TO INVESTIGATE THE EFFECTS OF INFORMATION SYSTEMS ON SUSTAINABLE COMPETITIVE ADVANTAGE WITHIN THE AVIATION INDUSTRY.

A CASE: KENYA AIRWAYS LIMITED

BY

GETRUDE MAHULO OGINA

D53/NKU/PT/21738/2010

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT IN REQUIREMENT FOR THE AWARD OF MASTERS OF BUSINESS ADMINISTRATION AT KENYATTA UNIVERSITY

MAY 2013
DECLARATION

I hereby declare that this project paper is my original work and has not been submitted to any other university for examination.

Date: 15/05/2013

Getrude Mahulo Ogina

D53/NKU/PT/21738/2010

This Project has been submitted for review with my approval as University Supervisor

Signature: .......................... Date: 15/05/2013

DR. ABEL GWAKA ANYIENI
Supervisor

This project has been submitted for review with my approval as Chairman, Department of Business Administration

Signature: .......................... Date: 17/07/2013

DR. STEPHEN MUATHE
Chairman, Department of Business Administration
Kenyatta University
ACKNOWLEDGEMENT

First of all I thank God for His purpose in my life. I greatly thank my parents and my whole family for their support and being there for me at all times.

Special thanks to my supervisor, Dr. Abel Anyieni for his valued guidance, support and direction. His academic critique and extensive discussion highly inspired my writing to produce more than just the academic output. I also thank my colleagues, who gave me tremendous insights and encouragement and were very instrumental in making my research project a success.

Special thanks to Kenya Airways Limited for allowing me to carry out research in their Organization. Great thanks to all the respondents from Kenya Airways Limited who participated in this research.
ABSTRACT

Information systems are used in organizations to build sustainable competitive advantage. However these systems are subject to change when organization is responding to change from the external forces. This study focused on the three dimensions of information systems i.e. technology, strategic leadership and organization and how these are managed to build competitive advantage. With Porter’s five-force model and the value chain model, this study specifically aimed at assessing the effect of technology on competitive advantage, determining the extent to which organization characteristics impact on competitive advantage and determining the role of strategic leadership on sustainable competitive advantage during strategic change.

From the population of 900, the sample of 13% which is equivalent to 117 was drawn from executive directors, senior managers and managers and pilots who were picked by stratified sampling from Kenya Airways Ltd. Self-administered questionnaires and personal interviews were used. Data analysis was done by Measures of Central Tendency, Chi-square and Descriptive Analysis (percentages and averages) which was followed by data presentation on bar graphs, pie charts and tables. The study concludes technology should result in factors that build competitive advantage with resources and capabilities in business processes being strategically flexible and costly for imitation by competitors. During change culture should focus on important stakeholders with strategic leadership focusing on employees and enhancing communication systems.
## Table of Content

DECLARATION .......................................................................................................................... ii
ACKNOWLEDGEMENT ............................................................................................................ iii
ABSTRACT ................................................................................................................................ iv
TABLE OF CONTENT ............................................................................................................. v
LIST OF APPENDICES ........................................................................................................ vi
LIST OF FIGURES ................................................................................................................ vii
LIST OF TABLES ................................................................................................................... viii
ABBREVIATIONS ................................................................................................................... ix
OPERATIONAL DEFINITION OF TERMS ................................................................................ x

### CHAPTER ONE

1.1 INTRODUCTION ............................................................................................................. 1
1.2 Background of the study ................................................................................................. 1
1.3 Statement of the problem ............................................................................................... 3
1.4 Research Objectives ....................................................................................................... 4
1.5 Research Questions ......................................................................................................... 4
1.6 Significance of the Study ............................................................................................... 5
1.7 Scope of the Study ........................................................................................................... 5
1.8 Limitations of the study ................................................................................................. 5

### CHAPTER TWO

LITERATURE REVIEW ............................................................................................................. 6
2.1 Introduction ....................................................................................................................... 6
2.2. The Airline Business Environment ................................................................................ 6
2.3 Theoretical Framework .................................................................................................... 7
2.4 Information System and Competitive Advantage .......................................................... 15
2.5 Strategies of Information Systems for Competitive Advantage .................................... 24
2.6. Building Sustainable Competitive Advantage by Information Systems ..................... 25
2.7 Empirical Studies ............................................................................................................ 27
2.8 Summary and Gaps to be filled by the Study ................................................................. 31
2.9. Conceptual Framework ................................................................................................. 32

### CHAPTER THREE
List of figures

Figure 2.1: Strategies for forces driving industry competition. .................. 9
Figure 2.2: Dimensions of Information Systems. ................................. 16
Figure 2.3: Value Chain Model..................................................... 19

Figure 2.4: Conceptual Framework............................................... 33

Figure 4.1 Number of respondents................................................. 38
Figure 4.2 Number of years......................................................... 39
Figure 4.3 Primary activities......................................................... 39
Figure 4.4 Support activities......................................................... 40
Figure 4.5 Important Stakeholders to a Company................................. 41
Figure 4.6 Elements of strategic change........................................... 42
Figure 4.7 Forces Driving Change.................................................. 43
Figure 4.8 Technology Activities.................................................... 44
Figure 4.9 Factors Building Competitive Advantages............................. 45
Figure 4.10 Variables strategic leaders.............................................. 46
Figure 4.11 Factors of interest........................................................ 47
Figure 4.12: Organization Structure Elements...................................... 50
Figure 4.13: Characteristics of Cultures.............................................. 51
Figure 4.14: Imparting Culture on Employees...................................... 52
Figure 4.15: Resources & Capabilities.............................................. 53
Figure 4.16: Characteristics Building Sustainable Competitive Advantage..... 54
List of Tables

Table 3.1: Target Population.................................................................35
Table 3.2 Sample Size...........................................................................36
Table 4.1 Response Rate.................................................................37
Table 4.2 Management Strata representation.....................................37
Table 4.3 Important Stakeholders.......................................................40
Table 4.4 Factors for Strategic Change..............................................42
Table 4.5 Technology Activities.........................................................43
Table 4.6 Factors Building Competitive Advantage..........................45
Table 4.7 Variables for Success..........................................................46
Table 4.8 Factors of Interest...............................................................47
Table 4.9 Factors Disrupted.................................................................49
Table 4.10 Cultural characteristics..................................................50
Table 4.11 Ways imparting culture.....................................................51
Table 4.12 Resources and Capabilities..............................................52
Table 4.13 Sustainable competitive advantage...............................54
List of Abbreviations

BMW - Bavaria Motor Works
BOD - Board of Directors
BPO - Business Process Outsourcing
BPR - Business Process Re-engineering
CSM - Customer Service Management
DHL - Dalsey and Hillblom and Lynn
DPWN - Deutsche Post World Net
IBM - International Business Machine
IT - Information Technology
IS - Information Systems
JIT - Just In Time
JKIA - Jomo Kenyatta International Airport
KLM - Koninklijke Luchtvaart Maatschappij (Royal Airline)
LCC - Low Cost Carriers
R&D - Research & Development
SCM - Supply Chain Management
TPS - Transaction Processing System
TQM - Total Quality Management
OPERATIONAL DEFINITION OF TERMS

Alignment: A state of congruence between organization sub-elements and their environment.

Business Process: A standardized set of logically related tasks and behaviors that organizations develop over time to produce specific business results and the unique manner in which these activities are organized and coordinated.

Change Agent: A manager who seeks to reconfigure an organization's responsibilities, structures, systems, or other resource systems to improve organization effectiveness.

Competence: An activity that a company has learned to perform well over time.

Competitive Advantage: Anything that a firm does better when compared to rivals that result in a better market position for the firm.

Environmental Scanning: Surveillance of a firm's external environment to predict environmental changes and detect changes already under way.

Environmental Monitoring: Analysis of the external environment by tracking the evolution of environmental trends, sequences of events or streams of activities.

Organization Characteristics: The features of a stable, formal social structure that takes resources from the environment and processes them to produce output.

Strategic Change: Changes in the content of a firm's strategy as defined by its scope, resource deployments, competitive advantages and synergy.

Sustainable Competitive Advantage: Competitive advantage that results to profitability for a long time and putting the firm ahead of competitors in the long-run.
**Strategic Leadership**: A manager’s potential to express a strategic vision for the organization or a team and to motivate and persuade others to follow that vision.

**Turbulent Environment**: An environment constituting numerous forces that act and react against each other constantly affecting entities in those environments.
CHAPTER ONE

1.1 INTRODUCTION

Turban, Mclean and Wetherbe (2004) define Information system as a set of interrelated components that collect, process, store, analyzes and disseminates information to support decision making and control in an organization. Ma (1999) defines competitive advantage as "the asymmetry or differential in any firm attribute or factor that allows one firm to better serve the customers than others and hence create better customer value and achieve superior performance" (p. 259). A firm has the ability to have sustainable competitive advantage through proper utilization of its information systems.

1.2 BACKGROUND TO THE STUDY

Information systems have become an integral part of all major corporate firms. Information systems have been known to cut down on costs considerably through their different capabilities ranging from management of information, e-marketing, global communication and replacement of human labor. Information systems being entirely dependent on innovation they strongly drive competitive advantage. Laudon and Laudon (2007) establish that with the emergence and continued development of technology, firms have been making investment on information systems to compete strategically by realizing the benefits they bring along.

Firms have unique business objectives that determine what they do and how they do it to achieve these objectives. They come up with strategies they can use to compete effectively with other rival firms. The strategies put in place focus on utilizing the resources and capabilities that exist in the firm. The result that comes from this combination should build an advantage that firms can use to compete strategically in the industry. Barney and Hesterly (2010) maintain that in general a firm has a competitive advantage when it is able to create more economic value than rival firms. Porter (1998) established three generic sources of building advantage: differentiation, cost leadership and focus on niche. Firms can also use five main sources of competitive advantage including new technologies, modification of demand or emergence of new demand, occurrence of a new segment, changes in cost or the availability of means of production and changes in
regulation (Kleiner & Passemard, 2000, p. 133). Grant (2010) states that it does not matter the sources of advantage a firm has in place but how well a firm fully utilizes what it has for better performance.

A firm can achieve competitive advantage through managerial action or luck whereby it makes strategies unconsciously with the aim of increasing or maximizing profit. Ma (1999), defines competitive advantage as "the asymmetry or differential in any firm attribute or factor that allows one firm to better serve the customers than others and hence create better customer value and achieve superior performance" (p. 259). Ma further explains that Wal-Mart's monopoly location in the United States and domination of shelf-space in retail, Toyota's just-in-time manufacturing and inventory management and Coca-Cola's establishment and management of its distribution channel are all sources of competitive advantage. Kleiner and Passemard (2000) provide that creating competitive advantage is a tough task but preserving it is much harder. The more the firm combines the sources of competitive advantage, the greater the competitive advantage and the wider the gap between the market leader and its followers the more sustainable the competitive advantage. To achieve any competitive advantage a firm has to look deeply into what it has, what it can achieve and how to use what it has for realization of success.

1.2.1 Kenya Airways Ltd. – a firm competing strategically in a Dynamic Environment

Kenya Airways Ltd. is the national carrier in Kenya. It is a successful airline; an African world class airline carrier with the likes of KLM, Alitalia and Delta Airlines. With more than 4834 employees as at June 2012. The airline serves more than 53 destinations globally with its hub in Nairobi, Kenya. The company was established in 1977 following the breakup of the East African Community thus that of the East African Airways. In 1986 the government saw the need to privatize corporations for better management and in 1993/1994 the carrier realized its first commercialization profits.

The vision of the company is to consistently be a Safe and Profitable Airline that Guarantees World Class Service that is the Pride of Africa. The vision is supported by the mission to maximize stakeholder value by consistently providing the highest level of customer
satisfaction, upholding the highest level of safety and security, maximizing employee satisfaction whilst being committed to corporate and social responsibility.

Over time the company has built its competitive advantages through new market development and penetration, investing in information systems, code-sharing, ownership of modern fleet, establishment of loyalty programmes, training and development due to focus on becoming a learning organization, and the acquirement of certification standards which sets it ahead of its competitors. The main reason of getting into partnerships and forming alliances with other carriers is to simply deliver more to its customers by increasing choice through increased frequencies, lowering fares, passenger access to loyalty programs, and passengers conveniently flying to more destinations.

1.3 STATEMENT OF THE PROBLEM

Due to the existence of businesses in highly dynamic environments, corporate firms invest in information systems to build strategic advantages. According to Laudon and Laudon (2007), information systems are more than computers and its dimensions include organization characteristics, technology and the management. However it has been assumed that information systems are made up of computers only and as Spector (2007) states, in times of change, managers and leaders find it challenging to manage the many different systems of the firm so as to align them and make them consistent with the environment.

With the airline business environment being highly dynamic, the airlines regularly change their information systems. For organizations to change their information systems they have to know how these systems build competitive advantage. Many studies focus on the information systems that lead to strategic advantage but do not assess the effect of technology on competitive advantage. They show information systems used along the value chain (Haag, Cummings, and McCubbrey, 2002; Laudon and Laudon, 2007) but fail to emphasize on the ultimate benefits that result to sustainable competitive advantage. With organization characteristics of information systems being routine and business process, structure, politics, culture and leadership (Senior and Fleming, 2006) scholars have not clearly shown the importance of addressing them during
strategic change of information systems. Strategic change of information systems revolves around numerous resources that require management and past scholarly works have explained management only and not the significance and importance of leadership during the process. Spector (2007) suggests it is important to understand the role of strategic leadership as it involves specific interventions aimed at motivating behavioral change among employees. Together, these problems have negative effect on sustainable competitive advantage. Therefore the study was intended to investigate the effects of information systems on sustainable competitive advantage with a case of Kenya Airways Limited.

1.4 RESEARCH OBJECTIVES

General Objective

The general objective of this study is to investigate the effects of information systems on sustainable competitive advantage.

Specific Objectives

i) Investigate the effects of technology on competitive advantage of Kenya Airways.
ii) Determine the extent to which organization characteristics impact on competitive advantage of Kenya Airways.
iii) Determine the role of strategic leadership on sustainable competitive advantage of Kenya Airways.

1.5 RESEARCH QUESTIONS

i. What are the effects of technology on competitive advantage of Kenya Airways?
ii. To what extent do organization characteristics impact on competitive advantage of Kenya Airways?
iii. What is the role of strategic leadership on sustainable competitive advantage of Kenya Airways?
1.6 SIGNIFICANCE OF THE STUDY

The study creates awareness of information systems on sustainable competitive advantage. Airlines operating in dynamic environments will use the findings which give an insight on the strategic issues of information systems to build competitive advantage. They will investigate the effects of technology on competitive advantage, the extent to which organization characteristics impact on competitive advantage and the role of strategic leadership on sustainable competitive advantage. Other researchers may use the research findings as it adds to the existing pool of knowledge.

1.7 SCOPE OF THE STUDY

The scope of this study has been confined to Kenya Airways Limited and the departments operating within will be evaluated in relation to the subject of study whereby focus will be on the management as they have the capacity to make strategic decisions in the company. This study will be limited to investigating the effects of information systems on sustainable competitive advantage with a case of Kenya Airways Limited.

1.8 LIMITATIONS OF THE STUDY

It is assumed that Kenya Airways Ltd. is a firm in a highly dynamic environment representing other airlines operating in highly turbulent business environments. This study will be challenged by the reluctance of the respondents to give information in fear that they might give out information that is confidential and sensitive. There will also be high cost incurred if the researcher will collect data from all airlines operating in the dynamic environment. Limitations will be met by maximizing on time management to collect as much information as possible. The study will focus on one firm to obtain more accurate information and minimize on cost. Information to be obtained will be generalized to firms existing in dynamic environments.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction
This chapter gives an insight of the airline business industry and the use of information systems to achieve competitive advantage. However these systems are constantly faced by change due to the turbulent nature of the airline industry which calls for strategic change of all the dimensions of information systems to build sustainable competitive advantage.

2.2 The Airline Business Environment and Strategic Change
The turbulent nature of modern business environments have led to rapid changes that affect businesses. According to Johnson et al (2008) the environment gives organizations their means of survival. Johnson et al further state “however the environment is also the source of threats: for example, hostile shifts in market demand, new regulatory requirements, revolutionary technologies or the entry of new competitors” (p. 54). Environmental change scan be fatal if the organization does not readily respond. With environmental scanning and monitoring of the dynamic surrounding environment, managers will be able to forecast and plan for scenarios to be able to effectively respond to unpredictable changes that always emerging in business environments.

Strategic change results when an organization is responding to environmental factors. These environmental factors shape the way the firm is to design its operations. Environmental factors usually circulate within the industry and the remote environment of the business. According to Spector (2007), the interactions of these forces at different degrees shape the firm’s environment meaning the firm is subject to change whenever these forces change.

Porter (1998) describes how industries have different structures and how these structural differences are modeled by different operations and factors present in each industry. With the knowledge on these forces through environmental scanning and monitoring, firms should be able to create strategies they can use effectively to achieve success through establishment of a desired market position and the ability to be flexible in a changing environment.
2.3 Theoretical Framework
These section reviews models and literature that back up the study on information systems in sustainable competitive advantage. They include the Porters five forces model that gives the external analysis of the airline industry and the Value Chain Model that has an internal business process focus. The dimensions of information systems are also represented in another model.

2.3.1 The Airline Industrial Analysis: The Five Forces Model

In order to implement the best strategy in an attempt to gain a sustainable competitive advantage over rivals, business managers must analyze their industry using Porters Five Forces Model. Michael Porter of the Harvard business school has developed a framework that helps managers in this analysis. Five-force analysis measures the intensity of competitive forces within an industry against threats to profit of the average firm with no particular strengths or weaknesses. The competitive forces include supplier power, rivals, buyer power, substitutes, and threat of new entrants.Haag et al (2002).

Threat of New Entries. The airline industry is very tough to enter because of numerous firms already existing and start up exhausts a lot of capital. According IbisWorld industry analysis, “Cost to purchase aircrafts and specialist machinery, hanger and other airfield space, skilled labor and to satisfy stringent safety requirements are very high and make entry very hard. Existing companies may have network alliances and a wide network of industry contracts where it would make it very tough for new entrants to win business even after massive capital outlays.” Major airlines can use economies of scale by consistently undercutting smaller players on price and delivery speed (Airlines, 1999-2010). Therefore, the threat of new entrants to profitability of an existing firm is very low.

Power of Suppliers. Suppliers in the airline industry include employees who have power because labor is the second highest cost after fuel. The airline supply business is mainly dominated by Boeing and Airbus. For this reason, there isn’t a lot of cutthroat competition among suppliers. Having only two large manufacturers of aircrafts, airlines are forced to make purchases in advance, which can significantly hurt profit if future demand falls. Also, the likelihood of a supplier integrating vertically isn’t very likely. In other words, you probably won’t see suppliers starting to offer flight service on top of building airlines. Porter (1998)
Power of Buyers. The bargaining power of buyers in the airline industry is quite low. Obviously, there are high costs involved with switching airplanes, but also take a look at the ability to compete on service. Is the seat in one airline more comfortable than another? Probably not unless you are analyzing a luxury liner like the Concord Jet. However the rise in internet usage by customers has increased information power causing customers to choose from different airlines thus affecting profits. (Investopedia)

Availability of Substitutes. For regional airlines, the threat of driving or taking a train might be a little higher than international carriers. When determining this one should consider time, money, personal preference and convenience in the air travel industry. The efficiency and convenience of air travel is tough to imitate by other forms of transportation although there are other travel options customers can substitute for air travel. As there are other options, the magnitude of the substitute threat is moderate. According to Ibis World airline industry analysis, under competitive landscape, “Customers may substitute car, train, bus, or sea transportation instead of air transportation. But the convenience and competitive price for air travel experiences low competition with these ground and sea transportation.” This reveals that industry analysts admit there is competition from substitutes, but they do not see it as a high threat to profit. Airlines (1999-2010)

Competitive Rivalry. Highly competitive industries generally earn low returns because the cost of competition is high. This can spell disaster when times get tough in the economy. When it comes to competition, intense rivalry is experienced because of the high cost of closing down carriers making it less optional to exit the industry. Carriers have huge investments from planes to facilities that require disposal during exit. There is no switching cost for customers due to internet usage. Fixed costs are high from fuel to labor which leaves option for cost reduction techniques thus competing on the basis of cost leadership strategy. Porter (1998)

LCC’s have attracted all price-sensitive customers. Differentiation can only be through the very basic ways e.g. loyalty programs, meals and passenger miles. The industry participants should however avoid price wars and concentrate on more sustainable advantages like reputation, brand and product mix to avoid exposure to harsh economies that bring in price based competition. Porter’s framework, known as the five forces model appears in figure 2.1 shows the different
strategies that can be used by an organization to counter the effect of each force in a given business environment.

Figure 2.1: Strategies for forces driving industry competition.
2.3.2 Key Success Factors In The Airline Industry.

A key success factor is specific resources or activities any competing company must be good at if they are to be profitable satisfying demand and defending against hi-power threats. Examples of KSF include particular strategy elements, products attributes, resources, competencies, capabilities, and market achievements. Businesses that are good implementing their industries key success factors will seek profitability and success in that industry.

The airline industry has six important Key Success Factors that rivals must be good at in order to have superior performance. Most of this key success factors focus on efficiency as the airline industry has high fixed cost and low margins. The six KSF for the airline industry are the following:

Optimum Capacity Utilization: Is the ability of airlines to utilize every seat on the aircraft before departure without delaying the flight (Corridore, 2009). The more seats that are filled on a flight, the more profitable the flight will be for the company. This is hard for rivals to imitate because it is based on performance.

Effective Fuel Cost Control (Fuel Efficiency): This is airlines ability to utilize fuel consumption efficiently compared to other rivals. Using fuel efficiently is important to profitability because of the volatility of fuel prices. Utilizing the newest fuel-efficient aircrafts allows airlines to use fuel efficiently. According to the S & P Industry Survey, fuel cost consumed 24.6 percent of revenues for the nine largest airlines in the United States.

Effective Labor Cost Control (Labor Efficiency): Airlines that can control labor cost have the ability to gain superior profit compared to competitors. According to the S&P Industry Survey, the airline industry averaged 26.2 percent of revenue on labor during 2009. Airlines effectively implementing technological improvements will increase worker productivity and decrease labor cost (Airlines, 1999-2010). Outsourcing certain operating functions can also improve labor efficiency.

Effective Maintenance Capabilities (Jet Utilization): According to the S&P Industry Survey, the faster a carrier can get its aircraft back into revenue service, the more profitable it will be. Jet utilization is the number of hours the aircraft is in service, but this is not a comparable measure
across the industry because of inconsistencies with short-haul flights and long-haul flight (Corridore, 2009). A better measure of the airlines ability to keep aircrafts in flight is their capability to repair aircrafts when there is a problem. According to the 10-k reports of Southwest and US Airline, both companies keep an inventory of spare parts, have maintenance facilities, and employ workers to manage the fleet. Companies successful on this KSF can increase sales quantity by reducing repair time and increasing number of flights.

Prompt Delivery to Market: As the airline industry is highly competitive, the ability to deliver services on time will reduce the loss of customers to rivals (Airlines, 1999-2010). The Department of Transportation's Air Travel Consumer Report, released November 2010, ranks airlines based on number of flights that arrive on time compared to number of total flights. This is very important for companies because customers can use this report to see which airlines are most likely to be delayed. A Business Week article quoted a United Airline worker, "We make decisions on a variety of factors, the most important being how quickly we can get our customers to their destinations..." The frequency and reliability of flights are critical factors for competing airline companies (Corridore, 2009)

Customer Service and Satisfaction: Customer service and satisfaction includes ratios to measure mishandled baggage, customer complaints, delayed flights, and overbooking flights. To differentiate themselves from other competitor's airlines may strive to build brand loyalty through good customer service (Corridore, 2009). According to a CNN article, airline industry customer service performance is rising, primarily due to airlines recognizing customer service matters to consumers. The Centre for Asia Pacific Aviation believes customer service ranks as a top concern for many travelers. Therefore the ability to provide good customer service builds brand loyalty.

The high power threat of rivalry in the airline industry means that rivals are likely to be competing intensely on price, frequency and capacity, and service quality (Airlines, 1999-2010). This essentially means that airline companies frequently discount prices and are likely to take on additional cost for increased customer service and reliability.
2.3.3 Challenges in the global industry

The turbulent nature of the airline industry is as a result of many forces which in turn affect operation and drive for change. Firms making up the industry are heavily dependent on systems which are subject to advancement from innovation. System upgrade from the airlines poses a huge challenge since firms in the industry are heavily dependent on systems that are subject to innovation. Airbus and Boeing manufacturers are dedicated to producing modern planes and engines through investment in research and development (Johnson et al 2008, pg 303). Boeing dream liner emerging smoldering battery complications have put the manufacturer globally grounded due to the fire risk in planes. (Jad Mouawad 2013)

ARINC communications solutions in Singapore has created a true ‘Enabled aircraft’ by offering fully customized integrated communication services, cabin services, maintenance, diagnostic and vital safety information. This has brought pressure to other airlines to commit resources to the continued use of operating systems to improve their flight operations. Other costs also come in including scheduling systems, training and maintenance costs and insurance.

According to Grant (2010) businesses that aim at being market leaders for a long-time need to build reputation and brand name because customers easily attach their products to the good name. Firms like BMW, Sarova and Rolex have managed to build sustainable competitive advantage through strong brand names which is not subject to imitation by competitors. According to Daramaju et al (2007), bad reputation or negative publicity can immediately drive a carrier to a meltdown whereby no airline bore the brunt of bad weather as JetBlue did during Valentine’s Day 2007 as hundreds of passengers got stranded in the airports for more than ten and a half hours with 1600 flights cancelled and systems down with less customer service staff to cater for the enormous number of stranded passengers. Further compensation amounted to $30 million (as cited in Dess, Lumpkin & Eisner, 2008). Management should always be prepared for emergency to protect customer interests and make sure shareholders maximize their wealth.

Sky Team members also pose threat to routes within which they fly. Such alliances which allow loyalty programs and code sharing while delivering quality products pose intense rivalry among competitors. In his study Golightly (1967) also found that during the development of the airline industry the major challenges faced were counting on short-term credit as a major source of fund
with a recurring need for large sums of money. There was growing dependence on insurance due to fast technical advances of equipment and facilities and advent of jets which meant more seats to sell.

In their study of Jet Blue Airlines, Daramaju et al (2007) conclude security measures and safety is an important variable to airlines (as cited in Dess et al, 2008). Terrorist attacks have brought a major setback on airlines where people opt for other modes of transport other than air. The airline industry can be affected negatively by global socio-cultural factors such as diseases and terrorism attacks. Some of them are the SARS, swine flu, terrorism attacks in London and September 11th in New York (D.Jobber, 2007, p.66). For these reasons Airline companies and airports worldwide were challenged to evolve their policies and procedures and spent further costs and time in the safety of the customers. To increase security measures, costs have risen from investing in facilities and equipment for screening baggage and tracking.

Escalating fuel prices result to high operating costs with high labor costs to cater for which adversely affect profits. Regani’s (2008) study” JetBlue Airways; Growing Pains?” reveals that fuel prices around the world experienced a sudden rise in 2004. In the aviation sector, fuel constituted 20% of operating expense up from 10-14%. In 2005 this rose to 30% and in 2006 to 35% (as cited in Barney & Hesterly, 2010). The rise has been continuous to date.

The political instability that has recently prevailed in oil-producing countries like Libya has been played a big role in the rise in fuel price. This cost is reflected in revenue and even price of products. With all the challenges faced, the rapidly changing and unpredictable environment make the surrounding very turbulent. Managers should be able to forecast and plan for unforeseen changes that come by.

2.3.4 Forces Driving Strategic Change in an Organization

From an organizational context change is getting from a current state to a new one. When the firm strategically makes choices to respond to the changing environment the element of strategic change always comes in. This change focuses on making the organization achieve its goals
strategically leading to competitive advantage. The strategic change process is not as easy as perceived. Even with more than adequate resources the process can fail. With lack of proper planning and analysis of the factors underlying a particular change the organization can be left in a state worse than it was before. The extent to which external change creates competitive advantage and disadvantage depends on the magnitude of the change and the extent of firm’s strategic differences.

Forces of change can be external and internal, individual and organizational. External and internal forces are drivers of change and they include: government rules and regulations, technology innovation, supplier pressure, stakeholder demand, competitor moves and customer needs. Drivers from within the organization are: need for growth, political coalitions, manager aspirations and Union or BOD pressure (Senior & Fleming, 2006, p.286). Ginsberg and Abrahamson (1991) group these forces into those preventing a new perspective being formed and the last two (individual and organizational) as preventing implementation of a change once the intentions of change are known (as cited in Senior & Fleming, 2006, p. 286). Those that impede change are individual resistance, lack of skill, fear of loss of powerbase, rigid group norms, and lack of resources.

According to Porter (1998), forces that drive organization are within the industry which is an operating environment of the business. Changes in buyer composition trigger some response in firms as a new composition of the market is created. Product innovation in either a related industry or the actual industry may bring in change due to change in products and new set of substitutes to that new innovation. As technological changes develop and advance firms have to ensure they catch up with these new systems. When new markets are created firms are faced by the challenges of market innovation and they have to find ways of getting substantial share of those markets.

The entry or exits of major firms who are competitors determine the market position of firm because major entrants bring intense competition by demanding a share of the firm’s market or creates opportunities. Changing societal concerns, attitudes, and lifestyles create new social composition and define societal needs. The society consists of stakeholders of a firm and when
their needs change the firm has to reconcile itself with these changes. Increasing globalization of the industry also brings in new stakes for firms because they have to operate on a global scope. Lastly regulatory influences and government policy changes bring in new standards that firms have to meet which results to change.

2.4 Information System and Competitive Advantage

Turban, Mclean and Wetherbe (2004) define information system as a set of interrelated components that collect, process, store, analyzes and disseminates information to support decision making and control in an organization. Computerization of the process includes input, processing and output. Digital firms solely depend on technology in their operations as it drives information power. According to Thompson, Strickland and Gamble (2008), firms like E-bay, E-trade, Amazon and Google could not have existed with absence of information systems. Most value processes like BPR and BPO could not have led to strategic advantage in the absence of information technology. Laudon and Laudon (2007) state that in the United States more than 23 million managers and 113 million workers in labor force depend on information systems to conduct day-to-day business in the country.

Information systems are aimed at achieving power and providing solutions to challenges the firm faces. This function is enabled by information system literacy and computer literacy. Information system literacy is the integrated understanding of management, technical dimensions and organizational dimensions of systems. Computer literacy on the other hand is the primary knowledge of IT. For strategic achievements the firm should maximize its information system literacy. Laudon and Laudon (2007) conclude the dimensions of information systems are the organization, management and technology. Figure 2.2 below shows the three dimensions of information systems and how they revolve around each other to builds information systems as illustrated by Laudon and Laudon (2007).
There is a great interdependency between how a firm uses its information systems and its ability to implement corporate strategies and achieve corporate goals. There are six strategic business objectives that firms want to achieve when they heavily invest in IS: Operational excellence, new products, services and business models, customer and supplier intimacy, improved decision making, survival and competitive advantage (Laudon & Laudon, 2007, p.8). According to Haag et al (2002), the six strategic business objectives are enabled by their support for innovation, real-time support, effective communication, customization and Strategic Information Systems.

**Technology**

Technology is simply a collection of technological innovations that are integrated together to perform a specific function. Cats-Baril and Thompson (1997) provide that for an information system to be in place, technology-based be specific resources which are integrated i.e. hardware, software, network, procedures and human resources. Technologies create an array of opportunities for entrepreneurs ranging from operating across borders to shopping at home.

Johnson et al (2008) note that technology is easy to acquire and therefore the advantage that results from it depends on how it is exploited. Byars, Rue and Zahra (1996) define technology
strategy as "the company's long-term plan that guides its development and deployment of technological resources, capabilities and skills in pursuit of business goals" (p. 303).

Porter (1998) suggests that technology can impact on the five forces model. Due to its efficient and cost saving nature it can reduce supplier and buyer power, raise threat of substitute or even lower entry barriers. Johnson et al (2008) state that how much technology influences competitiveness depends on the nature of both the technology and the markets. When technologies are fully exploited it strengthens the core capabilities of the business. Technology may fortify success by tying together different technologies thus boosting capabilities. Dynamic capabilities achieved may also be used for strategic flexibility and transferred in use during changing times.

According to Grant (2010), whatever the position of a company in a market when it adapts technology and explores the full potential of it, it can get either fast-mover advantages or fast-follower advantages. A leader or a pioneer is a first company to create a new technology in the industry and introduce it to the market. A follower on the hand is a company that copies the leader's technology and improves on it by adding innovative features and designs or applications. Pioneers have the advantages that can help them acquire market share and high profitability which are based on reputation, defining technological standards and target premium segments (Byars et al 1996, p.305). Followers have the advantage of building on technology through R&D, product enhancement, marketing and creating awareness to customers.

Johnson et al (2008) explain how whether or not technology is developed in-house or acquired can be a key determinant in the success or failure of strategies. With in-house development, the organization has a deep understanding of the dynamics behind the technology and the market opportunities. Acquisition is necessary when there is need to act fast with no time for learning or R&D. Alliances are good for threshold technologies which are applied along the value chain but they do not focus on the main competitive advantage e.g. packaging technologies. When competitors get together and consolidate their threshold technologies they build strong advantages. Alliances may be the way out when both technology and market applications are beyond current organizational knowledge. It is also an option when the intention is to follow than
to lead and the existing capabilities of each business entity are limited with need to build complex strategies.

When all these happen a firm finds itself in the process of strategically changing its systems. Whether a firm is a leader or a follower it should exploit technology to realize full capacity utilization of applications; while effectively managing challenges related to change of customer needs, imitators and other related risks.

**Organization Characteristics**

An organization is a stable, formal social structure that takes resources from the environment and processes them to produce outputs. As a component of information systems, the organization comprises of routine and business process, structure, culture and politics. Senior and Fleming (2006) identify the organization as being made up of structure, culture, politics and leadership.

In managing the organization as a dimension of information system, managers should therefore understand business process, culture and structure. Some of these elements have been found to be key success factors to build sustainable competitive advantage in the airline industry. Back in 1967, Golightly in his study found airlines should focus on marketing and planning, structure and technology which are within a company’s business process. Shah (2007) found Southwest has managed to be the leading LCC through focus on e-marketing and a strong culture. For Kenya Airways, the most important asset is technology and expertise while for Virgin a Keiretsu structure and marketing are vital for success. This means that to achieve sustainable competitive advantage, it’s important to understand the importance of managing business process, structure and culture during strategic change of information systems.

A firm has its defined business processes that make a chain of processes. It is this chain that determines the departments or business units that should be in place and the significance of each unit. A value chain model highlights specific activities in the business where competitive strategies can best be applied and where information systems are most likely to have a strategic impact. Laudon and Laudon (2009) state that the model identifies critical leverage points where a firm can use IS most effectively to enhance its competitive position.
Further it views the firm as a series of basic activities that add a margin of value to a firm’s products. Haag et al (2002) suggest that if the organization is viewed as a value chain, the processes that add value for customers can be identified hence the IT systems that can support those value-adding processes. Figure 2.3 shows the different activities in the value chain and how they sequentially interlink with each other to deliver value.

For airline carriers there are also inbound activities, operations, outbound activities, marketing and sales and service. As Anton (2010) states, inbound activities include stock control, aircraft acquisition, route selection where carriers decide on the routes they will serve, yield management where LCC’s compare seats against demand and passenger service systems that aid in reservation, fare and ticketing and departure control. Operations include ticket counters for check-in, gate operations, aircraft maintenance, in-flight services, baggage handling and open ticket offices. Outbound logistics are including flight, flight connections and car and hotel reservations. Marketing and sales activities include promotions, advertisement, travel agent services, e-ticketing and advantage programs which enhance customer loyalty. Services which involve after-sales services include in-flight whereby some airlines give free meals and entertainment, tracking lost baggage and handling customer complaints.
For support activities firm infrastructure include budget, accounting, regulatory compliance, legal issues and public relations. Human Resource Management mainly includes flight route training, yield analyst training, pilot safety training, in-flight training, agent training and baggage training. Technology Development supports through computer reservation systems, yield management systems, in-flight systems, flight scheduling systems, product development and market research system. Procurement involves IT communications.

For all these value activities there are special systems which are used in both the primary and supportive activities. These systems help in realizing the underlying benefits of the processes. The value chain of an industry is known as a value system. It may give the firm an idea of how it can utilize its information systems to improve on the relationships between the firm and its value system members. Customer Service Systems and Supply Chain Management systems can be used for with linkage with other firms. This leads to efficiency and effective operations.

The value chain model is a tool of analysis that organizations should use during strategic change. After the firm uses the 5-forces model to analyze and identify the external forces that drive for strategic change they then use the value chain model to analyze the internal business operations. This allows the realization of sections in the value chain that require adjustment for consistency to allow the firms build competitive advantage. However, David (2011) suggest “substantial judgment may be required in performing a value chain analysis because different items along the value chain may impact other items positively or negatively, so there exists complex relationships” (p. 151).

Organization structures as part of dimensions of information systems are patterns of relationship that define the way work is done by clearly structuring positions, responsibilities, authority, power and the bases, from which they originate, communication system placement of human resource in the organization. Bartol and Martin (1994) define organization structure as the formal pattern of interactions and coordination designed by management to link the tasks of individuals and groups in achieving organizational goals (as cited in Senior & Fleming, 2007, p.78). With the different types of structures, a firm can pick on a type of organization structure and tailor-
make it to fit in with its operations. The best structures are hose that maximize effectiveness of communication and break down barriers between people and hierarchies (Harogopal, 2006).

Firms can decide to have structures that focus on functional excellence by a functional structure, market place responsiveness by a divisional structure, dual focus by a matrix structure and focus on the value chain by a horizontal structure (Spector, 2007, p.136.)

In times of change organizations adopt new ways of doing things to realize competitive advantage. New reporting systems, authority, responsibilities and roles are defined. In some 20 British industrial organizations researchers Burn and Staker (1961) concluded organizations had different structures depending on whether they operated in more stable environment that change little over time or in more dynamic changeable environment that were unpredictable in their stability (as cited in Senior & Fleming, 2006, p. 123). When change comes in and structures are not adjusted to fit in with the change, inefficiency starts creeping in the organization which might even result to the downfall of the organization in the long-run and as Spector (2007) describes that the existence of conflicting tasks might be experienced leading to other major problems like reporting conflict, redundancy, unhealthy politics, lack of clarity in use of resources and above all the breakdown of communication systems. Cole (1995) also concludes that a lot of resistance is marked when organization structure changes because people lose their identity and power base. These are factors that may hinder the change process.

The organization should identify its strategy clearly and decide on the structure it can use, bearing in mind that structures are difficult to change in future as they shape every part of the firm. Change agents should also understand how to minimize factors that impede strategic change process arising from structure conflict. For a successful change process, the organization structure should be formally adjusted to align it with the change.

Organization culture is a set of beliefs, attitudes, norms and values that an organization abides by. Trompenaars and Prud’homme (2004) define corporate culture as a “pattern by which a company connects different value orientations, people focus versus focus on reaching goals and targets, decisiveness versus consensus, controlling the environment versus adapting to it, in such
a way they work together in a mutually enhancing way” (as cited in Spector, 2007, p.141). Culture is a fundamental set of assumptions, values and ways of doing things that has been accepted by most of its members (Laudon & Laudon, 2007, p.87). Spector (2007) goes ahead to state that “William Procter and James Gamble (Procter and Gamble), Bill Hewlett and David Packard (Hewlett- Packard), Thomas Watson (IBM), Sam Walton (Wal-Mart), Bill Gates (Microsoft) – embedded their personal values in the structures, systems, even in the strategies of the companies” (p.71). The set of values and attitudes practiced are translated into business processes and these are reflected on the end product hence felt by the customers.

Shah (2007) provides that Southwest Airlines attributes its success to its culture of focusing on warrior spirit, servant’s heart and fun loving attitude that has been in existence for 36 years. According to Schein, Martin and Meyerson (1986), culture is made up of specific elements that have to be present in order for a culture to exist. These are basic assumptions, artifacts, values and norms (as cited in Harigopal 2006, p.223). Norms at IBM dictate that employees should actively listen and respond to customer demands and complains. Culture is a paradigm revolving around stories, symbols, power structures, organization structures, control systems, rituals and routines (Senior & Fleming, 2006, p.147).

According to Harigopal (2006), “implementing new business strategies generally results in failure because of strategy-culture incongruence” (p. 228). The management having decided that the firm is to undergo any type of change should first address people issues. Senior and Fleming (2006) provide that “assessing cultural risk during change helps management pinpoints where they are likely to meet resistance to change because of incompatibility between strategy and culture” (p. 181). This allows them to make choices regarding whether to: a) ignore the culture; b) manage around the culture; c) try to change the culture to fit the strategy or d) change the strategy to fit the culture. According to Spector (2007), the adaptiveness of an organization’s culture which is the ability to support change implementation in response to dynamic environment, “resides in six separate but interrelated sets of values and assumptions concerning: the legitimacy of multiple stakeholders, then motivation and developmental potential of people, performance expectations, employee participation, learning and diversity” (p.72). Culture
therefore tends to address all systems in the organization ranging from people management to innovation in business processes.

Collectively, the three organization characteristics namely structure, culture and business process are important elements during strategic change of information systems because they are the systems that coordinate to make up part of information systems. Business processes represent activities, culture represents people and structure integrates the two through relationships.

Management and Strategic Leadership

Leadership has become a vital tool for the overall achievement of organization success. Senior and Fleming (2006), suggest managers should learn the art of strategic leadership because modern organizations operate in dynamic environments that keep on changing. Cole (1995) defines leadership as the art or process of influencing people to work enthusiastically towards the achievement of a group goal. It is the ability to influence the opinions, attitudes and behavior of others. Successful organizations have leadership based on ability to use power responsibly and effectively, motivate employees and inspire them.

Johnson et al (2008) argue that to resource strategies leaders and managers have to manage people, information, technology and finance. Managing people can be a key factor influencing competitive success. Different business environments require different leadership designs. According to Cole (1995), firms in stable business environments require transactional leadership which focuses on leading organizations to achieve their objectives more efficiently by linking job performance to valued rewards and ensuring that employees have the resources needed to get the job done. It improves organizational efficiency and gives time for growth.

Transactional leaders determine what employees need to achieve on their own based on organizational objectives, classify these requirements and help the employees become confident that they can achieve their objectives by expanding their necessary efforts (Senior & Fleming, 2006 p.262).
Transformational leadership on the other hand is suitable for firms in highly turbulent environments. It is the leadership of changing organization systems with focus on building advantage. It includes leadership of change in strategies, culture and structures to fit with the surrounding environments of the modern organizations. Transformational leaders are change agents who energize organization systems to embrace change effectively and foster creativity.

Spector (2007) advises that lead change agents should aim at developing the organization and minimizing forces that slowing down the change process. With the different elements to be managed during change- people, structures, culture, processes- strategic leaders should device the best ways of integrating all these components without compromising any of them as they are all important in managing change. With all the correct systems in place and no effective leadership, the change process is bound to fail due to lack of direction, motivation and coordination which will hinder the achievement of strategic advantage. Strategic leaders can effectively steer towards success by managing people and information on the basis of the strategic choice in place.

2.5 Strategies of information systems used for competitive advantage

With Porter’s five-force model that designs the market place, he proposes the lead sources of competitive advantage for firms are cost-leadership, differentiation and focus. Beside Porter’s three generic strategies firms may also enhance products and lock their customer and supplier base (Haag et al, 2002, p.60). Cost Leadership Strategy is providing products at the lowest cost in comparison to competitors in the market. A firm can gain advantage if it can sell more units at a lower price while providing quality and maintaining or increasing its profit margin (Dess et al 2008). Information systems can highly support value chain activities to reduce cost e.g. by BPO, BPR, TQM, JIT.

Product differentiation is a business strategy whereby firms attempt to gain a competitive advantage by increasing the perceived value of their products and services. Porter (n.d) identified several ways in which a firm can use to achieve differentiation when used on the value chain: policies and decisions, linkages among activities, timing entry, location, interrelationships, learning, integration and scale. According to Barney and Hesterly (2010), differentiation can be
achieved by focusing on products, a firm and its customers or links within and between firms. All these may be supported by information systems through innovation, customization, e-marketing, product mix, CSM, linking functions, and links with other firms and product mix.

Focus on niche strategy is the selection of a narrow-scope segment and focusing on it to provide the best of the important elements to customers. The firm can focus on a particular buyer group, segment of the product line, or geographic market through lower cost or differentiation. Information systems can still be used to achieve this strategy by supporting either differentiation or cost-leadership through focus on a narrow segment. Information systems can be tailor-made to these segments to make them highly consistent with the wants of these markets. To establish and lock customers, different moves are taken to ensure suppliers and customers are loyal by creating profitable relationships. Information systems may support this through loyalty programs, and creating complex customer and supplier profiles. Grant (2010) concludes that products may be enhanced by creating dynamic product lines through innovative technology and build on them for other product lines. These follow on products will keep off competitors as they will be a result of complexity e.g. David (2011) compares that Charles Schwab gained a competitive advantage over Meryl Lynch by opening a site for online stock transactions which brings in half of its revenue.

As cited in Turban et al, other strategies that have been proposed by Neumann, 1994; Wiseman, 1998 and Frenzel, 1996 which can be used as stand-alone strategies or combined to achieve the above include growth strategy, alliance strategy, innovation strategy, operational effectiveness strategy, customer-orientation strategy, and time-strategy and entry-barriers strategy. However all that firms should do is to use strategies that will put them way ahead of rivals. These strategies can be combined for uniqueness and long-run profitability.

2.6 Building Sustainable Competitive Advantage by Information Systems

Grant (2010) argues that when a firm identifies and establishes a competitive advantage, it’s subject to erosion. The profits earned from resources and capabilities depend not just on the competitive advantage established but also on how long that advantage can be sustained. For a competitive advantage to endure longevity it must strive to achieve sustainable competitive
advantage which will ensure a long-term state of benefits. This can be done by continually adapting to changes in external trends, events and internal capabilities and effectively formulating, implementing and evaluating strategies made in tandem with the external conditions.

To achieve sustainability Barney and Hesterly (2010) suggest, sources used to gain competitive advantage should be: rare, costly to imitate, transferable, durable and have causal-ambiguity. The rarity of a strategy used to gain competitive advantage depends on the ability of an individual firm to be creative in finding new ways and methods of doing things.

As suggested by David (2011), this is highly supported by information systems through R&D, innovation and combining applications to come up with one complex application. Rival firms should find it hard to imitate a firm’s competitive advantage due to the high costs that will be incurred. When an advantage is easy to imitate, a firm should quickly put it into use e.g. release a product into the market before rivals do. Barney and Hesterly (2011) add, it is also wise to combine this feature with others to ensure sustainability of the advantage in question.

When the resources and capabilities are socially complex in nature i.e. they involve interpersonal relationships, trust, culture and other social resources, they are costly to imitate in the short-run. Organization can build this by integrating its information systems with human resource. Building organization learning through knowledge systems can be one such move.

Capabilities should be strategically flexible such that they are easy to transfer in a changing environment. Resources and capabilities should be mobile within companies, industries and changing internal factors. This ensures indefinite continuity of business and reduction in adjustment time in change situations. Resources used should also be durable to give a secure competitive advantage. Grant (2010) concludes that information systems have short product lifecycles therefore firms using them as basis of competitiveness should capitalize on their highly flexible features to align them with the environment. With causal ambiguity firms should ensure they build complex capabilities such that the competitor finds it hard to break it down and
understand the underlying factors that have been used to build it. This can be done by putting together different types of resources and capabilities to build bigger capabilities.

Advantage is more likely to be determined by the way in which resources are deployed and to create competencies in the organization's activities. For example Johnson et al (2008) note that an IT system itself will not improve and organization's competitive standing; it is how it is used that matters. Laudon and Laudon (2009) state that Business Intelligence systems and designing systems can be used to find out that which the competitor is doing or has done and then later build much better products. Johnson et al 2008 go ahead to state that to build robustness of strategic capability the firm should build complexity by linking external and internal activities, linking culture and history, and building causal ambiguity of processes.

In summary whereas in stable conditions competitive advantage might be sustainable, firms in dynamic environments should build advantages that are sustainable and flexible at the same time to give room for use in the changing environment. Firms capitalizing on information systems to build strategic advantages should always scan and monitor the environment to change their systems to be consistent with the environment. They should focus on continuous improvement, innovation and R&D to build sustainability. This should be done by integrating the three dimensions of information systems which include technology, organization characteristics - business process, culture, structure- and strategic leadership.

2.7 EMPIRICAL STUDIES

2.7.1. Competitive Advantage in the Global Environment

In the global environment, competitive advantage is difficult to achieve and maintain because the modern environment is highly turbulent with different forces in action. Some industries prove more profitable than others on a global scope and as Porter (1998) states; the competitiveness of a firm is fully determined by the surrounding environment of the industry which consists of the five forces.
According to Kleiner and Passemard (2000), “all competitors in a global industry compete with increasingly coordinated strategies: the firms must integrate their activities on a worldwide basis to capture the linkage between countries” (p.113).

According to Yip (2003), strategies formulated must be flexible because they are subject to change from the changing drivers of international strategies which include the government, competition and marketing (as cited in Johnson et al, 2008, p.297). According to Michael Mayer, globalizing markets and regulatory change are amongst the reasons for an organization’s increasing international diversity. The subsequent globalization of Deutsche Post’s activities was largely driven by the growing demands of a growing number of business customers for a single provider of integrated national and international shipping and logistic services. Over the next five years Deutsche Post responded by acquiring key players in the international transport and logistics market, notably Danzas and DHL with the aim of “becoming the leading global provider of express and logistic services” where it was renamed Deutsche Post World Net-DPWN (as cited in Johnson et al 2008, p.299).

For global competitiveness there are a number of strategies that a firm can put in place. Strategic alliances help the firm move ahead as the host firm understands the foreign market better. Licensing, trade and export can also be implemented. Grant (2010) provides that a business should engage in a wholly owned business or foreign direct investment when it has thoroughly scanned the new environment and understood the new market to reduce the underlying risk. Firms aiming at going global should start with country specific performance then start adjusting strategies, resources and capabilities to fit into a global setup.

2.7.2 Changing Information Systems

Information systems can be changed for a whole number of reasons as they are used for many reasons to compete strategically. Jagersma (2011) states that, “during the past decade, dissatisfaction with information systems and technology has triggered several changes in IT/IS structure and management” (p.138). Firms always change their information systems despite having implemented strategies like BPO, BPR and JIT among other cost saving and quality assurance approaches because IS, are always subject to change. Crede (1997) establishes that in order to implement information systems successfully the government and the industry should
work together to impact on stakeholders. The overall aim should be to bring greater synergy between the potential of the new technologies and their implementation in responding to social, economic and political goals by improving information about the systems in the society. This builds knowledge on importance of technology in the industry. Standards should be checked to ensure technology is being used effectively in delivering quality. Understanding of information systems capabilities should be improved to effect full capacity utilization of technology.

2.7.3 Successfully Managing Change for Competitive Advantage

Managers should recognize that change is a process with a step by step movement. To successfully implement change leaders should understand the drivers and content of different change programs at an early stage of the lifecycle. The firm may scan the environment and understand its strategic goals, success criteria and the urgency of each program. This gives ability to assess and define initiatives, benefits and resources to be involved. Top management should be committed in the change process for successful manifestation of the process. To unify people in the firm, a shared corporate vision should be formulated and communicated to everyone. Stanleigh (2008) states “a strategic change vision should go beyond the normal five-year forward looking plan generated at most firms annually and be easily communicated and clear” (p.36). This builds a culture of continuous change that is generated from inspirational communication from the leadership team to persuade others and support the new direction. According to Almaraz (1994), “researchers on quality have long acknowledged the importance of leadership and commitment required for a successful quality programme” (p. 11). People in strategic positions should be empowered to act on the change by providing resources and allowing them makes changes in their new ways of involvement. With the allocation of resources there should be accountability and governance by creating roles and monitoring through steering committees. Franken, Edwards and Lambert (2009) state that towards the end of a change process, review, learning and improvement of change capability is necessary and. there should be ongoing assessment of the effectiveness of the change capability. This assessment will reflect how much the strategies used is effective and how well they respond to the changing surrounding.
2.7.4 Failure of Change Programs

The disruptions of various business systems often make the change process highly complex. For change to occur the external environment highly plays a major influencing factor. According to Diefenbach (2007), the environment is portrayed as hostile, dangerous and frightening survival and future existence of groups. Driving forces of change are mergers and acquisition, innovation, technology, sense of urgency and decline in projections. However “when 75% of the leadership is honestly convinced that business as usual is no longer an acceptable plan” (Stanleigh, 2008, p.35), then change is introduced. Research has found most organizations realize only 60% of the potential value of their strategies due to inadequate planning and implementation during change (Franken et al 2009). Sometimes change may involve multiple changes simultaneously.

According to Bordum (2010), he poses the question of discussion in hierarchies or complexity because it is often assumed that change involves a business problem or situational problem. When change is managed only at the executive level employees become rebellious and feel they are tools used to realize organization objectives. Diefenbach (2007) states resistance of the people is interpreted as evidence that change is not only right and necessary, but that clear leadership and aggressive leaders are required- and guidance to opponents. Sometimes managers take employees to change programs and expect change to occur (Stanleigh, 2008, p.35). This affects staff morale and creates a glass wall between change facilitators and employees. Balancing the demands that result from change programs with the demands of managing today’s business performance is a difficult task for managers and rarely does change result in an equilibrium state.

2.7.5 Criticisms in Change Management

Different interpretations of change management and their underlying factors often bring about the shortcomings of the change management framework. The differences in perceptions of what change management is influence behavior. Saka (2003) states that managers hold views and visions that often conflict with established mental models hence fail to be put into practice. Internal change agents are mostly technical or special skill managers who find themselves as process facilitators to change. They lack the skills and have to balance both their technical expertise with change facilitation. This slows down the implementation process.
Change management problem can be simply attributed to the uncertainty in the change process which change agents seek to disguise. Fronda and Moriceau (2008) argue “perpetual change is often perceived by individuals as a generator of chaos, and of anomia, i.e. loss of meaning for the subject who has lived in one organization world and who is asked to adopt the practices, norms and behavior of others” (p. 594). People therefore only change due to pressure but culture within them does not change to fit in with the new state. Instead they become more rigid and only change on the outside temporarily. This brings the concept of alignment which has been criticized on the grounds that it is difficult to apply in practice (Hayes, 2007, p.54) where all organization systems are supposed to be consistent.

Some view effective management as reacting and responding to the external environment while others view it as being proactive by using the resources and capabilities in the firm to design the environment. Bordum (2010), states that strategic balance assumes planning can be rational and creates unity in the managed organization and the distinction between the internal organization resources and the external environment and opportunities is clearly defined and possible to make. When change comes in, managers perceive appropriate alignment from their own points of view which makes it difficult to establish any shared understanding of the desired alignment.

2.8 Summary and Gaps to be filled by the Study

The existence of the three dimensions of information systems namely technology, management and organization characteristics (Laudon & Laudon, 2007, p.16) make it difficult for firms to focus on all the three to achieve sustainable competitive advantage

Many studies focus on the information systems used along the value chain but do not give the ultimate benefits that result from these systems building competitive advantage i.e. they give the type of information systems that can be used to add value to business activities but not the ultimate strategic advantages from the systems. This makes it hard for organizations to identify the strategic advantages they are to obtain from change of information systems to be consistent with changes in the external environment.
With organization characteristics of information systems being business process, structure and culture (Senior & Fleming, 2006; Spector, 2007; Laudon & Laudon, 2007), scholars have not clearly shown their impact during strategic change of information systems because it is assumed that information systems are made up of computers only. This means the strategic change process of information systems revolves around numerous resources that require management.

However past scholarly works explain management only and fail to show the significance and importance of leadership during the process. It is important to understand the role of strategic leadership because it integrates all the dimensions of information systems during the process. With these gaps the study focuses on strategic change of the three dimensions of information systems to build competitive advantage while the firm is operating in a dynamic environment. Thus the study aims at investigating the effects of information systems on sustainable competitive advantage with a case of Kenya Airways Limited.

2.9 Conceptual Framework

The framework on Figure 2.4 on page 33 depicts the relationship that exists between dimensions of information systems, the dynamic environment and sustainable competitive advantage. The three dimensions of information systems as the independent variables integrate together to build sustainable competitive advantage within a dynamic environment which is constantly changing due to the interaction of different competitive forces.

Sustainable competitive advantage in the firm is built by integrating the different dimensions of information systems. The moderating variables have been captured by the five-force model as they make up the external forces in the airline business environment thus drive for strategic change. Dependent variables are sustainable competitive advantage.
Figure 2.4 Conceptual Framework
Source: Researcher (2013)
CHAPTER THREE
METHODOLOGY

3.1 INTRODUCTION
The methodology was designed in a way to ensure data was collected is valid and reliable to reduce chances of error. An appropriate sample size was selected from the target population to ensure the findings are accurate and recommendations were made relevant to the subject of study.

3.2 RESEARCH DESIGN
The study followed survey research design. Primary data was used and as recommended by Malhotra et al (2006), primary data have the specific purpose of addressing the current research questions. Secondary data was obtained from both internal and external sources. Polonsky and Waller (2011) further state that secondary data is more cost effective and time saving to analyze besides assisting in resolving or partly answering the research problem.

3.3 LOCATION
The study was conducted at Kenya Airways Limited headquarters in Nairobi, Kenya.

3.4 TARGET POPULATION
The study focused on Kenya Airways Limited. The target influence comprised 900 employees who were at the managerial level and had the capacity to assist in making strategic decisions in the company. The target population of 900 comprised of 9 executives, 21 senior management staff and 870 Management and Pilot staff. Table 3.1 below represents the three strata from the three different managerial level staff with the number of frequency making the target population.

Table 3.1. Target Population

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTIVES</td>
<td>9</td>
<td>1%</td>
</tr>
<tr>
<td>SENIOR MANAGERS</td>
<td>21</td>
<td>2.3%</td>
</tr>
</tbody>
</table>
3.5 SAMPLING AND SAMPLING PROCEDURES

According to Mugenda and Mugenda (2003), a representative sample must be at least 10% of the entire target population. From the population of 900, the sample of 13% was representative enough making the data collected dependable and reliable. The respondents were identified by use of stratified sampling technique where the target population was divided into executives, senior managers, and managerial staff and pilots making a total of 3 strata. Malhotra et al (2006) states stratified sampling is precise as it includes all important sub-populations (as cited in Polonsky & Waller, 2011, pg. 141). From the population of 900, the researcher sampled 117 respondents (13%). Thereafter the respondents were picked by random sampling from each stratum as the technique is projectable. Table 3.2 below represents the sampling frame as drawn from the target population.

### Table 3.2. Sample Size


<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>FREQUENCY</th>
<th>SAMPLE RATIO</th>
<th>SAMPLE SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTIVES</td>
<td>9</td>
<td>1.0</td>
<td>9</td>
</tr>
<tr>
<td>SENIOR MANAGERS</td>
<td>21</td>
<td>1.0</td>
<td>21</td>
</tr>
<tr>
<td>MANAGEMENT &amp; PILOTS</td>
<td>870</td>
<td>0.1</td>
<td>87</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>900</td>
<td></td>
<td><strong>117</strong></td>
</tr>
</tbody>
</table>

3.6 DATA COLLECTION TECHNIQUES AND INSTRUMENTS

Personal interviews and questionnaires were used to collect primary data. Secondary data were collected through use of Kenya Airways journals, publications and the internet. Self-administered questionnaires with both closed and open-ended questions were used as questionnaires are considered the best in collection of primary data because they provide an avenue for the researcher to ask probing questions, they are fast, cheap and can be self
administered (Mugenda & Mugenda), 2003. Different interview guides for each stratum with both structured and general questions were also used. This allowed for probing questions during interviews to obtain as much information as possible. Nachmias and Nachmias (1996) state, interview guides give the respondent freedom to express their situation in relation to the matter in question.

3.7 DATA ANALYSIS METHOD

The collected questionnaires were first checked for completeness, and then coded and tabulated to provide an easy summary for analysis. Data collected from interviews were filtered and compiled. Qualitative data were analyzed using descriptive statistics whereby percentages and averages were used. Graphs, pie charts and tables were used in data presentation.

Appropriate analytical techniques were used in analyzing the different objectives of the study. Chi-square was used in investigating the effects of technology on competitive advantage. Chi-square tests if there is a relationship between technology and competitive advantage. Descriptive analysis via frequencies determined the extent to which organization characteristics impact on competitive advantage of Kenya Airways and the role of strategic leadership on sustainable competitive advantage of Kenya Airways. Sustainability of Competitive Advantage as a variable was analyzed through frequencies.
DATA FINDINGS, ANALYSIS AND PRESENTATION

4.1 Introduction
Data was collected, analyzed, compiled, and presented with reference to the specific objectives of the study.

4.2 Response Rate
For the 900 target population, the representative sample was made up of 92 respondents, which were 78.6% of the 117 sample size set forth. With 100 questionnaires issued, 79 were returned, with 72 complete for analysis. For the 17 interview respondents, only 13 were available. The 92 respondents made 10.2% of the target population, thus the sample was representative enough as it was above 10%.

Table 4.1 shows the frequency of response of both the questionnaire and the interview.

Table 4.1. Response Rate

<table>
<thead>
<tr>
<th>State of Questionnaires</th>
<th>Number of questionnaires</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete &amp; returned</td>
<td>72</td>
<td>72</td>
</tr>
<tr>
<td>Incomplete</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Not returned</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4.2. Management Strata Representation

<table>
<thead>
<tr>
<th>Questionnaires</th>
<th>Executive</th>
<th>Senior Managers</th>
<th>Management &amp; Pilots</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete</td>
<td>3</td>
<td>4</td>
<td>65</td>
<td>72</td>
</tr>
<tr>
<td>Incomplete</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Not returned</td>
<td>1</td>
<td>6</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>11</td>
<td>84</td>
<td>100</td>
</tr>
<tr>
<td>Interviews</td>
<td>Executives</td>
<td>Senior Managers</td>
<td>Management &amp; Pilots</td>
<td>Total</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
<td>-----------------</td>
<td>---------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Successful</td>
<td>3</td>
<td>7</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Not successful</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>10</td>
<td>3</td>
<td>17</td>
</tr>
</tbody>
</table>

4.3 Respondent General Information

The data analysis was based on the complete 72 questionnaires and successful 13 interviews i.e. a total of 85. The respondent general information included the different levels of employees, the number of years they have worked for the firm and the core activities in their job description which gave the value chain representation.

4.3.1 Management Level

The 3 levels of management included the executive, the senior management and the manager or pilot level. Out of the 85 respondents, 6 were executive directors, 11 were senior managers and 68 were from management or pilot stratum. The graph on Figure 4.1 shows the number of respondents from each of the 3 strata who participated in the questionnaires (72) and interviews (13) simultaneously.

4.3.2 Number of Years at the Firm

The numbers of years with which the employees have worked for the company were grouped into 3 i.e. 0-3, 4-7 and more than 7 years. Out of the respondents 31 had been in the organization...
for 0-3 years, 20 for 4-7 years and 34 for more than 7 years. The percentages are presented in Figure 4.2 below.

![Figure 4.2: Respondent's Number of Years in the Firm](image)

4.3.3 Value Chain Representation

The respondents sufficiently represented the value chain as there were respondents to all the activities of the value chain. This was possible as respondents were from all the seven departments i.e. Human Resource, Finance, Ground Handling, Flight Operations, Technical, Commercial and Information Systems. For the existing primary activities there were 55 respondents i.e. 10 from inbound logistics, 15 from operations, 12 from outbound logistics, 10 from marketing and sales and 8 from support services. For support activities there were 30 respondents i.e. 3 from firm infrastructure, 11 from human resource management, 9 from technology development and 7 from procurement. The percentages of the value chain activities are presented in Figure 4.3 and Figure 4.4.

![Figure 4.3: Responses Representing Primary Activities](image)
4.4 Strategic Change of Information Systems

The study collected information with regard to strategic change of information systems with reference to technology, organization characteristics (business processes, structure and culture) and strategic leadership.

4.4.1 Important Stakeholders to a Company

The 85 respondents identified the most important stakeholders to the company unto which all strategic decisions made should consider. The respondents could select more than one stakeholder. The total 85 respondents gave the stakeholders they felt were most important. 50 identified employees as most important, 52 were for customers, 12 for top management, suppliers and the society. 20 were for shareholders and 15 for both the government and competitors. However none of the respondents identified the media as an important stakeholder to the firm. Table 4.3 summarizes this information.

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees</td>
<td>50</td>
<td>59 %</td>
</tr>
<tr>
<td>Customers</td>
<td>52</td>
<td>61 %</td>
</tr>
<tr>
<td>Top Management</td>
<td>12</td>
<td>14 %</td>
</tr>
<tr>
<td>Suppliers</td>
<td>12</td>
<td>14 %</td>
</tr>
<tr>
<td>Shareholders</td>
<td>20</td>
<td>24 %</td>
</tr>
<tr>
<td>Competitors</td>
<td>15</td>
<td>18 %</td>
</tr>
<tr>
<td>The Government</td>
<td>15</td>
<td>18 %</td>
</tr>
<tr>
<td>Media</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The Society</td>
<td>12</td>
<td>14 %</td>
</tr>
</tbody>
</table>
Important Stakeholders to the Company

A graphical representation of the table above is represented by Figure 4.5 below whereby the stakeholders are plotted against the frequency of response.

Figure 4.5: Important Stakeholders to a Company

4.4.2 Elements of Focus on Information Systems

The study identified the most important elements that change agents and change facilitators focus on information systems. The elements included technology, leadership, culture, organization structure and business processes. The respondents did not give any other element they thought was important in their personal opinion. 38 respondents identified technology as an important element, 15 were for strategic leadership, 33 for organization culture, 20 for organization structure and 62 for business process. The information is presented by the graph on Figure 4.6 where the elements of strategic change of information systems are pitted against the frequency of response.
4.4.3 Forces Influencing Change of Information Systems

The external forces that influence change of information systems in the respondent’s area of work were identified. 59 respondents stated that competitor move or pressure is a major force, 43 were for security threats, 36 said product innovation, 35 stated customer demands and 23 ascertained globalization. Only 2 singled out supplier pressure. All the respondents unanimously stated that technological advancements and innovations drive strategic change of information systems. This is presented in Table 4.4 below.

Table 4.4: Factors Driving for Strategic Change of Information Systems

<table>
<thead>
<tr>
<th>Force Influencing Change</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology Advancement</td>
<td>85</td>
<td>100%</td>
</tr>
<tr>
<td>Competitor Moves</td>
<td>59</td>
<td>69%</td>
</tr>
<tr>
<td>Security Threats</td>
<td>43</td>
<td>51%</td>
</tr>
<tr>
<td>Product Innovation</td>
<td>36</td>
<td>42%</td>
</tr>
<tr>
<td>Customer Demands</td>
<td>35</td>
<td>41%</td>
</tr>
<tr>
<td>Globalization</td>
<td>23</td>
<td>27%</td>
</tr>
</tbody>
</table>

The next graph on Figure 4.7 represents the forces that drive change of information system where the forces are plotted against the frequency.
4.4.4 Technology and Competitive Advantage

The study assessed the effect of technology on competitive advantage by identifying technological activities that improve on individual performance, factors improved on by information systems to build competitive advantage, the relationship between technology and competitive advantage and finally the relationship between profitability and expenditure on information systems, training on use of information systems, number of e-ticketing passengers. With the questionnaires the respondents gave activities that when supported by technology improves their personal performance. The responses are summarized in Table 4.5.

Table 4.5: Technology and Improvement of Personal Performance

<table>
<thead>
<tr>
<th>Activities supported by technology</th>
<th>Improve Personal Performance</th>
<th>Does Not Improve Personal Performance</th>
<th>Indifferent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Process Re-engineering</td>
<td>43</td>
<td>18</td>
<td>11</td>
</tr>
<tr>
<td>Business Process Outsourcing</td>
<td>41</td>
<td>7</td>
<td>24</td>
</tr>
<tr>
<td>Business Intelligence</td>
<td>56</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Customer Service Management</td>
<td>54</td>
<td>6</td>
<td>12</td>
</tr>
</tbody>
</table>
The frequency of response shows that out of the 10 activities listed the 7 top most activities that when supported by technology improves personal performance are business intelligence, Customer Service Management, knowledge management, product innovation, Supply Chain Management, Business Process Re-engineering and Customer Service Relation; whereby responses are 56, 54, 54, 49, 46 and 43 for the last two. This is summarized in the graph on Figure 4.8.

The respondents further gave factors that lead to competitive advantage from use of information systems. The responses were grouped into Competitive Advantage, No Competitive Advantage and Indifferent. This is presented in Table 4.6.
Table 4.6: Factors Building Competitive from Use of Information Systems

<table>
<thead>
<tr>
<th>Factors building competitive advantage</th>
<th>Competitive Advantage</th>
<th>No competitive Advantage</th>
<th>Indifferent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business activities Coordination</td>
<td>58</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Decision making</td>
<td>44</td>
<td>1</td>
<td>27</td>
</tr>
<tr>
<td>Communication</td>
<td>62</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Economies of Scale production</td>
<td>46</td>
<td>12</td>
<td>29</td>
</tr>
<tr>
<td>Forecasting and Planning</td>
<td>60</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Focus on Core activities</td>
<td>58</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Knowledge of Markets</td>
<td>66</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Labor cost reduction</td>
<td>60</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>Supplier Relation</td>
<td>54</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Learning Organization</td>
<td>58</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Emergency Preparedness</td>
<td>46</td>
<td>11</td>
<td>15</td>
</tr>
</tbody>
</table>

The response ascertains that out of the 11 factors listed the top 7 which build competitive advantage from use of information system include knowledge of markets, communication in the firm, forecasting & planning, labor cost reduction, learning organization, coordinating business activities and focus on core activities; whereby the frequency of response was 66, 62, 60, 60, 58, 58 and 58 respectively. This is represented on Figure 4.9.
Figure 4.9: Factors Building Competitive Advantage from Use of Information Systems

4.4.5 Strategic Leadership and Strategic Changes of Information Systems

With reference to strategic leadership the respondents were asked to give the variables that change agents, change facilitators and strategic leaders focus on during strategic change of information systems. The study identified the variables that strategic leaders focus on for success during change.

This was done on a Likert Scale of 1 to 5 where 1 is for Strongly Disagree, 2 for Disagree, 3 for Indifferent, 4 for Agree and 5 for Strongly Agree. Table 4.7 shows the frequency of response and the weighted mean of each element. No variable was strongly disagreed on, few were disagreed upon. Focusing on ongoing changes in the external environment was found to be indifferent. It was agreed that leader focus on upward communication, downward communication, employee education and awareness, company values, norms and beliefs, organization structures, managing resistance, innovation and creativity and shareholder interest while communication of the change vision was strongly agreed on. This information is summarized on Table 4.7.

Table 4.7: Variables that Change Leaders Focus on during Strategic Change

<table>
<thead>
<tr>
<th>Variables for success</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Indifferent</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Weighted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation and Creativity</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>57</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>Communication of the change vision</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>63</td>
<td>5</td>
</tr>
<tr>
<td>Organization Structures</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>63</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Company Values, Norms and Beliefs</td>
<td>0</td>
<td>16</td>
<td>0</td>
<td>56</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Managing Resistance</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>44</td>
<td>28</td>
<td>4</td>
</tr>
<tr>
<td>Shareholder Interests</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>58</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>Ongoing Environmental Changes</td>
<td>0</td>
<td>0</td>
<td>30</td>
<td>25</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>Upward Communication</td>
<td>0</td>
<td>4</td>
<td>19</td>
<td>42</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Downward Communication</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>64</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Employee Education and Awareness</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>53</td>
<td>14</td>
<td>4</td>
</tr>
</tbody>
</table>
The graph below on Figure 4.10 shows the variables strategic leaders focus on during change to have a successful process. The variables are pitted against the average of response.

![Graph showing variables of success](image)

Figure 4.10: Variables Leading to Success during Strategic Change of IS

The respondents also gave the factors of interest for strategic leaders during strategic change of information system. This was also on a Likert Scale. Table 4.15 summarizes the frequency of response and the weighted means.

### Table 4.8: Factors of Interest for Strategic Leaders during Strategic Change of IS

<table>
<thead>
<tr>
<th>Factors of Interest</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Indifferent</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Weighted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achieving short-term wins</td>
<td>0</td>
<td>19</td>
<td>3</td>
<td>32</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>Achieving Long term objectives</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>14</td>
<td>58</td>
<td>5</td>
</tr>
<tr>
<td>Adjusting Employee attitude</td>
<td>4</td>
<td>0</td>
<td>6</td>
<td>34</td>
<td>28</td>
<td>4</td>
</tr>
<tr>
<td>Enhancing communication systems</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>41</td>
<td>27</td>
<td>4</td>
</tr>
<tr>
<td>Realizing Monetary gains</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>66</td>
<td>5</td>
</tr>
<tr>
<td>Manager Empowerment</td>
<td>0</td>
<td>0</td>
<td>46</td>
<td>19</td>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>
There were no factors strongly disagreed or disagreed on. It emerged leaders were indifferent on empowering managers. It was agreed leaders are interested in adjusting employee attitudes, winning employee involvement, enhancing communication systems, and achieving short-term wins. Finally it was strongly agreed they focus on operationalizing the new system, realizing monetary benefits of the system, enhancing teamwork, achieving long-term goals and developing future leaders.

The graph on Figure 4.11 below shows the factors of interest pitted against the average.

4.4.5 Organization Characteristics and Strategic Change of Information Systems

The study was to determine the extent to which organization characteristics impact on competitive advantage during strategic change of information systems. These characteristics include business process, culture and organization structure. With reference to organization structure the respondents indicated the extent to which the elements of organization structure are disrupted during strategic change of information systems.
### Table 4.9: Elements of Structure Disrupted during Strategic Change of Information Systems

<table>
<thead>
<tr>
<th>Factors Disrupted</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Indifferent</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Weighted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountability</td>
<td>3</td>
<td>47</td>
<td>3</td>
<td>18</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Authority</td>
<td>38</td>
<td>29</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Communication Systems</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>38</td>
<td>32</td>
<td>4</td>
</tr>
<tr>
<td>Span of Control</td>
<td>10</td>
<td>4</td>
<td>10</td>
<td>40</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Clarity of Roles</td>
<td>0</td>
<td>9</td>
<td>33</td>
<td>29</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Power base</td>
<td>0</td>
<td>16</td>
<td>11</td>
<td>42</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Protocol</td>
<td>12</td>
<td>26</td>
<td>5</td>
<td>22</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Responsibility</td>
<td>7</td>
<td>33</td>
<td>0</td>
<td>27</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Reporting Systems</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>55</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>Staff Relationship</td>
<td>6</td>
<td>9</td>
<td>17</td>
<td>22</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>Line Relationship</td>
<td>8</td>
<td>24</td>
<td>5</td>
<td>27</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Resource allocation base</td>
<td>0</td>
<td>1</td>
<td>8</td>
<td>31</td>
<td>32</td>
<td>5</td>
</tr>
</tbody>
</table>

The result of the weighted means show that there was no element that respondent strongly agreed is not disrupted during strategic change of information systems. It was disagreed that authority and protocol are disrupted during this change. Role clarity, staff relationship and powerbase were found to be indifferent. Reporting systems, communication systems, line relationships, span of control and staff relationships were agreed upon while resource allocation base and communication systems were strongly agreed upon as disrupted elements during strategic change of information systems.

The next graph on Figure 4.12 shows organization structure elements that are disrupted during strategic change against the average.
The respondents further gave the characteristics of cultures easier to change. This is presented in Table 4.10.

Table 4.10: Characteristics of Culture Easier to Change.

<table>
<thead>
<tr>
<th>Cultural Characteristics</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Indifferent</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Weighted mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverse Culture</td>
<td>0</td>
<td>7</td>
<td>17</td>
<td>41</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Support Learning</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>49</td>
<td>23</td>
<td>4</td>
</tr>
<tr>
<td>Encourage employee participation</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>52</td>
<td>5</td>
</tr>
<tr>
<td>Support Employee Development</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>63</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Focus on Performance expectations</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>54</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Support Multiple Stakeholders</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>59</td>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>

The result showed there were no strongly disagree, disagree and indifferent means. It was agreed that cultures that support multiple stakeholders, employee development, diverse cultures, learning and focus on performance expectation are easier to change with those encouraging
employee participation being strongly agreed on. The next graph on Figure 4.13 shows the
culture characteristics against the average.

![Figure 4.13: Characteristics of Cultures Easier to Change](image)

The study established the most effective ways of imparting culture on employees during strategic change of information systems. The result showed no effective way was strongly disagreed or disagreed on. Response showed communication to the top management and use of stories and myths was indifferent. Publicly recognizing heroes and heroines and appointing culture agreed to be effective while formulating value statements, rewarding behavior and using slogans were strongly agreed on. Table 4.11 represents a summary of this data.

**Table 4.11: Effective Ways of Imparting Culture in Employees**

<table>
<thead>
<tr>
<th>Ways of imparting culture</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Indifferent</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Weighted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicating to the Top Management</td>
<td>0</td>
<td>5</td>
<td>28</td>
<td>34</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Employee Training</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>28</td>
<td>44</td>
<td>5</td>
</tr>
<tr>
<td>Formulating Value Statements</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>35</td>
<td>35</td>
<td>5</td>
</tr>
<tr>
<td>Rewarding Behaviors</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>25</td>
<td>43</td>
<td>5</td>
</tr>
<tr>
<td>Using Stories and Myths</td>
<td>0</td>
<td>6</td>
<td>38</td>
<td>25</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Publicly Recognize Heroes and Heroines</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>51</td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td>Using Slogans</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>72</td>
<td>5</td>
</tr>
</tbody>
</table>
The next graph on Figure 4.14 shows the ways of imparting culture against the average.

![Graph showing ways of imparting culture against the average.]

Figure 4.14: Effective Ways of Imparting Culture on Employees

### 4.5 Sustainability of Competitive Advantage

The study obtained information on sustainability of competitive advantage in dynamic environments by identifying the resources and capabilities in the airline business environment and the characteristics of strategies which lead to sustainable competitive advantage.

The respondents gave the resources and capabilities that are required for success in the airline business environment. Patents and intellectual rights were found to be indifferent. Knowledge management and R&D were agreed on. However it was strongly agreed that employee expertise, modern fleet, certification of standards, information systems and business intelligence are required to build competitive advantage in the airline business. This is represented by Table 4.12 on the next table.

Table 4.12: Resources and Capabilities Building Competitive Advantage for Airlines

<table>
<thead>
<tr>
<th>Resources and Capabilities</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Indifferent</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Weighted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research and Development</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>44</td>
<td>28</td>
<td>4</td>
</tr>
<tr>
<td>Patents and Intellectual Rights</td>
<td>0</td>
<td>12</td>
<td>56</td>
<td>4</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Information Systems</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>23</td>
<td>49</td>
<td>5</td>
</tr>
<tr>
<td>Business Intelligence</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>72</td>
<td>5</td>
</tr>
</tbody>
</table>
The graph on Figure 4.15 below represents the resources and capabilities which lead to success in the airline business environment with the resources and capabilities plotted against the average.

Figure 4.15: Resources & Capabilities that build Competitive Advantage for Airlines

Finally the study determined the characteristics required to ensure strategies used to achieve competitive advantage are sustainable. The respondents gave this on a Likert Scale where responses included rarity, complexity, costly for imitation and transferability to changing environments. It emerged that strategy with resources and capabilities that are costly for competitors to imitate and those that can be transferred to changing environments were strongly agreed on while those rare to obtain by competitors and that complex for them to understand were agreed on. Table 4.13 summarizes the frequency of response and the weighted mean.
Table 4.13: Characteristics of Sustainable Competitive Advantage.

<table>
<thead>
<tr>
<th>Characteristics for Sustainable Competitive Advantage</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Indifferent</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Weighted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rare to obtain from competitors</td>
<td>0</td>
<td>1</td>
<td>11</td>
<td>38</td>
<td>22</td>
<td>4</td>
</tr>
<tr>
<td>Hard and costly to imitate</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>10</td>
<td>55</td>
<td>5</td>
</tr>
<tr>
<td>Complex for competitors understanding</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>50</td>
<td>14</td>
<td>4</td>
</tr>
</tbody>
</table>

The graph on Figure 4.16 shows the characteristics of sustainability plotted against the average.

![Characteristics Building Sustainable Competitive Advantage](image)

Figure 4.16: Characteristics Building Sustainable Competitive Advantage

The data findings, analysis and presentation sufficiently answered the research questions. Together these fulfilled the specific objectives of the study.
CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction
The summary, conclusion and recommendation to the study were made based on the data findings in relation to every objective i.e. investigating the effect of technology on competitive advantage, determining the extent to which organization characteristics impacts on competitive advantage of Kenya airways and determining the role of strategic leadership on sustainable competitive advantage of Kenya airways. Collectively these evaluate information systems on sustainable competitive advantage.

5.2 Summary
The summary has been made on every objective in relation to the findings for each research objective. This has been done with reference to findings on each research question.

5.2.1 The Effect of Technology on Sustainable Competitive Advantage
The study indicates a significant and positive relationship between technology and competitive advantage. Technologies that result to the ultimate benefits of knowledge of markets, communication in the firm, forecasting and planning, organization learning and focus on core activities build competitive advantage most. In addition, those leading to economies of scale, supplier relations, and better management of non-core activities, decision making and resource sharing also contribute to competitive advantage.
Technologies that result to these factors include those that support business intelligence, CSM, and product or process innovation. Whether a firm uses technologies that support these activities or others along the value chain, they must make sure they achieve the named ultimate benefits to positively effect on competitive advantage.
For firms to change their information systems they should first know the ultimate benefits they are getting from their technology systems then identify those that they intend to achieve after changing the systems. The more they combine these benefits the more sustainable the competitive advantage.

5.2.2 The Role of Strategic Leadership on Sustainable Competitive Advantage
The study revealed there are a number of roles of strategic leadership during strategic change of information systems. These roles include communicating the change vision, enhancing communication systems, adjusting employee attitude, winning employee involvement,
establishing resource allocation base, enhancing teamwork and finally developing future leaders. All these determine the achievement of both the short-term wins and long-term goals of the change process. To fulfill these roles change leaders, facilitators and agents are required to consider all shareholder interests, manage resistance, demand performance expectations, educate and create awareness to employees, foster innovation and creativity, and lastly focus on company norms, values and beliefs. Change leaders should therefore know the roles they want strategic leadership to play during change of information systems and how they will fulfill these. This ensures that the change process which revolves around numerous resources including employees is all effectively integrated to achieve the change vision.

5.2.3 The Extent to which Organization Characteristics Impacts on Sustainable Competitive Advantage

Organizational characteristics include business processes, structure and culture. These three were found to impact on sustainable competitive advantage in numerous ways.

The study revealed the most key element of strategic change of information system process is business process meaning it impacts on sustainable competitive advantage directly. The most important resources and capabilities in the value chain which lead to success include employee expertise, certification of standards, information systems and business intelligence. For sustainability it should be ensured that these resource and capabilities or the systems used in managing them are costly for competitors to imitate and can also be transferred to changing environments.

During the study it became evident that during strategic change of information systems organization structure elements are disrupted which include the resource allocation base, communication systems, report systems and staff relationships.

To counter these effects strong elements that are hard to disrupt during change can be used to restore order including authority, accountability, protocol, and role clarity, span of control, responsibility and powerbase. Change leaders should therefore identify where these are situated in the organization structure and strongly support them and use them to stabilize structures throughout the change process.

Lastly with reference to organization characteristics the study ascertained that with culture being made up of company values, norms and beliefs it is an important element because it focuses on different stakeholders during change of information systems. The stakeholders most supported
are employees, customers, top management, suppliers and shareholders. With the employees being most important the most effective ways of imparting culture on them is formulating value statements, employee training, rewarding behavior and using slogans. With these methods the new or revised culture can be imparted on employees during change. It is also important to identify cultures that are easier to change so as to effectively manage the change process. These include those that encourage employee participation, support multiple stakeholders, employee development, diverse cultures, learning and focus on performance expectation. With the right culture in place the interest of all the stakeholders during strategic change will be catered for during strategic change and this will positively affect sustainable competitive advantage.

5.3 Conclusion
There are numerous forces in the airline business environment which drive for strategic change of information systems. However technology advancement or innovation and competitor moves are strong drivers for the change. Some of the driving forces of change are important stakeholders to the firm which means organizations should continuously scan and monitor the needs and wants of stakeholders to identify and prioritize how much they drive strategic change of information systems.

Technology applications focusing on building knowledge including business intelligence are most profitable as they build expertise in the organization which is a complex capability for competitors. Knowledge is a platform for many other capabilities for firms through innovation and creativity. With organization characteristics being part of information systems, its three elements namely business process, culture and structure are interlinked and need to be aligned to achieve success. During change of information systems the three elements are disrupted and require integration for consistency. Culture is a unifying factor ensuring employees apply elements of structure on the value process. Change leaders on the other hand should manage both planned and emergent change by scanning for ongoing changes in the environment hence ensuring the change process caters for both past and emerging issues. It is most important for change leaders to deal with people issues during strategic change of information systems and at the same time demand performance expectations from employees to foster employee engagement to the process.
This research has filled in gaps by providing literature on how firms should manage the strategic change process of information systems as many past studies have focused on managing general organizational change. Firms now get to know the importance of integrating the three dimensions of information systems (technology, organization characteristics, strategic) to continuously build sustainable competitive advantage to improve on performance.

5.4 Recommendations

This study collected and analyzed data to test the three research questions i.e. to what extent do organization characteristics impact on competitive advantage, what is the role of strategic leadership on sustainable competitive advantage and the relationship between technology and competitive advantage on information systems. Sufficient information was gathered from data collection and analysis. However the significant findings have gaps and limitations hence the following recommendations:

i. This study selected respondents in the management level due to their capacity to make strategic decisions in the firm. Further research ought to incorporate operational level employees and customers in the target influence to establish their role in the strategic change process.

ii. With this research being a case study in the airline industry, further studies must be on two or more companies from various service industries that depend heavily on information systems to build competitive advantage e.g. the airline and banking industry which will allow for generalization to firms in dynamic environments.

iii. Lastly, researchers could use one of the three objectives as a topic of study and expound on it to give an insight of the chosen objective.

With the three recommendations above the major gaps in this study will be eliminated or reduced and major issues in strategic change of information systems within dynamic environments will be attended to.
REFERENCES


Polonsky, M., J. & Waller, D., S. (2011) *Designing and managing a research project*. 2nd Ed, Los Angeles, California; Sage


Dear Sir/Madam,

RE: DATA COLLECTION

I am Getrude Mahulo Ogina, a student of Kenyatta University pursuing a Masters degree of Business Administration majoring in Strategic Management. One of my academic outputs before graduating is a project report and for this reason I have chosen the research topic “to investigate the effects of information systems on sustainable competitive advantage within the aviation industry; a case: Kenya Airways Ltd.”

You have been picked as one of the respondents and the information obtained is going to be treated as highly confidential and will not be used in any harmful way against you, other persons or any entity. Any questions, comments or requests can be communicated through the contact below. Your cooperation to this worthy cause will be highly appreciated.

Yours sincerely,

Getrude Mahulo Ogina
D53/NKU/PT/21738/2010
Tel: 0723451834
Appendix 2: QUESTIONNAIRE

Section 1: Respondent Information
Please fill in appropriate answer/s to the questions below.

1. Occupation .............................................................

   Job Position............................................................

2. Which level do you belong to?

   [ ] Executive  [ ] senior management  [ ] Manager or Pilot

   Other, Please specify ...................................................

3. For how long have you worked with the firm?

   [ ] 0-3 years  [ ] 4-7 years  [ ] More than 7 years

4. List the core activities in your job description (e.g. payroll, handling customer complaints, clearing baggage, computer maintenance e.t.c)

   ..............................................................................

   ..............................................................................

   ..............................................................................

   ..............................................................................

   ..............................................................................

   ..............................................................................

Section 2: Information Systems effects on Competitive Advantage
Please tick the appropriate responses

5. The most important stakeholders to my company are:

   [ ] Employees  [ ] Customers  [ ] Top management  [ ] Suppliers

   [ ] Shareholders  [ ] Competitors  [ ] the Government  [ ] Media

   [ ] Society
6. The most important elements that are focused on by facilitators on information systems are:

- Technology
- Business process
- Organizational Structure
- Culture
- Leadership

Others, please specify...

7. List factors that may lead to change of information systems in your area of work?
(E.g. security threats, competitor moves, innovation e.t.c)

8. What technology schemes do you use in your daily work activities? (E.g. scheduling systems, in-flight systems, flight reservation systems, market research systems, customer service systems e.t.c)

9. The following activities supported by technology have improved my individual performance leading to competitive advantage.

<table>
<thead>
<tr>
<th>Activities supported by Technology</th>
<th>Improve individual Performance</th>
<th>Does not improve individual performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Process Re-engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Process Outsourcing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Intelligence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Service Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Service Relation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Preparedness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge Management</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10. Information systems build competitive advantage by improving the following factors.

<table>
<thead>
<tr>
<th>Factors building competitive advantage</th>
<th>Competitive Advantage</th>
<th>No competitive Advantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business activities Coordination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decision making</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economies of Scale production</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forecasting and Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus on Core activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of Markets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor cost reduction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplier Relation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning Organization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Preparedness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. During strategic change of information systems managers, leaders and change facilitators focus on the following variables for success:

<table>
<thead>
<tr>
<th>Variables for success</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Indifferent</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation and Creativity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication of the change vision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization Structures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company Values, Norms and Beliefs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factors of Interest</td>
<td>Strongly Agree</td>
<td>Disagree</td>
<td>Indifferent</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>-----------------------------------------------------------</td>
<td>----------------</td>
<td>----------</td>
<td>-------------</td>
<td>-------</td>
<td>----------------</td>
</tr>
<tr>
<td>Achieving short-term wins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achieving Long term objectives</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusting Employee attitude</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhancing communication systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Realizing Monetary gains</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manager Empowerment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentoring Future leaders</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhancing Teamwork</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Winning Employee Involvement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operationalizing the New System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. Strategic Leaders are interested in the following factors of information systems:
13. The following factors are disrupted during strategic change of information systems

<table>
<thead>
<tr>
<th>Factors Disrupted</th>
<th>Strongly Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Agree</th>
<th>Indifferent</th>
<th>Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authority</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication Systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Span of Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clarity of Roles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power base</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protocol</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reporting Systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff Relationship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line Relationship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource allocation base</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14. The following cultural characteristics are easier to change.

<table>
<thead>
<tr>
<th>Cultural Characteristics</th>
<th>Strongly Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Agree</th>
<th>Indifferent</th>
<th>Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverse Culture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encourage employee participation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support Employee Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus on Performance expectations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support Multiple culture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
15. During organizational change the most effective ways of imparting culture in employees are:

Ways of imparting culture

<table>
<thead>
<tr>
<th>Ways of imparting culture</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Indifferent</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicating to the Top Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formulating Value Statements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rewarding Behaviors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using Stories and Myths</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publicly Recognize Heroes and Heroines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using Slogans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section 3: Sustainable Competitive Advantage

16. The most crucial resources and capabilities of a firm operating in the Airline industry are:

Resources and Capabilities

<table>
<thead>
<tr>
<th>Resources and Capabilities</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Indifferent</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research and Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patents and Intellectual Rights</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Intelligence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certification of Standards</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee Expertise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
17. The following characteristics are mandatory in the Airline Industry in building Sustainable Competitive Advantage:

<table>
<thead>
<tr>
<th>Characteristics for Sustainable Competitive Advantage</th>
<th>Strongly Agree</th>
<th>Disagree</th>
<th>Indifferent</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rare to obtain from competitors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hard and costly to imitate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complex for competitors understanding</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thank you for taking the time to answer this questionnaire. Your effort is highly appreciated.

Appendix 3: Interview Questions

a. Structured Interview questions for Executive directors

i. What forces drive the airline industry?

ii. What challenges does the airline industry face in Kenya and globally?

iii. What is the overall strategic role of information systems in achieving competitive advantage?

iv. How does the organization structure impact on competitive advantage?

v. What values, beliefs and norms formulate the culture and how are they practiced?
vi. What is the significance of leadership in times of strategic change in the company?

vii. What Information system developments is the company considering in future?

b. Structured interview questions for Senior Management Staff

i. What are the core activities revolving around your division’s area of work?

ii. How do information systems support your core activities?

iii. What factors influence change of Information System in the company?

iv. To what extent do information systems affect your division’s structure?

v. What role does the organization culture play in impacting competitive Advantage?

vi. What is the role of senior managers on execution of an information system?

vii. What are the challenges faced by your division during strategic change of information systems?

viii. What short-term wins are used in measuring success of information Systems?
c. Structured interview questions for management staff and pilots

i. What are the primary and supportive activities in your department’s area of work?

ii. What is the role of technology in your department?

iii. What factors support and hinder change of information systems in your department?

iv. How do new information systems affect organization structure in your department?

v. What values, beliefs and norms motivate employees in your department?

vi. How do managers as leaders ensure success of information system change process?

vii. What are the benefits realized from use of information systems in your value activity?

Appendix 4: Budget

<table>
<thead>
<tr>
<th>Expenses</th>
<th>Costs(Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stationary</td>
<td>5 500</td>
</tr>
<tr>
<td>Typing Charges</td>
<td>8 000</td>
</tr>
<tr>
<td>Travelling Costs</td>
<td>10 000</td>
</tr>
<tr>
<td>Phone Expenses</td>
<td>2 500</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>15 000</td>
</tr>
<tr>
<td>Contingencies</td>
<td>2 000</td>
</tr>
<tr>
<td>TOTAL</td>
<td>43 000</td>
</tr>
<tr>
<td>Weeks</td>
<td>WEEK 1 5\textsuperscript{TH} -12\textsuperscript{TH} March 2013</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>Activity</td>
<td>FIELD SURVEY</td>
</tr>
</tbody>
</table>

Appendix 5: Work plan.