Managing Information Systems*, 2nd ed. ISBN

Gatune, J. (1993). "Factors considered important in implementing local area networks". *Unpublished Masters of Business Administration research Project, University of Nairobi.*

Hamel, G. (2000). "Leading the Revolution" Harvard Business School Press, Boston.

Hansson, J., Backlund, F., Lycke, L. (2003). "Managing commitment: increasing the odds for successful implementation of TQM, TPM or RCM", *International Journal of Quality & Reliability Management, Vol. 20*

Johnson, G. and Scholes, K. (2002). "Exploring Corporate Strategy", Prentice Hall, 6th Edition.

M, Jackson, S. (2001). "Successfully implementing total quality management tools within healthcare: what are the key actions?" *International Journal of Health Care Quality Assurance, Vol. 14*

Kaplan, R.S., Norton, D.P. (2004). "Strategy Maps: Converting Intangible Assets in Tangible Outcomes", Harvard Business School Press

Keating, K., Harrington, D. (2002). "The challenges of implementing quality in the Irish hotel industry: a review", *Managing Service Quality, Vol. 12*

Kipngetch, J (1991.). "Management Satisfaction with Performance of Computer mediated Information Systems: The case of clients of Selected Computer Vendors". *Unpublished Masters of Business Administration research Project, University of Nairobi.*

Koske, F.K (2003). "Strategic Implementation and its challenges: the case of Telkom Kenya Limited", *Unpublished Masters of Business Administration research Project, University of Nairobi*

Laudon, K. & Laudon, J. (2007). "*Management Information Systems: Organization and technology in a networked enterprise*". 6th Ed. New Jersey, Prentice Hall.

Lewis, P., Saunders, M., Thornhill, A. (2004). "Developing an explanatory theory of reward system change", *Personnel Review, Vol. 33*

Miniace, J.N., Falter, E. (1996). "Communication: a key factor in strategy implementation", *Planning Review, Vol. 24 pp.26-30*

Munguti, A. (2001). "ERP and RDBMS, Strategic Developments in Information Technology". *Unpublished Masters of Business Administration research Project, Baraton University.*

Ndungú, Margaret (2000). "Challenges facing Internet Growth in Kenya". *Unpublished Masters of Business Administration research Project, University of Nairobi.*

Nyambane, T.O (1996). "An evaluation of the Extent of and factors limiting Information Technology usage in publicly quoted companies in Kenya", *unpublished Masters of Business Administration research Project, University of Nairobi*

Nyambati, R (2001). "Information Technology planning Practices in Kenyan Banks", *Unpublished Masters of Business Administration research Project, University of Nairobi.*

Nyandiere C. M (2002). "challenges facing enterprise resource planning systems Implementation in Kenya", *Unpublished Masters of Business Administration research Project, University of Nairobi.*

Nyambura, M.N. (2000). "A survey of Challenges facing Internet growth in Kenya" *Unpublished Masters of Business Administration research Project, University of Nairobi*

O'Brien, J. (1997). *Management Information Systems: a Managerial End User perspective* .3rd Ed, Boston, McGraw Irwin Inc

O'Brien, J. (1999). *Management Information Systems: Managing Information Technology in the Internetworked Enterprise.* 4th Ed. Boston, McGraw Irwin Inc.

O'Brien, J. (2001). *Introduction to information systems Essentials for the Internetworked E-Business Enterprise* Boston, Massachusetts McGraw-Hill/Irwin.

O'Brien, J. (2002). *Management Information Systems: Managing Information Technology in the E-Business Enterprise.* 5th Ed. Boston, McGraw Irwin Inc.

Ochieng J.B (1998). "Analysis of factors considered important in the Successful Implementation of Information Systems: A case study of Commercial Banks in Kenya" *Unpublished Masters of Business Administration research Project, University of Nairobi.*

Okumus, F. (2001). "Towards a strategy implementation framework", *International Journal of Contemporary Hospitality Management*, Vol. 13 No.7, pp.327-38

Okumus, F. (2003). "A framework to implement strategies in organizations", *Management Decision*, Vol. 41

Pearce JA and Robinson R.B (2005): *Strategic Management; Strategy formulation, implementation and control*, Irwin, Homewood, Illinois

Pechlaner, H. and Sauerwein, E. (2002). "Strategy implementation in the Alpine tourism industry", *International Journal of Contemporary Hospitality management*, Vol.14, 4 MCB University Press.

Porter, M (1985). "Competitive strategy". Harvard Business School Press

Prahalad C.K., Hamel G., (1990). "Core Competency Concept". Harvard business review

Sang C.K (2001). "A computer Risk analysis of Firms Quoted in the Nairobi Stock Exchange" *Unpublished Masters of Business Administration research Project, University of Nairobi*.

Slater, D. "The Hidden costs of Enterprise software." [http:// www.cio.com](http://www.cio.com)

Sterlin, J. (2003). "Translating Strategy into effective implementation; Dispelling the myths and highlighting what works", *Strategy and Leadership*, Vol. 31 No 3, MCB University Press Limited

Teneja Vishal, (2006). "A survey of application of Information and Communication Technology (ICT) for competitive advantage in Firms listed in Nairobi Stock Exchange". *Unpublished Masters of Business Administration research Project, University of Nairobi*.

Turban, E., Mclean, E., and Wetherbe, J. (2002). "*Information Technology for management: transforming Business in the Digital Economy*". John Wiley and Sons, pp 24-31

Zwass, V (2001), *Fundamentals of Information Systems*, 4th Ed. Boston, McGraw Hill-Irwin inc.

APPENDICES

Appendix A: Letter to the Respondents



University of Nairobi
School of Business
P.O Box 30197 Nairobi
Telephone: +254-2-318262

Dear Sir/Madam,

RE: A SURVEY OF RESPONSES TO CHALLENGES IN IMPLEMENTING STRATEGIC INFORMATION SYSTEMS BY COMMERCIAL BANKS IN KENYA

I am a postgraduate student undertaking a Master of Business Administration (MBA) degree at the University of Nairobi. I am currently carrying out research on responses to challenges in implementing Strategic Information Systems by commercial banks in Kenya as part of my degree programme.

Your organization has been chosen to be used for this research. I would therefore like to kindly request for your assistance in completing the questionnaire attached to enable me complete the research. The information you provide will be treated with strict confidence and will only be used for academic purposes (research).

Your cooperation in completing the questionnaire will be highly appreciated.

Yours faithfully,
Rachael Kanini
MBA Student.

Dr. Martin Ogutu
Supervisor
University of Nairobi

Appendix B: Sample Questionnaire

RESPONSES TO CHALLENGES IN IMPLEMENTING STRATEGIC INFORMATION SYSTEMS BY COMMERCIAL BANKS IN KENYA

This research is conducted with the authorization of the University of Nairobi, Faculty of Commerce, School of Business.

(Please tick responses as appropriate. where necessary tick as many items as you find relevant.)

Section A: Demographic information of Respondent.

1. Name of your Organization.....
2. Age (Optional): 18 – 25 26– 35 36 – 45 46 – 50 51 and above
3. In what department do you work?
4. What's your job title or your position?.....
5. How many years have you worked for the firm?

Company Profile

1. How many years has the bank been in operation?
2. Does your bank serve either corporate and personal account holders or only one group?
Corporate Personal Both
3. Approximately how many customers hold accounts with you?
 1-500 501-1000 1001 – 1500 1501 - 2000 More than 2000

Section B: Extent of Strategic Information System Adoption

1. Which of the services listed below do your customers have access to through use of SISs?

Viewing of account balances ()	Transfer of funds between accounts ()
Ordering checks online ()	Dealing with other banks ()
24/7 customer service by phone or email ()	Online application for checking and savings accounts ()
Online mortgage application ()	Viewing of loan status and credit card account information ()
Direct debits ()	Accounts book reconciliation ()
Viewing of account history ()	Viewing of digital checks online ()
Importing bulk payments to the system ()	Issuing stop payment orders online ()

Others (Please specify)

.....

.....

2. What Information Systems does your bank use to gain a competitive edge in the banking industry?

3. Does the bank have an Information Systems (IS) Committee? Yes No

4. If yes, list the committee members' responsibilities.

.....

.....

.....

.....

Section C: Challenges Faced while implementing Strategic Information Systems

1. Please rate your opinion on the challenges that your bank faced during the implementation of strategic information systems or those, which made the bank stop the implementation process.

5-Very great extent

4-Great extent

3-Moderate extent

2-Little extent

1-None

Possible challenges faced during the implementation of Strategic Information Systems	1	2	3	4	5
1. Lack of the resources and Infrastructure required to implement the system					
2. Inadequate technological skills within the organization					
3. The technology required is too expensive for the bank to budget for the cost.					
4. Lack of cooperation and commitment from the senior management					
5. Current organizational structure does not allow changes in the bank processes					
6. Employees have negative attitude towards the use of the Information systems					
7. Resistance from the customers who were being targeted during the implementation.					
8. Fear of current employees losing jobs after the system implementation.					

9. The notion that use of information system raises security concerns.					
10. The organization is hesitant to recruit specialized staff for the support of the strategic information systems.					
11. The new information system having some incompatibility problems especially during the testing phase before actual changeover.					
12. The organization is worried of the compensation that would be demanded incase of fraud or errors arising from use of the SIS.					

13. Please specify any other challenges faced in the adoption and use of Strategic Information system

.....

.....

.....

.....

.....

.....

14. Is the Banks' management fully informed of the risks involved with SISs and do they understand those risks? (Strategic, reputation, transaction, compliance)

Yes No

Section D: Responses to the Challenges Faced while implementing SIS

1. Is a review of SIS included in the annual management general meetings?

Yes No

2. Were any exceptions found in the last meeting? Yes No

3. Have they been addressed? Yes No

4. Please rate your bank's use of the following strategies to respond to the challenges faced while implementing SISs

5-Very great extent

4-Great extent

3-Moderate extent

2-Little extent

1-None

Responses to SISs Implementation Challenges	1	2	3	4	5
1. Training of Bank employees on the use of SISs					
2. Sensitization of Customers on the benefits of SISs					
3. Involvement of Senior management in the implementation program					
4. A budget being allocated for SISs					
5. Government involvement on the Implementation process					
6. Specialized team for support of SISs to assist customers in their transactions					
7. Entering into contract with reliable system analysts and programmers					
8. Collaborating with other banks in the implementation of the strategic information systems					
9. Outsourcing the project to a specialized developer					
10. Reducing the electronic payments transactions charges (lower than manual transfers)					
11. Stopping the implementation of the strategy					

5. Kindly give any other responses that the bank can use to curb the challenges of implementing SISs strategy.

.....

.....

.....

.....

Thank you for your cooperation.

Appendix C: List of Commercial Banks in Kenya

1. African banking corporation ltd
2. Bank of Africa Kenya ltd
3. Bank of Baroda (k) ltd
4. Bank of India
5. Barclays bank of Kenya ltd
6. Co-operative bank of Kenya ltd
7. Central bank of Kenya
8. CFC Bank ltd
9. Chase Bank (k) ltd
10. Charterhouse Bank ltd
11. Citibank N.A Kenya
12. City finance Bank ltd
13. Commercial bank of Africa ltd
14. Consolidated bank of Kenya ltd
15. Credit bank ltd
16. Development bank of Kenya ltd
17. Diamond trust bank (k) ltd
18. Dubai bank Kenya ltd
19. East African building society
20. Equatorial commercial bank ltd
21. Equity bank ltd
22. Family bank
23. Fidelity commercial bank ltd
24. Fina bank ltd
25. Giro commercial bank ltd
26. Guardian bank ltd
27. Habib bank ltd
28. Habib bank A.G Zurich
29. Imperial bank ltd
30. Investment & mortgages bank ltd

31. K-rep bank ltd
32. Kenya commercial bank ltd
33. Middle east bank (k) ltd
34. National bank of Kenya ltd
35. Nic bank
36. Oriental commercial bank ltd
37. Paramount universal bank ltd
38. Prime bank ltd
39. Southern credit banking corp. Ltd
40. Stanbic bank Kenya ltd
41. Standard chartered bank (k) ltd
42. Trans-national bank ltd
43. Victoria commercial bank ltd
44. Gulf African Bank Ltd