

**INFLUENCE OF INFORMATION AND COMMUNICATION TECHNOLOGY ON
PERFORMANCE OF AVIATION INDUSTRY - A CASE OF KENYA AIRWAYS LTD**

BY

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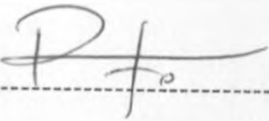
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**A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS OF THE AWARD OF DEGREE OF MASTER OF ARTS IN
PROJECT PLANNING AND MANAGEMENT OF THE UNIVERSITY OF NAIROBI**

2012

DECLARATION

This research project is my original work and has not been presented to any university for academic award.

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L50/76595/2009

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

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DEDICATION

I dedicate this research project to my family for their support and bearing with me during this process. I will remain forever grateful.

ACKNOWLEDGEMENT

My sincere gratitude goes to Almighty God for the much needed strength, courage and health He has given me to carry out my research. I am very grateful to my supervisor Dr. Luketero for the intellectual advice and encouragement that he has given me. I also thank the entire administration and management of the University of Nairobi for their co-operation and all those who have sacrificed their time towards the contribution of this noble duty. I am deeply indebted to many others whom I have consulted in the course of preparing this project. I thank them for being supportive and co-operative in various ways.

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ABBREVIATIONS AND ACRONYMS

EAA	-	East African Airways Corporation
KCAA	-	Kenya Civil Aviation Authority
ICT	-	Information Communication Technology
LCC	-	Low Cost Airlines
SBU s	-	Strategic Business Units
SPSS	-	Statistical Package of Social Sciences

ABSTRACT

The aim of this study is to ascertain the influence of information and communication technology on the performance of the aviation industry in Kenya with the case of Kenya Airways -Kenya office. Specifically the study seeks; to study the influence of communication networks on the performance of an airline, to establish the influence of mobile phone technology on the performance of an airline, to investigate the influence of handheld devices and iPads on the performance of an airline and to study the influence of Internet applications on the performance of an airline. The study will adopt a descriptive survey design. The population will comprise all Kenya Airways staff in Nairobi office. A sample of 244 employees will be randomly selected for the study. Purposive sampling will be used to select Nairobi office as the study site. The study will rely on data collected through a questionnaire structured to meet the objectives of the study. The questions will be both open ended and closed ended. The process of data analysis will involve data clean up and explanation. Responses in the questionnaires will be tabulated, coded and processed by use of a computer Statistical Package for Social Science (SPSS) version 17.0 programme to analyze the data. The responses from the open-ended questions will be listed to obtain proportions appropriately. The study is significant as it would provide the management of the airline, in this case Kenya Airways, information that they can leverage on to improve on the performance of the airline. It will also add to the knowledge required to assist policy makers and regulatory bodies make decisions that would change the way operations are carried out. The study findings showed that information and communication technology which includes communication networks, mobile phone technology, handheld devices such as iPads and Internet and computer applications influence the performance of the aviation to a large extent by assisting to improve on faster passenger handling and increased revenue generated from improved access to information. The recommendations show that the company should align itself to using ICT at a strategic level and to these strategies are cascaded to all levels of the hierarchy.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Over the years, technology in business has been changing rapidly as the global environment becomes highly competitive and innovative. The use of Information Communication Technology (ICT) has become very vital to all organizations that intend to remain competitive in the market. In the words of Cravens (2000), the drivers of change in today's world include, deregulation, global excess capacity, global competition, changing customer expectations, ICT, demographic shifts and changing work and lifestyles. These changes have led organizations to embark on activities that will provide a source competitive advantage and embrace the usage of ICT (Kevin, 2006).

ICT is clearly considered as a key growth area in this century, specifically, in a dynamic business and highly competition environment which requires utilizing advanced ICT to improve efficiency and cost effectiveness, and to present high quality products and services to their customers (Allen and Morton, 2004). Recently, the term of ICT has expanded to include the role of ICT tools not just inside the company but outside the company, for example, UNDP report, 2001, claimed that ICT is considered as a tool of marketing and contacting customers and looking for possible customers, as well as presenting ICT services is distinguished as a potential service for customers (Werthner, and Klein, 2005).

According to Gholami *et al.* (2008) ICT is also considered as a key enabler for globalization, facilitating worldwide flows of information, capital, ideas, people and products. Some

researchers such as (Christensen, 2000; Doganis, 2001; Werthner and Klein, 2005) have tried to combine the previous definition by considering ICT as a group of elements (hardware, software, and people) that should be working together in the process to present the benefits to the organization in the form of information, product or services and so on.

Laudon and Laudon (2007) assert that ICT includes all the technology that facilitates the processing, transfer and exchange of information and communication services. It is considered as a subject of expertise that links information technology (computers and applications) and telecommunication networks (intranet and internet), that lets people and computers interrelate irrespective of physical location. Werthner and Klein (2005) conclude that the ICT term contains hardware, software, networks and people that should be integrated as a one unit by linking each one to the other in a clear process to generate the information that helps the decision makers, producing product and services presenting, promotion, controlling and for achieving the organization's aims and goals.

Information technology generates fundamental changes in the nature and application of technology in business (Gholami *et al.*, 2008). Information Communication Technologies (ICT) can provide powerful strategic and tactical tools for organisations, which, if properly applied and used, could bring great advantages in promoting and strengthening their competitiveness. The proliferation of the Internet, as a main stream communication media and as an infrastructure for business transactions has generated a wide range of strategic implications for businesses in general as well as for the travel and airline industries in particular (Li-Hua and Khalil, 2006).

Internet technology and web based commerce have dramatically transformed the airline industry in the decade (Werthner and Klein, 2005). Information and Communication Technologies (ICT) have always played a predominant role in the airline sector (Poon, 2003) but with the advent of the Internet and open source technology their impact is becoming increasingly more crucial and evident (Buhalis, 2004; Jacobsen *et al.*, 2008). Web distribution combined with cheaper and more flexible technologies allows new players on the market, low cost airlines (LCCs), to implement effective low-cost direct distribution strategies and intensify competition in the sector (Dennis 2007; Buhalis and Law, 2008).

1.2 Profile of Kenya Airways Limited

Kenya Airways traces its history back to 1946 with the formation of the East African Airways Corporation (EAA). Initially, EAA had a good reputation for service and reliability. With the formation of the East African Community, EAA passed into the joint ownership of the governments of Kenya, Tanzania, and Uganda. Shortly after the collapse of the East African Community in 1976, EAA was placed in liquidation. Kenya Airways was incorporated in January 1977 as a company wholly owned by the Kenyan government. It was established as the national flag carrier of Kenya and acquired certain of the assets and staff of EAA. It operates scheduled services throughout Africa and to Europe and the Indian subcontinent (Kenya Airways Journal, 2011).

Kenya Airways Journal, (2011) reveals that Kenya Airways is the leading operator on domestic routes. Kenya Airways operates sixty seven flights a week to four domestic destinations: Mombassa, Malindi, Kisumu, and Nairobi. Internationally, Kenya Airways operates scheduled

passenger service and cargo services to twenty four international destinations with forty five flights a week. Kenya Airways serves seven destinations in Europe; eleven in sub-Saharan Africa; and six in North Africa, Asia, and the Middle East. Kenya Airways, as the national airline of Kenya, has rights under existing bi-lateral agreements to operate flights to a total of fifty eight countries.

Kenya Airways has its own international sales offices in twenty three countries, of which the London office is the largest. Kenya Airways retains over twenty five General Sales Agents in twenty countries where it does not have its own sales offices. In Kenya, Kenya Airways has appointed over one hundred travel agents and around thirty cargo agents. Kenya Airways is connected to a variety of sophisticated airline communication and information systems (Kenya Airways Journal, 2011).

Kenya Airways is capable of carrying out all scheduled maintenance checks on all its current aircraft types. The airline maintains extensive workshop facilities for the overhaul and repair of mechanical, electrical and avionics aircraft components, including a module facility for handling large fan engines. Some component repairs and maintenance are contracted out to qualified vendors, mostly airlines, in various European countries. Kenya Airways' maintenance facilities consist of a hangar at Jomo Kenyatta International Airport capable of taking one wide-bodies or two narrow-bodied aircraft at the same time, together with supporting facilities and equipment.

Kenya Airways was voted as the best user of Information Technology in Kenya by the Computer Society of Kenya in the year 2001. Also in 2006, Kenya Airways won the 'African Airline of the Year' Award for 2005, for the fifth time in seven years. Last year (2008), it was voted as the

“Company of the Year-COYA” in Kenya. The great chain of success has been made possible by among other things, the successful implementation and use of Information and Communication Technology. As a result, they have been able to enhance their communication and efficiency, while at the same time, reduce costs and increase the number of passenger travel in their travel routes (Msafiri, 2012).

Kenya Airways issues its staff with mobile phone and current technological hand held devices such as ipads facilities for official as a way of integrating ICT to business to boost performance of the airline. Mobile phone usage in Kenya Airways is governed by the Telephone Policy which documents all telephone usage in Kenya Airways such as landlines, calling codes amongst other communication facilities. The aim of the telephone policy is control usage of communication facilities in the company and avoids their misuse (Kenya Airways Journal, 2011).

1.3 Statement of the Problem

In an attempt to cut costs without hurting the service, the airline industry is actively adopting various forms of technological innovations (Feldman, 2007). The development of information and communication technologies (ICT) has had profound effects in goods and services marketing (Porter, 2001). Information Communication Technologies have revolutionized the entire business world. The airline industry in particular has fostered a dependency on technology on their operational and strategic management. Gholami *et al.* (2008) assert that airlines were early adopters of ICT and have a long history of technological innovation, in comparison to other travel and tourism businesses. ICT usage has helped the airline industry improve its distribution

strategy and reduce costs. In addition, extranets were being gradually used for communicating with partners and to support business to business (B2B) relationships (Kevin, 2006).

Over the years, Kenya Airways has continued to grow as a company. This has involved a change in its operations. There is tremendous growth in the number of hand held current technological devices being used by staff in the Kenya Airways (Kenya Airways Journal, 2011). There is need to find out why is this happening, if the trend good or bad for the company, has ICT contributed positively to company performance. In line with this company growth, has been an increase in staff numbers. Corporate culture has embraced ICT as the most important factor of business (Dennis, 2007). This means that corporate bodies are investing heavily in ICT and Kenya Airways is no exception.

Information communication technology has grown and provided room for innovation. Companies have been investing heavily in technology so as to gain a competitive edge. This study is based on the premise that the passage of time and the very numerous and significant changes in the aviation industry have led to totally different factors influencing the use of ICT in the industry. Some studies attempting to shade some light on the subject under study are more generalistic and have failed to give detailed insights and analysis of the issues by the current study. This therefore leaves a knowledge gap on the influence of information and communication technology on the performance of the aviation industry in Kenya. So far no known study by the researcher has attempted to influence of information and communication technology on the performance of the aviation industry in Kenya.

1.4 Purpose of the Study

The purpose of this study was therefore to assess the influence of information and communication technology on the performance of the aviation industry in Kenya with the case of Kenya Airways -Kenya office.

1.5 Objectives of the Study

The study was guided by the following objectives:

- i. To study the influence of communication networks on the performance of Kenya Airways
- ii. To establish the influence of mobile phone technology on the performance of Kenya Airways
- iii. To investigate the influence of handheld devices and iPads on the performance of Kenya Airways
- iv. To study the influence of Internet applications on the performance of Kenya Airways.

1.6 Research Questions

The study sought to answer the following questions;

- i. How do communication networks influence performance of Kenya Airways?
- ii. To what extent does the influence of mobile phone technology affect performance of Kenya Airways?
- iii. How do the use of handheld devices and iPads influence performance of Kenya Airways?
- iv. To what extent do internet applications influence performance of Kenya Airways?

1.7 Significance of the Study

The Management team will use the findings as the base upon which to review company performance at Kenya Airways. Necessary improvements identified could be undertaken to enhance performance at the work place. The findings can also be used by human resource management in other companies to help in boosting employee performance at the various workplaces. This study is important to Kenya Airways management as it can help determine areas of wastage on this resource, control this thus save on costs.

Findings of the study will be of assistance to KCAA in setting the standards that airlines should work towards meeting if our airlines are to fly safe and also for the improvements in service delivery in the industry. The use of ICT will assist in monitoring of air transport operations and more critically, improve the level of security measures under the modern day threat of terrorism. KCAA can also do an exhaustive study in the application of ICT in marketing, to aid local upcoming airlines in competing with other carriers within the Eastern Africa Region.

The regulators and the policy makers can use the finding as reference for policy guidelines on information technology and human resource management in the aviation industry. They will be able to use the findings of the study to formulate viable policy documents that effectively will in turn boost productivity. These may relate to regulating those aspects that threaten to adversely impact on the operations and development of such organizations.

The findings of this study will enrich existing knowledge and hence will be of interest to both researchers and academicians who seek to explore and carry out further investigations. It will provide basis for further research.

1.8 Delimitation of the Study

The study was made successful by easy access to company by researcher in gathering information regarding influence of ICT on the company's performance.

1.9 Limitations of the Study

This study was limited by the following factors:

Some respondents that were approached were reluctant in giving information demanding incentives to participate in the study. The research handled the problem by carrying out an introduction letter from the university and assuring the respondent that the information will be used purely for academic purposes.

Some respondents refused to be interviewed altogether. However the challenge was minimized by asking the respondents not to indicate their names on the research instrument as well as assuring them that the research will only for academic purpose.

1.10 Assumptions of the Study

As highlighted in the limitations, not all users were involved in the study-a sample was used to represent the whole population. Another assumption was that staff responding to questionnaires did so honestly and objectively.

1.11 Definitions of significant terms

ICT: the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware

Performance: The accomplishment of a given task measured against preset known standards of accuracy, completeness, cost and speed.

Statistical Package for Social Sciences: (SPSS): A software package applied in the analysis of data. It will provide with the frequencies and percentages to establish pertinent factors.

1.12 Organization of the Study

This chapter is divided into ten sections. Section one gives the background of the study while section two elaborates the statement of the problem. This is followed by section three giving the purpose of the study and section four summarizing the objectives of the study. Section five gives the research questions and section six discusses the significance of the study. The scope of the study is discussed in section seven while delimitation and limitations of the study are discussed in section eight and nine respectively. The chapter ends with section ten which discusses the assumptions of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter presents a review of the literature related to the study. Past studies are important as they guide the researcher on other studies done on the same. This chapter presents literature review on the role of ICT in the airline industry, ICT as strategy tools, areas of ICT usage in the airline industry, ICT revolutionised business processes and practices, ICT in the travel and tourism industries and historical developments and the use of ICT in the airline industry. This is presented in form of theoretical review, empiricism and later as conceptual framework.

2.1.1 The role of ICT in the airline industry

Information technology is heavily embedded in all levels of airline operations. Recently, the term has been broadened to explicitly encompass the electronic communication field, and the abbreviation ICT (Information and Communication Technology) is now widely used (Buhalis 2004; Gholami, Emrouznejad and Schmidt, 2008). Information and Communication technologies may be defined as "electronic means of capturing, processing, storing, and disseminating information" (Laudon and Laudon, 2007, p.44) and provide new mechanisms for handling existing resources and information.

Information and Communication Technologies (ICT) can provide powerful strategic and tactical tools for organizations, which, if properly applied and used, could bring great advantages in promoting and strengthening their competitiveness (Porter, 2001). Few other industries rely on so many partners to collaborate closely for delivering their products and few other value chains are as elaborate as the one for travel (Buhalis, 2008). All airlines rely heavily on ICT for their

operations and management and employ them for a wide range of business functions. As a result, ICT can impact airline costs and operational efficiency and there is evidence that well managed ICT can generate tremendous value for organisations (Lee, 2001).

2.1.2 Areas of ICT usage in the airline industry

The portfolio of solutions for airline planning and control ranges from network planning, code share handling, crew management, to pricing, price distribution and revenue management (Christensen, 2000). Airline ICT is further supplemented by business intelligence services, marketing and sales solutions. Two main groups of airline business functions supported by ICT include; first, an airline's flight operational activities and the second its business management and control functions. As far as operations are concerned, ICT contribute to the optimisation of flight related procedures and processes (Doganis, 2001).

Doll (2004) points out that airline operations supported by ICT include dispatch and coordination of flights and related resources namely crew, aircraft, passenger and freight processing, and airport facilities such as gates, ramps, baggage handling etc. From a business management and control point of view, airlines employ ICT in most functions, from administrative tasks and accounting to financial management, human resources and procurement (Verville, 2003).

Agusdinata (2002) states that airlines use technology to develop and manage their business model as well as to monitor the external environment and competition, undertake revenue analysis, forecasting, maintain historical data, predict demand, and design desirable products. ICT are critical for monitoring and forecasting the performance of Strategic Business Units (SBUs) and for deciding which markets airlines should penetrate and how. Routes and crew

planning, frequency of service, choice of aircraft and developing relationships with strategic partners are key functions supported by ICT (Buhalis, 1998).

2.1.3 Information and Communication Technology and Performance of airline industry

According to Allen and Morton (2004) Information and Communication Technology (ICT) refers to a wide range of computerized technologies. Webster and Robins (1986) assert that ICT is any technology that enables communication and the electronic capturing, processing and transmission of information. These technologies include products and services such as desktop computers, laptops, handheld devices, wired or wireless intranet, business productivity software such as text editor and spread sheet, enterprise software, data storage and security, network security and so on. ICT is an integrated system that incorporates the technology and infrastructure required to store, manipulate, deliver and transmit information (Martin, 2002).

Adeosun et al. (2009) state that the use of ICT enables strategic management, communication, collaboration, information access, decision making, data management and knowledge management in organizations. ICT causes fundamental changes in the nature and application of technology in businesses. ICT can provide powerful strategic and tactical tools for organizations, which, if properly applied and used, could bring great advantages in promoting and strengthening their competitiveness (Buhalis, 2004). Hengst and Sol (2001), state that ICT enables organizations to decrease costs and increase capabilities and thus assist to shape inter-organizational coordination. The use of ICT can assist to lower coordination cost and increase outsourcing in organizations. ICT is used to exchange information and it provides a medium for learning. Ramsey et al. (2003) note that organizations generally stand to gain from ICT in areas

such as reduced transaction costs, information gathering and dissemination, inventory control, and quality control.

Hengst and Sol (2001) point out that ICT support the strategic management of airlines by empowering long-term decision making and by providing a platform for collaboration and transactions between partners. They also help the entire industry to operate by empowering internal processes, co-ordinating partners, as well as by interacting with prospective travellers and the general public. As a result, the recent ICT developments have revolutionized the entire system and have profound implications for both the strategic and tactical management of airlines. More importantly they have dramatically changed the industry structure and altered the competitiveness of all players in the marketplace.

From a strategic point of view, Buhalis (2004) assert that airlines use technology to develop and manage their business model as well as to monitor the external environment and competition, undertake revenue analysis, forecasting, maintain historical data, predict demand, and design desirable products. ICT are critical for monitoring and forecasting the performance of Strategic Business Units and for deciding which markets airlines should penetrate and how. Routes and crew planning, frequency of service, choice of aircraft and developing relationships with strategic partners are key functions supported by ICT. Similarly strategic pricing and yield management are also supported by running complex algorithms to establish best performance and profitability levels (Feldman, 2007).

ICT are critical for the operational management of airlines Gholami *et al.* (2008). There are several requirements including check-in, allocation of seats, generating a number of reports and orders, such as flight paths, weather forecasts, load and balance calculations, manifests for airport immigration and security authorities, in-flight catering orders and crew rosters. ICT also assist a number of functions including inventory and reservations management as well as ticketing. Airlines have bases and distributors around the world, particularly at destinations they serve. Hence, they need efficient co-ordination and communications with stations, branches, distributors, and customers globally.

Kevin (2006) points out that interaction with distributors, travel agencies, and other distributors can determine levels of sales whilst efficient invoicing and revenue collection is critical for both cash flow and profitability. Airlines have also been investing in Customer Relationship Management programmes in order to improve their direct communication and to manage their loyalty clubs. Increasingly, e-Ticketing instigates paperless transactions, while offering significant savings. Tactical pricing, yield management, and special offers and promotions are all facilitated by constantly assessing traffic and by taking both proactive and reactive measures to adjust demand and supply. ICT also facilitate e-Procurement and management of suppliers and partners on a regular basis. Most airlines use standardized software to undertake those functions and to generate the reports (Gholami *et al.*, 2008).

According to Gholami *et al.* (2008) airlines usually have a wide network of hubs to support, Station Control Systems monitor all kinds of connections on a hub and report on operational details, such as aircraft turns, crew connections, passenger, baggage, and cargo connections.

Airports and airlines need to work together to reduce aircraft turn-around times and to shorten passenger connection times. These systems also help station managers plan their operations and ensure that all resources are in place to service each flight. Baggage handling and monitoring systems allow airlines to increase their efficiency and to track every bag as it moves through the system. This also ensures that no baggage is transported without its owner, as per International Civil Aviation Organization regulations. The systems support reconciliation procedures of checked passenger baggage enable airlines to ensure security, reduce operating costs, and improve passenger satisfaction without compromising punctuality (Gholami *et al.*, 2008).

2.2 Communication Networks and Performance

Communication networks are the patterns of contact that are created by the flow of messages among communicators through time and space (Koellinger, 2005). The concept of message should be understood here in its broadest sense to refer to data, information, knowledge, images, symbols and any other symbolic forms that can move from one point in a network to another or can be co-created by network members. Airlines have bases and distributors around the world, particularly at destinations they serve. Hence, they need efficient co-ordination and communications with stations, branches, distributors, and customers globally. Interaction with distributors, travel agencies, and other distributors can determine levels of sales whilst efficient invoicing and revenue collection is critical for both cash flow and profitability (Gholami *et al.*, 2008).

Koellinger (2005) states that communication plays a central role in these embedding and disembedding processes as it provides the information, knowledge, and motivation that enable people to envision alternative relations. As early communication technology enabled people to

communication at a distance, organizations came to be organized by time. Branding and communication of principles are critical for airlines at the strategic level. Managing communications with all stakeholders, including investors, press, employees and customers, is of paramount importance. ICT-enabled communications assisted airlines to interact with all their stakeholders and to update them with regards to their initiatives and developments (Christensen, 2000).

2.3 Mobile Phone Technology and Performance

The mobile phones have been a key ICT product that has affected business practices positively (Vulkan, 2008). As it is with technology, mobile telephony has not been left behind and has also evolved rapidly. Today's mobile phone is a communication gadget (voice calls and text messages), a personal organizer (calendar, notes and task functionality), a personal digital assistant, an entertainment unit and an Internet browser (Dennis, 2007). One can access their e-mails from their mobile phones. With this capability, individuals can view documents, edit and save them on the phone. This generation of phones has popularly come to be known as smart phones and PDA (personal digital assistants) or palmtops.

A number of airlines purchase and maintain mobile phones to be used by their staff. The aim of this is to ensure that staff has the ability to permanently access information and services independent of time and place through their mobile phones hence interaction with colleagues and superiors on official matters hence boosting productivity which is critical for both cash flow and profitability (Kevin, 2006).

2.4 Hand held devices and iPads and Performance

According to Gholami *et al.* (2008) ICT support all business functions and are critical for operating in the airline industry as a whole. ICT provide the tools such as handheld devices iPads to search for meaningful and profitable niche market segments, to identify value added components for the product and to promote differentiated products through specialized media to particular market segments.

Cost effectiveness and flexibility are critical assets contributed by ICT in this process, as they assist cost reductions and maximize efficiency. The influence of handheld devices such as iPads on airlines is pervasive, as information is critical for both day-to-day operations as well as the strategic management of organizations. On the strategic level, airlines have to continuously assess all elements of their external environment, as well as their competition and customer needs, and consequently, adapt themselves in order to enhance their competitiveness (Kevin, 2006).

2.5 Internet Applications and Performance

The emergence of the Internet in the mid 1990s as well as the development of Intranets and Extranets forced airlines to refocus their strategy on technological innovations in order to enhance their competitiveness. Airlines identified the Internet as a major opportunity to tackle distribution costs and to reengineer the structure of the industry. In the Internet era, GDSs as independent business from airlines developed their offerings to provide the backbone for the entire industry to establish the info-structure for the transactions undertaken by a number of Internet travel portals. In addition, they gradually reinvented themselves to main technology

suppliers for a wide range of tourism organisations including airlines, travel agencies and Internet travel portals (Feldman, 2007).

According to Agusdinata (2002) internet early adopters, including both well-established and newly-founded airlines identified a clear opportunity. They invested heavily in order to develop their on-line brand name and to capture a significant market share. Pioneers included established airlines, such as American Airlines, and newcomers such as Bratthens, Rynair and Easyjet that adopted the Internet from the early stages. Several carriers even painted their aircraft with their Internet address whilst they arranged special promotions with newspapers to drive traffic to their web sites. They provided incentives for consumers to book online and ensured that they were not distributed through the GDSs, in a way forcing their clients online (Feldman, 2007).

No frills airlines, empowered by the Internet and other ICT tools, made the industry reengineer itself as it introduced a number of ICT-enabled innovations including: electronic/paperless tickets, transparent and clear pricing led by proactive and reactive yield management, single fare tickets with no restrictions on staying or Saturday nights rules, commission capping and publication of net fares, financial incentives for self-booking online, auctions and online promotions, powerful customer relationship management systems and online and context-relevant advertising (Doganis, 2001).

Shon and Chang (2008) assert that suitable extranets and inter-organizational systems are required to facilitate airline interaction with their regular suppliers. Airlines are customers of airports, air control systems, and other authorities such as immigration and customs. Airlines,

therefore, regularly exchange information with airport authorities and air traffic control systems. These flows include requests for landing slots and docking gates, informing about arrivals and departures, altering slots, declaring flight paths, and coordinating operations. Although many airlines and airports still rely on printed forms and telephone communications, a good percentage of the interviewees suggested that ICT-enabled systems are currently constructed to support these processes.

A number of airlines gradually developed or adopted electronic environments for data exchange with the Customs and Airport Authorities in their main stations. Extranets assisted them to develop reliable and direct connections and enhance their efficiency. E-Procurement is also a major force for Extranets. As airlines regularly purchase products and services, such as fuel, aircraft parts, and catering, B2B applications allow them to benefit from cost savings and efficiency (Gholami *et al.*, 2008).

2.6 ICT revolutionised business processes and practices

The recent ICT developments have enormous implications for the operation, structure and strategy of organisations. According to Evans and Wurster (2007) the competitiveness of future economies will, to a great extent, depend both on the development and application of these technologies. The proliferation of the World Wide Web forced most organizations to rethink the way they do business and how they can reengineer their business processes. As businesses can interact more efficiently, competent businesses became digital and networked, facing a whole range of fresh opportunities and challenges (Dennis, 2007).

Bocij *et al.*, (2003) points out that the e-Commerce revolution is evident on a global basis, although the level of success often depends on a wide range of local factors. Porter (2001) illustrates that ultimately technology can totally transform the way an entire business is done. ICT contribute towards efficiency, productivity and competitiveness improvements of both inter-organisational and intra-organisational systems. The relationship between ICT and competitive advantage and performance is still unclear. Although there is an indirect and complex casual relationship between ICT and profitability, it is difficult to be quantified and generalised (Austin and Darby, 2003).

According to Bocij *et al.* (2003) technology has already revolutionised a wide range of functions including business functions, external environment monitoring, communicating with partners and with consumers at large. Clear strategic goals and commitment are prerequisites for the development of an appropriate e-Commerce strategy and the development of web sites and other technological solutions. The emergent mobile technologies and mobile commerce are expected to change drastically a number of industries and to force organisations to reconsider their strategic management (Evans and Wurster, 2007).

2.7 Historical developments and the use of ICT in the airline industry

According to Feldman (2007) airlines are advanced users of ICT and a number of airline functions rely heavily on ICT. Distribution and collaboration with partners is perhaps one of the most critical areas of ICT contribution. Many low-cost carriers rely exclusively on ICT for displaying their availability and for communicating and transacting with their clientele. ICT are equally important in operations management and contribute to the optimisation of procedures

and processes as well as for softer service elements such as in-flight entertainment and customer service (Verville, 2003).

Airlines have been investing heavily in ICT since the 1950s. According to Agusdinata (2002) they have pioneered the introduction of ICT as they realised, fairly early, the need for efficient, quick, inexpensive, and accurate handling of their inventory to communicate with travel agencies and other distributors. Carriers appreciated that reservations could no longer be on manual display boards, where passengers were listed, as they expanded their fleet and routes. Up to the 1970s, most travel agencies had to locate the best routes and fares for their customers in a manual (such as the Official Airline Guide and the World Airways Guide ABC). They then had to phone for availability, reservation and confirmation before issuing a ticket manually.

In the 1970s, the USA air transportation deregulation enabled airlines to change their routes and fares as frequently as desired. This generated an enormous growth of air traffic as well as a greater demand for information (Christensen, 2000). Hence, the demand for efficient and effective internal and external communication with all airline stakeholders stimulated the development of CRS as central planning administration and commerce platforms for airlines. CRSs allowed airlines to improve their internal organisation and also provided a powerful tool to manage their inventory. They also enabled airlines to communicate with travel agencies, consolidators and other distributors and to update routes, availability, and prices constantly. Carriers used the newly emerging computer technology to manage reservations and fare data more accurately and efficiently (Feldman, 2007).

2.8 Theoretical literature

The utilization of ICT tools has an important influence on the organization and all of its elements including people, culture, structure, process and tasks (Leavitt and Pondy, 1964). Researchers try to focus on these aspects and how they affect ICT application in context. According to FuHo (1996) there are three major roles for ICT administrative, operational and competitive and it is the competitive one that is becoming most important.

Moreover, Marchand *et al* (2004) recommended four dimensions for describing ICT practices: operational support, business process support, manages support and innovation support. On the administrative level, Lengange et al, 2000; Pinsonneault and Rivard, 1998, suggest that ICT is an effective tool to share, convert, accumulate and establish knowledge management systems that influence the organizational management philosophy and the way organizational members are managed, also ICT is making possible fundamental changes and improvements in the way management work and improving decision making.

Lengange et al, 2000; Brynjolfsson, 1993; Rogers 1983; suggested that ICT application influence the nature of organizational structure, processes, procedures, internal and external communication process and organization size. In contrast, Ayob (2000) claims that most end users of ICT believe that the benefit and use of ICT is for carrying out basic operational activities with only limited use for management. Moreover, extensive use of ICT may create some kind of uneasy relationship between the workers and new ICT. The relatively open social system in the office may be replaced by a rigid, highly structured and electronic based social environment, which will create the feeling of social isolation (Dennis, 2007).

2.9 Conceptual Framework

The study will be guided by the conceptual framework as shown in Figure 2.1 relating the dependent and independent variables.

Independent Variables

Dependent Variable

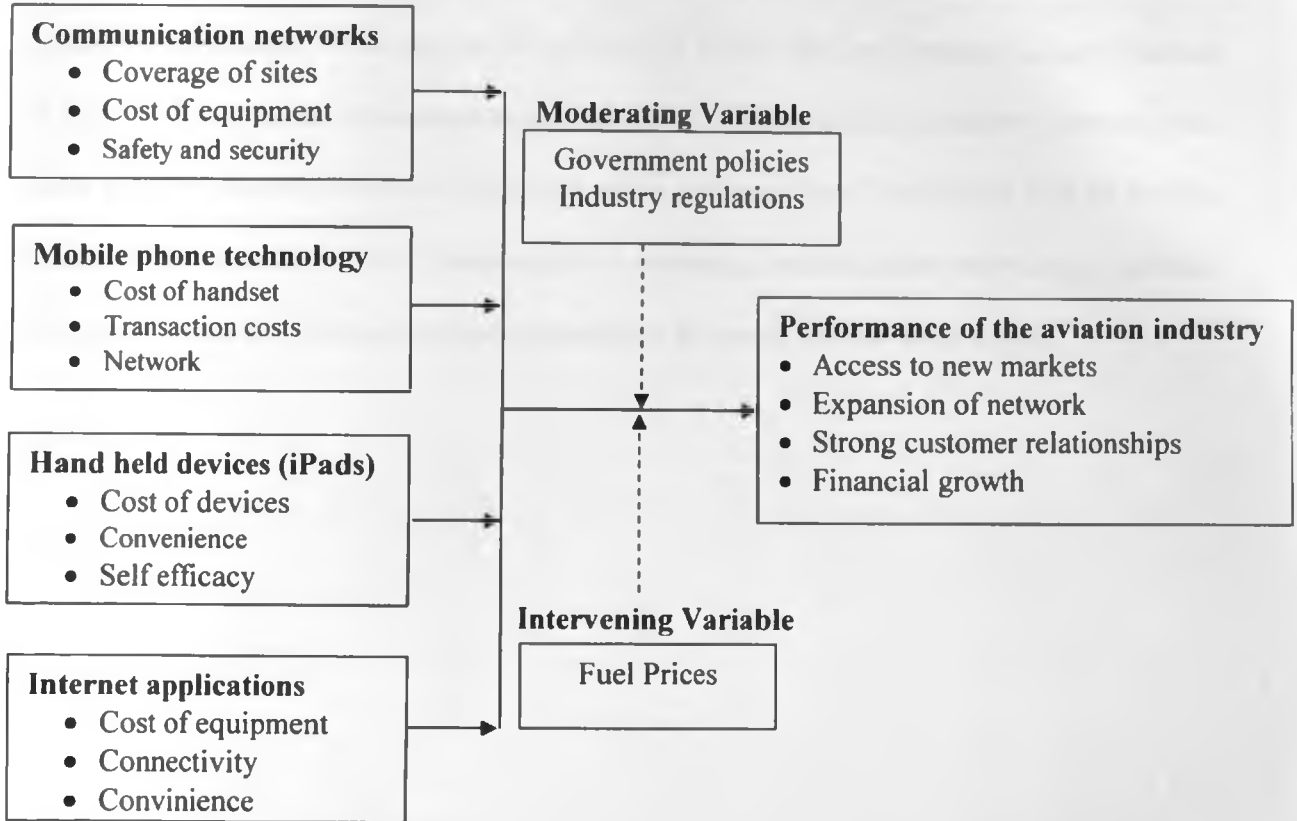


Figure 1: Conceptual Framework

In this framework, there are certain factors influencing information communication and technology in the aviation industry. For this study, four factors are considered as the independent variables. Performance of the aviation industry is the dependent variable that is affected by the independent variables as shown above.

2.10 Summary of Literature Review

This chapter is divided into eight sections. Section one gives an introduction of the topic. Section two covers the role of ICT in the airline industry and section three covers the specific areas covered by ICT in the airline industry. Section four shows how ICT has revolutionized business processes and practices while section five covers ICT in the travel and tourism industry. Section six looks at the historical developments and the use of ICT in the airline industry. Section seven shows how the Internet revolution has had an effect on the airlines. The chapter ends by looking at each of the specific aspects: communication networks, mobile phone technology, handheld devices and iPads and Internet applications and how they would affect performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the methods that was used for the study and adopted the following structure: research design, population and sample, population description, data collection methods, research procedures and data analysis and methods.

3.2 Study Design

The study adopted a descriptive survey design which according to Churchill (1991) is appropriate where the study seeks to describe the characteristics of certain groups, estimate the proportion of people who have certain characteristics and make predictions. The study aimed at collecting information from respondents on influence of information and communication technology on the performance of the aviation industry in Kenya. Khan, (1993) recommends descriptive survey design for its ability to produce statistical information about aspects of education that interest policy makers and researchers.

Descriptive survey research designs are used in preliminary and exploratory studies to allow researchers to gather information and summarize, present and interpret data for the purpose of clarification (Orodho, 2003). According to Mugenda and Mugenda (2003) the purpose of descriptive research is to determine and report the way things are and it helps in establishing the current status of the population under study. The design was chosen for this study due to its ability to ensure minimization of bias and maximization of reliability of evidence collected.

3.3 Study Population

The population who were targeted comprised the entire Kenya Airways-Kenya office staff. This is made up of a total of 4200 employees who were included in the sample. The study targeted the Nairobi office which comprises of 620 employees. Nairobi was selected as the study site due to proximity to the researcher, time available for research and budgetary constraints.

3.4 Sample Size Selection and Sampling Procedure

In this section, the study outlines how a sample is selected and the sampling procedure used.

To determine the size of the sample used, the Yamani Taro (1967) formula was used. It states that the desired sample size is a function of the target population and the maximum acceptable margin of error (also known as the sampling error) and it expressed mathematically thus:

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = sample size

N = target population

e = maximum acceptable margin of error (5%)

Thus in this study, the desired sample size given that there is approximately 620 staff in the Nairobi office is:

$$n = \frac{620}{1 + 620 (0.05)^2}$$

$$n = 244$$

The research uses a 5% margin of error, therefore, 244 respondents were targeted by the use of questionnaires.

Simple random sampling was adopted for this study by use of random numbers generated by a computer program. To enable the researcher generalize findings to the whole population, a total of 244 employees was used. Statistically, in order for generalization to take place, a sample of at least 30 must exist (Wiersma, 2005).

3.5. Data Collection Procedure

The study collected both primary and secondary data. Primary data was collected from respondents using an anonymously filled questionnaire distributed to respondents by providing access to the online survey form by sending out notification emails. The results were available online immediately after every respondent has finished answering the questions.

3.6. Instruments Validity

The research instrument used for this was self administered questionnaires. Validity shows whether the items measure what they are designed to measure (Borg and Gall, 1989). Pre-testing was conducted to assist in determining accuracy, clarity and suitability of the research instrument Borg and Gall (1989) notes that two to three cases are sufficient for some pilot studies. For this study, a sample of five was sufficient. Content validity was examined to ensure the instruments would answer all the research questions (Borg and Gall, 1996). Based on the analysis of the pre-test results, the researcher made corrections, adjustments and additions to some research instruments.

3.7 Instruments Reliability

This is the dependability, consistency or trustworthiness of a test. The research instrument used for this was self administered questionnaires. This was done by using two different but equivalent forms of an instrument to the same group of people or research object during the same time period. Although the items (questions) were different, they would sample the same content and they would be constructed separately from each other. Questions were pretested before the actual study to ascertain their appropriateness and relevancy to the study. The test items were divided into two halves with items matched on content and difficulty and the scores of the two halves will be scored separately. (Cohen, Manion and Morrison, 2007)

The Pearson product-moment correlation coefficient result was 0.86. A correlation is considered strong when the negative result is from -1.0 to -0.5 and when the positive result is from 0.5 to 1.0. (Cohen, 1988)

3.8 Research Instruments

The study relied on data collected through a questionnaire structured to meet the objectives of the study. According to Mugenda and Mugenda (2003), questionnaires are commonly used to obtain important information about a population under study. Each item is developed to address specific themes of the study. Each respondent selected was briefed on how to fill in the questionnaire. The respondents were given a time frame within which they were to respond to the questionnaire after which the questionnaire was collected by the researcher on the agreed time. The study used questionnaires because it is less costly and not time consuming.

3.9 Data Analysis

The process of data analysis involved data clean up and explanation. The data was then be coded and checked for any errors and omissions (Kothari, 2004). Frequency tables and percentages were used to present the findings. Responses in the questionnaires were tabulated, coded and processed by use of a computer Statistical Package for Social Science (SPSS) version 17.0 programme to analyze the data. The responses from the open-ended questions were listed to obtain proportions appropriately and the response then reported by descriptive narrative.

Table 3.1: Operational Definition of Variables

Research Objectives	Variable	Indicator	Measurement	Tools of Analysis	Types of Tools
To study the influence of communication networks on the performance of an airline	Coverage of sites, cost of equipment, safety and security	-Very positive -Positive -Fairly positive -Negative -Very Negative	Likert scale	Quantitative	Percentages and frequencies
To establish the influence of mobile phone technology on the performance of an airline	Cost of handset Transaction costs Network	-very Positive -Positive -Fairly positive -Negative -Very Negative	Likert scale	Quantitative	Percentages and frequencies
To investigate the influence of handheld devices and iPads on the performance of an airline	Costs of devices, convenience, self efficacy	-Very effective -Effective -Fairly effective -Not effective	Likert scale	Quantitative	Percentages and frequencies
To study the influence of Internet applications on the performance of an airline	Perceived self efficacy Safety and security Convenience Reduced costs	-Very satisfied -Satisfied -Fairly satisfied -Not satisfied	Likert scale	Quantitative	Percentages and frequencies

3.10 Ethical considerations

While this research will contribute to the knowledge of information communication and technology, it maintained utmost confidentiality about the respondent. The researcher ensured that all respondents were given free will to participate and contribute voluntarily to the study. In addition, the researcher ensured that necessary research authorities were consulted and permission granted and due explanations given to the respondents before commencement of the study.

3.11 Summary

This chapter presents a description of the study design, target population, sampling methods and procedures, description of the research instruments and generation of the data for the current study.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter is presented in four sections. The first section looks at the demographic information of the respondents. The second section looks at influence of ICT, section III looks influence of communication networks and section IV looks at influence of mobile phones on performance of aviation industry. The data has been presented in tables. The responses were analyzed using descriptive statistics.

4.2 Demographic Information

4.2.1 Response Rate

Out of 244 questionnaires which had been administered to the interviewees, 240 of them were returned for analysis. This translates to 98.4 percent return rate of the respondents. Overall, the response rate can be considered to have been very high as shown in Table 4.1;

Table 4.1: Response Rate

Response Rate	Frequency	Percent
Issued	244	100.0
Returned	240	98.4
Not returned	4	1.6

4.2.2 Background information of the respondents

The study sought to find out the distribution of the respondents by gender to know which gender is the majority in the aviation industry. This is for general information and is not a direct objective of the study. The findings are presented in the Table 4.2:

Table 4.2: Distribution of respondents by Gender

Gender	Frequency	Percent
Male	139	58
Female	101	42
Total	240	100.0

From Table 4.2, it is evident that majority of the respondents who participated in the study were males represented by 58.0% and followed by females 42.0%. This could imply that the aviation industry in Kenya is largely dominated by males.

4.2.3 Distribution of respondents by age

Because of differences in the peoples' age groups, the study sought to find out age brackets of the respondents so as to know which bracket are the majority in the aviation industry. This is for general information and is not a direct objective of the study.

The results are shown in the Table 4.3:

Table 4.3: Distribution of the respondents by age

AGE	Frequency	Percent
Below 20 years	0	0.0
21-30 years	110	45.8
31-40 years	110	45.8
41-50 years	20	8.2
Above 50 years	0	0.0
Total	240	100.0

From the Table 4.3, majority of the respondents who participated in the study represented by 45.8% are aged between 21-30 years and 31-40 years (45.8%). The table further reveals the rest are aged 41-50 years (8.2%). This could imply that majority of employees in the aviation industry of Kenya are middle aged probably reason being they tend to retain their employees or employ experienced staff from other sectors.

4.2.4 Distribution of the respondent by education level

The study sought to find out the education level of the respondent. This is for general information and is not a direct objective of the study.

The results are shown in Table 4.4;

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KIKUYU

Table 4.4: Distribution of the respondent by education level

Education Level	Frequency	Percent
Diploma Level	10	4.2
Undergraduate Level	150	62.5
Postgraduate Level	80	33.3
Total	240	100.0

Figure 4.2 shows that more than half of the respondents (62.5%) have attained undergraduate level of education, 33.3% have attained postgraduate level of education and the minority (4.2%) has attained diploma level of education. The findings depict the aviation industry of Kenya employs well learned professionals who have attained tertiary level of education.

4.2.5 Duration of service

The study sought to find out if how many years the respondent has worked with the airline. This is for general information and is not a direct objective of the study. The results are shown in Table 4.5.

Table 4.5: Duration of service

	Frequency	Percent
Less than 1 year	30	12.5
1-3 years	120	50.0
4-7 years	80	33.3
8-11 years	0	0.0
Over 11 years	10	4.17
Total	240	100.0

Table 4.5 shows that half of the respondents (50.0%) have been with the airline for 1-3 years. The table further reveals that 33.3% have been with the company for 4-7 years, 12.5% for less than 1 year and 4.2% for over 11 years. The findings could give an implication that the airline industry in Kenya retains its employees and are probably good employers.

4.2.6 Distribution of the respondents by department/sections

The study further sought to find out the respondent's career orientation. This question was asked to understand the distribution of the careers of the respondents. The question was asked to show the extent of the use of ICT across departments. The results are presented in Table 4.6;

Table 4.6 Distribution of the respondents by department/sections

DEPARTMENT	Frequency	Percent
Ground Operations	140	58.3
Corporate Security	10	4.2
Finance/Supply Chain	2	0.8
Legal	1	0.4
Operations Control	18	7.5
Information Systems	29	12.1
Commercial	10	4.2
Marketing	10	4.2
Technical	20	8.4
Total	240	100.0

Table 4.6 shows that more than half of the respondents (58.3%) are from Ground services department, 12.1% are from Information Systems department, 8.4% are from Technical department; 7.5% from Operations Control, 4.2% from Commercial department, 4.2% from Marketing department, 4.2% from Corporate security, 0.8% from managing director's department and 04.% from Legal

4.3 Influence of ICT on performance of aviation industry

All the respondents (100.0%) agreed that Kenya Airways has adopted ICT to a large extent. All the respondents (100.0%) indicated that the adoption and use of ICT services has improved the performance of the airline.

4.3.1 Ways in which ICT has improved efficiency in the department

The respondent sought to find ways in which ICT has improved efficiency in the respondent's department. The responses given included: there is great productivity and efficiency; faster processing of passengers; immediate dissemination of info throughout the company; sharing of data between different departments; processing of enormous amounts of data; greater customer satisfaction; most of the company's operations have been automated which has led to easy accessibility of information; use of mobile devices means that staff can access information at any time they require it and not just during office hours; efficient communication technology based security products; monitoring of other departments processes is enhanced; it has enforced checks and balances across the different sections in the department in terms of well defined workflows thus enhancing accountability and efficiency in carrying out the day to day tasks at the department; accuracy, speed and volume of work done; improved process management.

The findings further revealed ICT has improved efficiency through; improved lead times in service delivery improved communication flow access to real time information; giving real time information thus helping in on time performance; they can now manipulate a cost related excel worksheet, save and resend wherever they are, without having to look for a laptop n modem or a cyber for that matter; effective use of the business process digitally automation of process;

reporting is incidences can be tracked and customer service measured easily; reduced communication costs; data accuracy through the use of industry standard communication platforms and using applications that validate against business rules; enables the flow of information within the organization; harness efficiencies such that more tasks can be done with fewer people; business modeling and simulations to see how a factor may impact a business; use of a website and related website technologies has assisted in increasing sales, reducing fraud cases, getting to know what our customers are saying about us and we in turn changing; paperless environment reduces costs robust systems to support operations; remote access redundancy; and it has allowed for information to be shared across departments and stations which is required for decision making and other operations to be efficient.

The study sought to find out what company ICT device(s) the respondents have in their disposal to enable them to perform their duties. This is a direct theme of the objectives of the study as it shows accessibility to the key aspects of the study.

The results are shown in Table 4.7:

Table 4.7: Company ICT device(s) at disposal to enable performance of duties

Devices	Frequency	Percent
Mobile phones	200	83.3
Desktop	100	41.7
Laptop	190	71.2
iPad or Tablet	20	8.3
Computer applications	200	83.3

Table 4.7 shows that majority of the respondents (83.3%) have company mobile phones and computer applications at their disposal to enable them to perform their duties. Table 4.4 further reveal 71.2% have company laptops, desktops (41.7%) and 8.3% the minority have iPads at their disposal to enable them to perform their duties at Kenya Airways. The findings give an implication that company ICT devices are useful executing duties to staff in the airline industry.

The study sought to find out from the respondents if as an individual, the provision of the items below has affected their performance at the workplace. This question is a direct subtheme of the study as it shows the relationship between accessing the different aspects shown and the performance of the airline.

The results are shown in Table 4.8:

Table 4.8: Effect of the ICT aspects on performance at the workplace

Item	Yes	No	Maybe	No response
	(%)	(%)	(%)	(%)
Mobile phones	95.0	4.0	0.0	1.0
Laptops and tablets	90.0	9.0	0.0	1.0
Communication networks	95.0	4.0	0.0	1.0
Computer applications	91.0	8.0	0.0	1.0

Table 4.8 shows that almost all the respondents agreed to the provision of mobile phones (95.0%), communication networks (95.0%), computer applications (91.0%) and laptops/tablets

(90.0%) affecting their performance at the workplace. The findings yet again affirm that company ICT devices are important in executing duties to staff in the airline industry.

The study sought to find out the level of agreement on the perceived indicators of how well an airline is performing. This is a direct subtheme of the study as it provides information on which are the perceived indicators of performance of the airline. The findings are revealed in Table 4.9:

Table 4.9: Perceived Indicators of Performance of an Airline

	Strongly Disagree (%)	Disagree (%)	Undecided (%)	Agree (%)	Strongly Agree (%)
Additional destinations	12.0	4.0	12.0	45.0	25.0
Positive cash flows	12.0	0.0	0.0	41.0	45.0
Diverse new markets	12.0	4.0	4.0	54.0	25.0
Increased number of passengers	12.0	4.0	0.0	41.0	41.0
Increased number of cargo	12.0	0.0	4.0	41.0	41.0
Customer loyalty	13.0	4.0	8.0	34.0	39.0
Large number of assets owned	12.0	29.0	16.0	25.0	16.0
Large number of employees	12.0	41.0	16.0	25.0	4.0
Low employee turnover	8.0	21.0	30.0	30.0	8.0

Table 4.9 reveals majority of the respondents agreed to diverse new markets (54.0%), additional destinations (45.0%), positive cash flows (41.0%), increased number of passengers (41.0%), increased number of cargo (41.0%), customer loyalty (34.0%), low employee turnover (30.0%), large number of employees (25.0%) and large number of assets owned (25.0%) as perceived indicators of how well an airline is performing. The table further shows that a large proportion strongly agreed to additional destinations (45.0%), increased number of passengers (41.0%) and increased number of cargo (41.0%) as perceived indicators of how well an airline is performing. However, 41.0% disagreed that large number of employees is a perceived indicator of how well an airline is performing.

4.4 Factors that have led to the use of ICT

The study sought to find out the extent of agreement with the factors that have led to use of ICT in the airline. This question is a direct sub theme to see what factors have led to the use of ICT.

The findings are revealed in Table 4.8:

Table 4.10: Factors that have led to use of ICT in the airline

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
	(%)	(%)	(%)	(%)	(%)
Convenience	8.0	0.0	4.0	47.0	39.0
Time Efficient	4.0	4.0	0.0	39.0	52.0
Help in making informed choice	4.0	0.0	4.0	39.0	52.0
Easy to use applications	4.0	0.0	18.0	63.0	13.0
Website with full information I need	4.0	0.0	13.0	52.0	30.0
I feel safe when using ICT	4.0	0.0	26.0	52.0	17.0
Accuracy of the information provided	4.0	4.0	17.0	52.0	21.0
Prompt response to customer enquiries	4.0	21.0	8.0	39.0	26.0

Table 4.10 reveals majority of the respondents agreed to ease of using applications (63.0%), website with full information needed (52.0%), feeling safe when using ICT (52.0%), accuracy of the information provided (52.0%), convenience (47.0%), prompt response to customer enquiries (39.0%), time efficient (39.0%) and help in making informed choice (39.0%) as factors that have led to use of ICT in the airline. The table further shows that a large proportion strongly agreed to

the following as being factors that have led to use of ICT in the airline: time efficient (52.0%), help in making informed choice (52.0%) and convenience (39.0%).

The study sought to find out the level of agreement to the following perceived challenges faced while using ICT services. This question is a direct sub theme of the study and was asked for the purpose of understanding what the challenges of using ICT are. The findings are revealed in Table 4.11:

Table 4.11: Perceived challenges faced while using ICT services

	Strongly Disagree	Disagree	Indifferent	Agree	Strongly Agree
	(%)	(%)	(%)	(%)	(%)
Delays due to network failures on transactions	13.0	13.0	8.0	52.0	13.0
Too many steps/procedure	8.0	25.0	12.0	37.0	16.0
System taking long to respond	4.0	21.0	13.0	52.0	8.0
Information available not clear	12.0	37.0	0.0	37.0	12.0
Systems failure while enquiring	8.0	16.0	0.0	58.0	16.0
Fraud cases	8.0	25.0	25.0	33.0	8.0
Slow speed of user adoption	4.0	12.0	8.0	66.0	8.0
Applications are complicated	12.0	54.0	16.0	16.0	0.0
Staff are not committed to ICT	12.0	33.0	20.0	25.0	8.0
There is skills/competence gaps among IT staff	12.0	29.0	0.0	54.0	4.0
Business and ICT activities are not integrated	12.0	29.0	12.0	33.0	12.0
Management not committed to ICT developments	16.0	29.0	4.0	41.0	8.0
Cost of the systems	4.0	13.0	8.0	47.0	26.0

Table 4.11 above reveals majority of the respondents agreed to slow speed of user adoption (66.0%), systems failure while enquiring (58.0%) there is skills/competence gaps among its staff (54.0%), system taking long to respond (52.0%), cost of the systems (47.0%), management not committed (41.0%), information available not clear (37.0%) and fraud cases (30.0%) perceived challenges faced while using ICT services. However, a large proportion disagreed to applications are complicated (54.0%), information available not clear (37.0%), staff are not committed to ICT (33.0%), management not committed (29.0%), business and ICT activities are not integrated (29.0%) and there is skills/competence gaps among its staff (29.0%) as perceived challenges faced while using ICT services.

The study sought to find out the extent to which ICT (devices, applications and networks) has affected the items below. This question is a direct sub theme of the study and was asked for the purpose of understanding the relationship between the impact of the use of ICT on the performance indicators. The findings are revealed in Table 4.12:

Table 4.12: Extent of Impact of ICT (devices, applications and networks) on Airline Performance

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
	(%)	(%)	(%)	(%)	(%)
Additional destinations	8.0	13.0	13.0	43.0	21.0
Diverse new markets	4.0	13.0	0.0	60.0	21.0
Diverse new markets	4.0	0.0	21.0	52.0	21.0
Increased number of passengers	4.0	8.0	21.0	52.0	13.0
Increased numbers of cargo	4.0	4.0	13.0	65.0	13.0
Customer loyalty	4.0	21.0	13.0	56.0	4.0
Assets owned	4.0	17.0	17.0	56.0	4.0
Number of employees	4.0	30.0	13.0	39.0	13.0
Employee turnover	8.0	21.0	26.0	34.0	8.0

Table 4.12 reveals majority of the respondents agreed to increased numbers of cargo (65.0%), positive cash flows (60.0%), assets owned (56.0%), customer loyalty (56.0%), increased number of passengers (52.0%), diverse new markets (52.0%), additional destinations (43.0%), number of employees (39.0%) and employee turnover (34.0%) as extent to which ICT (devices, applications and networks) has affected certain items in the airline industry. The table further shows that a large proportion of the respondents strongly agreed to diverse new markets (21.0%), diverse new markets (21.0%) and additional destinations (21.0%) extent to which ICT (devices,

applications and networks) has affected certain items in the airline industry. However, 30.0%, 21.0% and 21.0% disagreed to number of employees, customer loyalty employee turnover respectively as extent to which ICT (devices, applications and networks) has affected certain items in the airline industry

4.5 Additional suggestions and recommendations

The study sought to find out suggestions/recommendations on the influence of information and communication technology on performance of aviation industry. The responses given include: make use of ICT systems put in place; various products must be presented to this industry meaning that ICT security must not be compromised at all cost, products to curb fraud and money laundering should be put in place and always safe guard all the processes from interference from the terrorist; the aviation industry should adopt new technology and solutions as they emerge, and not look at information and communication technology as a cost but an investment which in the long run will contribute to increase in the efficiency of the different departments of the airline; airlines that embrace ICT have a competitive edge and customers are satisfied with the service;

The respondents further recommended; change management should be handled for employees of before computers; the more the staff automate processes the more they are able to save time which translates to money and they will have better storage and reference to historic information that help identify productive routes or seasons by use of intelligent software which can be a definitive tool in our flight scheduling which is the key determinant of our profit levels that ripples down the organizations structure; have more self service enabled services to improve

customer service; automate all critical processes to achieve efficiency, reliability and have control; the aviation industry is complex and most of this complexity can be managed via ICT, however, the risk is having very specialized applications that do not adapt dynamically to changes and trends in the Aviation Industry, thus, it is possible to invest heavily in ICT projects and still not realize the full benefit if the holy trinity of efficiency is not observed: people, processes and systems; transfer of knowledge should be quite key during IT projects; building in house capacity to handle IT systems policies and procedures that attempt to retain IT staff; while still in the integration stage, very soon aviation will be fully dependent on ICT; backup plans as well as alternative options are a good fallback as well as looking to keep some human aspects for interaction to be relevant; it helps to understand what the goals of the company are as the management are developing an ICT strategic plan; and alignment of business, management and ICT objectives is key.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The basic purpose of this chapter is to give the summary, conclusions and recommendation of the study. This was based on the research findings that is presented and discussed in the previous chapters.

5.2 Summary of findings

This study aimed at assessing the influence of information and communication technology on the performance of the aviation industry in Kenya. The task included; establishing the influence of satellite communication networks on the performance of Kenya Airways, establishing the influence of mobile phone technology on the performance of Kenya Airways, investigating the influence of handheld devices and iPads on the performance of Kenya Airways and establishing the influence of internet applications on the performance of Kenya Airways

The researcher reviewed previous studies with a view to establish academic gaps which the present study sought to bridge. This was done through library research. The procedure included: reading, evaluating the methodology employed in terms of design choice, target population, sample and sampling procedure data collection instruments (that is suitability, validity and reliability), data collection procedures, data analysis, findings and recommendations. The study

benefited so much from the literature review for it guided the present study by pointing to areas that need to be investigated.

The study employed quantitative research as the main approach to guide the study. The target population included 244 staff of Kenya Airways. The research instrument used in data collection was a questionnaire from the respondents. To ensure validity of the instruments, expert opinion was sought. Data analysis was started immediately after the field. Data was summarized into frequencies and percentages and presented in graphs, pie charts and tables.

5.3 Discussions

This section comprises of discussion based on the specific research objectives of the study.

The findings reveal that majority of the respondents were males aged between 21-40 years who have attained university's undergraduate level of education. The findings further reveal that half of the respondents who participated in the study have worked in Kenya Airways for 1-3 years, are customer and flight handling teams and are from the Ground Services department.

The findings reveal that all the respondents agreed that Kenya Airways has adopted ICT to a large extent and use of ICT services has improved the performance of the airline. The study agrees with the statement that utilization of ICT tools has an important influence on the organization and all of its elements including people, culture, structure, process and tasks (Leavitt and Pondy, 1964). The study findings reveal that majority of the respondents gave the following as ways in which ICT has improved efficiency in their department: there is great productivity and efficiency; faster processing of passengers; immediate dissemination of info

throughout the company; sharing of data between different departments; processing of enormous amounts of data; greater customer satisfaction; most of the company's operations have been automated which has led to easy accessibility of information; use of mobile devices means that staff can access information at any time they require it and not just during office hours; efficient communication technology based security products; monitoring of other departments processes is enhanced; it has enforced checks and balances across the different sections in the department in terms of well defined workflows thus enhancing accountability and efficiency in carrying out the day to day tasks at the department; accuracy, speed and volume of work done; improved process management.

Marchand *et al* (2004) recommended four dimensions for describing ICT practices: operational support, business process support, manages support and innovation support. The findings shows that we are further revealed that ICT has improved efficiency in the following ways; improved lead times in service delivery improved communication flow access to real time information; giving real time information thus helping in on time performance; they can now manipulate a cost related excel worksheet , they can save and resend documents wherever they are, without having to look for a laptop n modem or a cyber for that matter; effective use of the business process digitally automation of process; reporting is incidences can be tracked and customer service measured easily; reduced communication costs; data accuracy through the use of industry standard communication platforms and using applications that validate against business rules; enables the flow of information within the organization; harnessing efficiencies such that more tasks can be done with fewer people; business modeling and simulations to see how a factor may impact a business; use of a website and related website technologies has assisted in increasing

sales, reduced fraud cases, getting to know what our customers are saying about us and we in turn changing; paperless environment reduces costs robust systems to support operations; remote access redundancy; and it has allowed for information to be shared across departments and stations which is required for decision making and other operations to be efficient.

The findings further show that majority of the respondents have company mobile phones, computer applications, company laptops, desktops and with a small proportion having iPads to aid them to perform their duties. The findings also reveal that the provision of company mobile phones and communication networks has affected staff performance at the workplace.

The findings further reveal that majority of the respondents agreed to; diversification into new markets, additional destinations, positive cash flows, increased number of passengers, increased number of cargo, customer loyalty, low employee turnover, large number of employees and large number of assets owned to be perceived indicators of how well an airline is performing in which the respondents also agreed to be the extent to which ICT (devices, applications and networks) has affected positively at Kenya Airways.

The study findings depict majority of the respondents agreed to ease of using applications, website with full information needed, feeling safe when using ICT, accuracy of the information provided, convenience, prompt response to customer enquiries, time efficient and help in making informed choice as factors that have led to use of ICT in the airline.

The findings further reveal that majority of the respondents agreed to: slow speed of user adoption, systems failure while enquiring, there is skills/competence gaps among its staff, system taking long to respond, cost of the systems, management not committed, information available not clear, and fraud cases as perceived challenges faced while using ICT services.

5.4 Conclusions of the Study

On the basis of the above findings, the following conclusions were made for influence of information and communication technology on the performance of the aviation industry in Kenya.

The study found that, the use of ICT services which the airline has adopted in a large extent has improved its performance. Some of the ways in which ICT has improved efficiency in the departments include; increased productivity and efficiency; faster processing of passengers hence greater customer satisfaction; immediate dissemination of information throughout the company; faster sharing of data between different departments; processing of enormous amounts of data; easy accessibility of information at any time; enforced checks and balances across the different sections in the department in terms of well defined workflows thus enhancing accountability and efficiency in carrying out the day to day tasks at the departments; accuracy, speed and volume of work done; improved process management; improved lead times in service delivery; improved communication flow access to real time information; reduced communication costs; data accuracy through the use of industry standard communication platforms and using applications that validate against business rules; use of a website and related website technologies has assisted in increasing sales, reduced fraud cases and paperless environment reduces costs robust systems to support operations.

The study found that majority of the employees of Kenya Airways have company mobile phones, computer applications, company laptops, desktops and a small proportion have iPads to aid them in performing their duties. The findings affirmed that the provision of company mobile phones and communication networks affects staff performance at the workplace.

The study asserts that; diversification into new markets, additional destinations, positive cash flows, increased number of passengers, increased number of cargo, customer loyalty, low employee turnover, large number of employees and large number of assets owned are perceived indicators of how well an airline is performing in which the study found that ICT (devices, applications and networks) affects the indicators of airlines performance positively.

The study affirms; ease of using applications, website with full information needed, feeling safe when using ICT, accuracy of the information provided, convenience, prompt response to customer enquiries, time efficient and help in making informed choice to be factors that have led to use of ICT in the airline.

The study further found that: slow speed of user adoption, systems failure while enquiring, there is skills/competence gaps among its staff, system taking long to respond, cost of the systems, management not committed, information available not clear, and fraud cases are perceived challenges faced while using ICT services in the airline industry.

From the study findings the study concludes that information and communication technology which includes communication networks, mobile phone technology, handheld devices such as

iPads and Internet applications influence the performance of the aviation industry in Kenya to a large extent.

5.5 Recommendations

On the basis of the above conclusions, the following recommendations were made for influence of information and communication technology on the performance of the aviation industry in Kenya.

From the findings the study recommends that; the airline industry should make use of ICT systems that have been put in place; various products must be presented to this industry meaning that ICT security must not be compromised at all cost, products to curb fraud and money laundering should be put in place and always safe guard all the processes from interference from the terrorist; the aviation industry should adopt new technology and solutions as they emerge, and not look at information and communication technology as a cost, but an investment which in the long run will contribute to increase in the efficiency of the different departments of the airline.

From the findings the study also recommends that airlines should; embrace ICT thus having competitive edge and customer satisfaction; change management should be handled for employees using computers; have more self service enabled services to improve customer service; automate all critical processes to achieve efficiency, reliability and control in the organization; build in house capacity to handle IT systems policies and procedures that attempt to retain IT staff; backup plans as well as alternative options are a good fallback as well as

looking to keep some human aspects for interaction to be relevant; management should develop an ICT strategic plan.

5.6 Areas for further research

This study sought to assess the influence of information and communication technology on the performance of the aviation industry in Kenya with particular reference to Kenya Airways attempting to bridge the gap in knowledge that existed. Although the study attained these, it mainly focused on one airline. There is need to replicate the study using many other airlines so as to find out the if there are any other factors influencing influence of information and communication technology on the performance of the aviation industry in Kenya.

The there is need to conduct a similar study which will attempt to find out if the use of ICT in attaining competitive advantage in the aviation industry of Kenya.

REFERENCES

- Adeosun, O., Adeosun, T., and Adetunde, I. (2009). Strategic application of information and communication technology for effective service delivery in banking industry. *Journal of Social Sciences*, pp 47-51.
- Agusdinata, W. (2002). The dynamics of airline alliances, *Journal of Air Transport Management*, vol 8, pp.201–211.
- Allen, T. and Morton, M. (2004). *Information Technology and the Corporation of the 1990s*, New York: Oxford University Press.
- Austin, R. and Darby, C. (2003). The Myth of Secure Computing. *Harvard Business Review*.
- Ayob, N. (2000). The Competency of Information Technology According to End User View who Works in Saudi Industry Companies. *Derasat*, pp161-186.
- Bocij, P., Chaffey, D., Greasley, A. and Hickie, S. (2003). *Business Information Systems: Technology, Development, and Management for the e-business*. 2nd ed., Financial Times Prentice Hall, Harlow.
- Borg, D. and Gall, F. (1989) *Case Study Research: Design and Methods*. London: Sage Publications.
- Borg, D. and Gall, F. (1996). *Quantitative Research: Design and Methods*. London: Sage Publications.
- Brynjolfsson, E. and Kahin, B. (2002). *Understanding the Digital Economy; Data, Tools, and Research*. The MIT Press, Cambridge, Massachusetts, and London/ England: Massachusetts Institute of technology.
- Buhalis, D. and Law, R. (2008). Progress in tourism management: Twenty years on and 10 years after the Internet: The state of eTourism research. *Tourism Management*, pp 609–623.

- Buhalis, D. (2004). eAirlines: strategic and tactical use of ICT in the airline industry. *Information and Management*, pp 805-825.
- Christensen, J (2000). IT and business: a history of Scandinavian airlines, Aarhus University Press, Århus, Denmark.
- Churchill, D. (1991). Research Design: *Qualitative, Quantitative, and Mixed Methods Approaches* (p.130-132).
- Cohen B, Manion C and Morrison A, (2007). *Essentials of education and social science research methods*. Canada: Masolp publishers, pp. 45-50.
- Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.)
- Cravens, A. (2000). *A Parallel Postsecondary Universe: The Certification System in Information Technology*. Washington, D.C.: U.S. Department of Education.
- Dennis, E. (2007). Information systems for sustainable competitive advantage, *Information and Technology*
- Doganis, R (2001). The airline business in the 21st century, Routledge, London.
- Doll, W. (2004). Information technology's strategic impact on the American air travel service industry, *Information and Management*, pp.269-275
- Evans, P. and Wurster, T. (2007). Strategy and the New Economics of Information. *Harvard Business Review*, pp70-82.
- Feldman, J. (2007). CRS in the USA: Determining future levels of airline competition, *Travel and Tourism Analyst*, vol3, pp.3-14.
- FuHo, C. (1996). Information Technology Implementation Strategies for Manufacturing Organizations. *International Journal of Operations and Production Management*, pp 77-100.

- Gholami, R., Emrouznejad, A., and Schmidt, H. (2008). *The Impact of ICT on Productivity of Airline Industry*. Operations and Information Management. Aston Business School.
- Hengst, M., and Sol, H. G. (2001). *The impact of information and communication technology on Inter-organizational coordination: Guidelines from theory*. Informing Science, Special Series on Information Exchange in Electronic Markets.
- Jacobsen, C., Gary, D., Cashman, W. and Tim, J. (2008). *Discovering Computers: Concepts for a Connected World*. Cambridge, Massachusetts: Course Technology.
- Kenya Airways Annual Journal, (2011). Kenya Airways, Brix Publishers, London. Eps.
- Kevin, J. (2006). Information technology and sustained competitive advantage: a resource-based analysis. *MIS Quarterly*, pp 487–505.
- Khan, L. (1993). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 4th Edition. McGraw Hill.
- Koellinger, P. (2005). Why IT matters – An empirical study of e-business usage, innovation, and firm performance (Discussion Paper 495). Berlin: DIW Berlin, German Institute for Economic Research.
- Kothari, C. R. (2004). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 4th Edition, New Age International. New Delhi, pp.12-15.
- Laudon, C. and Laudon, P. (2007). *Management Information Systems*. New Jersey. Prentice-Hall.
- Leavitt, H.W., and Pondy, L.K. (1964) *Reading in Managerial Psychology*. Chicago/USA: The
- Lee, S. (2001). Modeling the business value of information technology. *Information and Management*, pp191-210.

- Lengange, N., Davies, W., and Finbay, P. (2000). Measures to Assess The Impact of Information Technology on Quality Management. *International Journal of Quality and Reliability Management*, pp 42-66.
- Li-Hua, X. and Khalil, P. (2006). Review: the resource-based view and information systems research: review, extension, and suggestions for future research. *Management*, pp.131-136.
- Marchand, D. M., Kettinger, W.A., and Rollins, J. R. (2004). *Information Orientation: The Link to Business Performance*. New York/USA: Oxford University Press.
- Martin, E. (2002). *Managing Information Technology*, fourth ed. Addison Wesley, Upper Saddle River/ NJ.
- Msafiri, (2012). *Kenya Airways Inflight Magazine*, January- March Issue. Brix Publishers, London. Eps.
- Mugenda, O. and Mugenda, A. (2003). *Research methods: Quantitative and qualitative approaches*. 2nd. Rev. ed. Nairobi: Act press.
- Ngulube, P. (2003). *Preservation and access to public records and archives in South Africa*. Unpublished PhD Dissertation. Pietermaritzburg. University of KwaZulu-Natal.
- Orodho, A. (2003). *Elements of Education and Social Sciences, Research Methods*, Gaborone, Botswana, Mozilla Publication.
- Pinsonneault, A. and Rivard, S. (1998). *Information Technology and the Nature of Managerial Work: From the Productivity Paradox to the Icarus Paradox*, pp287-311.
- Poon, A. (2003). *Tourism, technology and competitive strategies*. Oxford: CAB International.
- Porter, M. (2001). *Strategy and the Internet*. *Harvard Business Review*, vol 2, pp63-78.

- Ramsey, E., Ibbotson, P., Bell, J., and Gray, B. (2003). E-opportunities of service sector SMEs: an Irish cross-border study. *Journal of Small Business and Enterprise Development*, pp. 250-64.
- Rogers, F. (1983). *Diffusion of Innovations*, 2nd ed. New York/USA: NY, Free Press.
University of Chicago Press.
- Shon, F. and Chang, Y. (2008). Airline e-Commerce: The revolution of ticketing channels, *Journal of Air Transportation*, pp.325–331.
- Verville, K. (2003). Computer reservation systems and airline competition, *Tourism Management*, pp.174-183.
- Vulkan, N. (2008). *The economics of e-commerce: A strategic guide to understanding and designing the online marketplace*. Princeton: Princeton University Press.
- Webster, Frank, and Robins, Kevin. (1986). *Information Technology—A Luddite Analysis*. Norwood, NJ: Ablex.
- Werthner, H. and Klein, S. (2005). ICT-enabled Innovation in Travel and Tourism. *Innovation and Product Development in Tourism*.
- Wiersma, A. (2005). *Research Methods: Quantitative and qualitative approaches*. New Age International, Newyork.

APPENDICES

APPENDIX I: TRANSMITTAL LETTER

Irene Irungu

P.O Box 30197

Nairobi,

2nd May 2012.

Dear Respondent,

RE: **DATA COLLECTION**

I am a student at the University of Nairobi. I am currently doing a research study to fulfill the requirements of the Award of Master of Project Planning and Management on the **INFLUENCE OF INFORMATION AND COMMUNICATION TECHNOLOGY ON PERFORMANCE OF AVIATION INDUSTRY - THE CASE OF KENYA AIRWAYS LTD.** You have been selected to participate in this study and I would highly appreciate if you assisted me by responding to all questions in the attached questionnaire as completely, correctly and honestly as possible. Your response will be treated with utmost confidentiality and will be used only for research purposes of this study only.

Thank you in advance for your co-operation.

Yours faithfully,

Irene Irungu

L50/76595/2009

Researcher

APPENDIX II: STRUCTURED QUESTIONNAIRE

Instructions: Please respond to the following questions and where applicable, mark the relevant box with a tick (✓).

Confidentiality: The responses you provide will be strictly confidential. No reference will be made to any individual(s) in the report of the study.

PART A: BACKGROUND INFORMATION

A1 – Respondents Profile

1. What is your gender?

Male Female

2. In which of the following age brackets do you belong?

Below 20 years 21-30 years 31-40 years 41-50 years

Above 50 years

3. What is your education level (state the highest level?)

Certificate Diploma Undergraduate

Post Graduate Other _____

4. How many years have you worked with the company?

Less than 1 year 1-3 years 4-7 years

8-11 years Over 11 years

5. What is your career orientation?

- Accounts Marketing Business Management
 IT Professional Technical Other _____

6. Kindly indicate your department _____

PART B: INFLUENCE OF ICT ON PERFORMANCE OF AVIATION INDUSTRY

7. In your opinion, has the adoption and use of ICT services improved the performance of Kenya Airways? Yes No

8. If yes to Q7, kindly indicate ways how ICT has improved efficiency in your department

9. What company ICT device(s) do you have in your disposal to enable you perform your duty?

- Mobile phone Desktop Laptop iPad or Tablet Computer applications

10. As an individual, has the provision of the ICT company devices in Q.9 enhanced your performance at the workplace?

	Yes	No	Maybe
Mobile Phone			
Laptops and tablets			
Communication Networks			
Computer Applications			

11. The following are perceived indicators of how an airline is performing. Please indicate your level of agreement

	Strongly agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Additional destinations					
Positive cash flows					
Diverse new markets					
Increased number of passengers					
Increased numbers of cargo					
Customer loyalty					
Large number of assets owned					
Large numbers of employees					
Low employee turnover					

12. The following are perceived challenges faced while using ICT services. On a scale of one to five, where; 5 = Strongly agree, 4 = Agree, 3 = Neutral, 2 = Disagree and 1 = Strongly Disagree, please indicate your level of agreement to the challenges below;

	Strongly agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Delays due to network failures on transactions					
Too many steps/procedures					
Systems taking too long to respond					
Information available is not clear					
Systems failure when using the systems					
Fraud cases					
Slow speed of user adoption					
Applications are complicated					
Staff are not committed					
There are skills/competence gaps among ICT staff					
Business and ICT activities are not integrated					
Management not committed to ICT development					
Costs of the system					

13. To what extent do you agree with the factors below that have led to the use of ICT at the airline? On a scale of one to five, where; 5 = Strongly agree, 4 = Agree, 3 = Neutral, 2 = Disagree and 1 = Strongly Disagree, please indicate your level of agreement to the challenges below;

	Strongly agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Convenience					
Time efficiency					
Helps in making informed decisions					
Easy to use applications					
Website with information that I need					
Information is safe and secure					
Accuracy in information provided					
Prompt response to customer queries					

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14. To what extent do you feel ICT (devices, applications, networks, has affected the items below? On a scale of one to five, where; 5 = Strongly agree, 4 = Agree, 3 = Neutral, 2 = Disagree and 1 = Strongly Disagree, please indicate your level of agreement to the challenges below;

	Strongly agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Additional destinations					
Positive cash flows					
Diverse new markets					
Increased number of passengers					
Increased numbers of cargo					
Customer loyalty					
Large number of assets owned					
Large numbers of employees					
Low employee turnover					

15. Please give suggestions/recommendations on the influence of information and communication technology on performance of aviation industry

THANK YOU FOR YOUR TIME AND COOPERATION