

**THE EFFECT OF ELECTRONIC COMMERCE ON THE FINANCIAL
PERFORMANCE OF AIRLINES IN KENYA. A CASE STUDY OF KENYA AIRWAYS.**

BY

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DECLARATION

This research project is my original work and has not been submitted in any other institution of learning for any academic award.

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DEDICATION

This project is dedicated to my lovely daughter Stephanie, my parents and siblings whose selfless love has enabled me to be what I am today.

My parent's devotion and dedication towards my education will remain stamped in my heart all the days of my life.

My sincere gratitude also goes out to my colleagues and friends for their constant encouragement and support throughout this journey.

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I am gratefully indebted to all those who have contributed to the success of this project. First and foremost I want to thank the Almighty Lord whose power has made me come this far. May His name be praised and adored.

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Many thanks go to the Kenya Airways staff for the support they gave me during data collection.

ABSTRACT

Electronic commerce has been widely used with the emergence of internet. The growth of internet over the years has changed business models on how they conduct their businesses. Advantages and disadvantages of e-commerce have been widely discussed, together with its impact in organizations performance. The study looked at the impact of e-commerce in financial performance.

The overall objective of the study was to investigate the impact of e-commerce on the financial performance of airlines in Kenya, and in this case Kenya Airways. The study analyzed the impact of e-commerce using Return on assets and Net income as the dependant variables while the web passenger numbers and agency commission were the independent variables.

Secondary data was collected from the company's published financial statements and other relevant financial reports. Data analysis was done by use of descriptive statistics, regression analysis and correlation tests with results being presented in tables. This analysis included descriptive information and the relationship between the return on assets and net income as the dependent variables and the number of passengers booked via web and the agency fees as the independent variables. Tests were carried out without and with fuel cost as the control variable.

The output from data analysis showed that there was a weak positive impact of the independent variables on the dependent variables and this may be because currently the percentage of online bookings in relation to the total number of passengers is low for it to have a great impact.

The study recommended that other measures of e-commerce can be analyzed in further studies. These may be non-financial benefits that also affect performance of the airline and other yardsticks that can be used to measure performance. Also, further studies may be done in global markets like Europe, Far East and Middle East where internet use is wide so that the impact of e-commerce can be analyzed since the markets have a high percentage of online bookings.

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LIST OF ABBREVIATIONS

AFRAA-Africa Airline Association

ANOVA-Analysis of Variance

BPM-Business Process Management

B2B-Business to Business

B2C-Business to Consumer

B2G-Business to Government

C2B-Consumer to Business

C2C-Consumer to Consumer

CRM-Customer Relationship Management

E-Commerce- Electronic Commerce

E-CRM-Electronic Customer Relationship Management

E-Business-Electronic Business

EDI-Electronic Data Interchange

EFT-Electronic Funds Transfer

FY-Financial year

IATA-International Air Transport Association

ICT-Information Communication Technology

IT-Information Technology

KAA-Kenya Airports Authority

KAAO-Kenya Association of Air Operators

KQ-Kenya Airways Limited

KSHS-Kenya Shillings

PAX No.s- Passenger Numbers

RM-Revenue management

ROA-Return on Assets

ROE-Return on Equity

SPPS-Statistical package of social science

CHAPTER 1: INTRODUCTION

1.1 Background of the Study

The Internet is creating a shared, real time commercial space and the degree to which corporations are leveraging the unique internet market space is an interesting research issue (Barnes & Hunt, 2001). In business terms, one of the most important developments to arise from the current swathe of technological advances is electronic commerce. E-commerce is simply trading electronically: transactions involved with buying and selling products, services and information over a network (Turban et al., 2000).

The number of Internet users around the world has been steadily growing and this growth has provided the impetus and the opportunities for global and regional e-commerce. However with Internet, different characteristics of the local environment, both infrastructural and socioeconomic, have created a significant level of variation in the acceptance and growth of ecommerce in different regions of the world. Over time, various studies have been conducted and models have been developed to identify diffusion of e-commerce in different environments. (Wolcott, et. al. 2001; Travica, 2002) These models have looked at “infrastructure” (e.g. connectivity hardware and software, telecommunications, product delivery and transportations systems) and “services” (e.g. e-payment systems, secure messaging, electronic markets, etc.) as the primary diffusion factors.

In addition to infrastructural issues, trust has been identified as one of the critical issues that confront businesses that are new or utilize new business models like e-commerce. Numerous studies have tried to find correlations between trust and experience with a new system, concept, or relationships, including a correlation to frequency of e-commerce activity and other researchers have noted that trust may be significantly influenced by culture of a given society. (McKnight and Chervany, 2001; Lee and Turban, 2001) Grabner -Kraeuter observes and states that trust is “the most significant long-term barrier for realizing the potential of e-commerce to consumers”, (Grabner-Kraeuter, 2002) and others state that trust will be a “key differentiator that will determine the success of failure of many Web companies”, (Urban *et. al*, 2000).

Managing the business processes that facilitate order fulfillment and delivery of goods and services supplied to customers is the prime concern of operations management. Consequently, the study of the processes of order fulfillment and delivery in the Internet era necessitates an understanding of the interaction between operations management and information systems (Lyons, 1998). Despite the growing importance of ecommerce to organizations of all types, e-operations is a neglected area of study. Yet many of the problems associated with ecommerce have centered on an inability to ‘deliver the goods’, often literally. Effective and efficient operations management is as important in e-commerce as it is in traditional business (John et al., 2002).

The adoption of e-commerce is tending to automate rather than re-design existing business processes. High levels of internal information systems integration appear to be associated with low levels of business process integration. Business process management is a systematic approach to improving an organization's business processes. BPM activities seek to make business processes more effective, more efficient, and more capable of adapting to an ever-changing environment (David et al., 2002).

There can be little doubt about the growing importance of e-commerce. Recent advances in technology have created a surge in “technology-based self-service” (Dabholkar 1996). Such developments are changing the way service firms and consumers interact, and are raising a host of research and practice issues relating to the delivery of e-service. Technology and e-commerce is one leading ‘driving force’ nowadays, in different businesses (Tavares, 2000).

1.1.1 E- Commerce

E-commerce is defined as the purchase or exchange of goods and services over the Internet, between individual consumers, businesses or other organizations. It started out in the 1970’s as an industry standard called EDI (Electronic Data Interchange) which was a structured way of exchanging data between companies, mainly to simplify purchasing and supply procedures. However, EDI required the usage of expensive and complicated private networks which nullified its impact on consumers and small enterprises. The advent of the World Wide Web, which used the Internet and its low cost and ease of entry, radically changed this landscape to allow access

by individual customers as well, thus revolutionizing trade forever (Rincon et al, 2001). The convenience of being able to purchase goods and services without time and geographical constraints has led to the rapid uptake of e-commerce, and one of the sectors at the forefront of the e-commerce revolution has been the air-travel industry.

Laudon and Traver, (2009) define electronic commerce as the use of the internet and the web to transact business or the use of digitally enabled commercial transactions between and amongst organizations. E-Business is the term used to describe the information systems and applications that support and drive business processes, most often using web technologies, e-Business allows companies to link their internal and external processes more efficiently and effectively, and work more closely with suppliers and partners to better satisfy the needs and expectations of their customers, leading to improvements in overall business performance, (National B2B Centre, p.16). This concludes that when e-commerce is combined with information systems of the firm it results to the firm doing e-business. The common element is the effective implementation of business activities using Internet technologies.

The technologies behind e-commerce are the internet and the worldwide web. According to Laudon and Traver, (2009) the internet is a worldwide network of computer networks built on common standards. Created in the late 1960's to connect a small number of mainframe computers and their users, the internet has since grown into worlds' largest network connecting over 1.2 billion computers worldwide. The internet links businesses, educational institutions, government agencies, and individuals together, and provides users with services such as e-mail, document transfers, newsgroups, shopping, research, instant messaging, music, videos and news.

The Internet is changing the way customers, suppliers and companies interact, creating huge opportunities as well as unforeseen competitive threats. In much the same way as it is redefining external relationships with suppliers, customers and alliance partners, the Internet is also changing the way companies work internally, collapsing boundaries and redefining relationships among different functions, departments and divisions. In just a few years, the Internet has profoundly affected the basis of competition in many industries. Instead of the traditional focus on product features and costs, the Internet is shifting the basis of competition to a more strategic level changing the business models that companies use to organize themselves, engage in

relationships and conduct their most basic transactions with customers and suppliers (Callahan and Pasternack, 1999).

Business to Business (B2B) is that model of e-commerce whereby a company conducts its trading and other commercial activity through the net and the customer is another business itself (Joseph, 2004). Business to Consumer (B2C) applies to any business that sells its products or services to customers over the internet for their own use. This includes information sharing. Business to Government (B2G) applies between companies and the public sector. Use of internet in public procurement, licensing procedures and other government related operations. Consumer to Consumer (C2C) applies between private individuals or consumers. Consumers to Business (C2B) transactions involve reverse auctions which empower consumer to drive transactions. For example, when competing airlines give a traveller best travel and ticket offers in response to the traveller's post that she want to fly from point to another. Mobile commerce is the buying and selling of goods and services through wireless technology (Hitesh et al., 2011).

E-commerce applications adopted by airlines in B2B include maintenance planning and control on revenue Management, revenue accounting systems, supply chain management and procurement and supplier relationship. B2C include implementing effective distribution channels like online selling, use of joint airline portals or online travel agents, effective customer relationship management systems, simplifying passenger travel through emphasis on self service, e-ticketing, automatic check-in, including baggage, common use of self-service check in kiosks, ticket changing, single Passenger Name Record, self-service check in, automated customer transfer (Rigas, 2006)

The concept of E-commerce is to support trade with the computing system with high dynamic and open information technology. E-commerce, also known as doing business without paper, which includes a messaging system, check, pay and product delivery. In this system, electronic data exchange, process communication (computer to computer applications) in the information business is a branch of this system. Trading partners (sellers, buyers or middlemen) global electronic market system meets the Internet. Electronic market is a system that connects computers to each other. All commercial activities from finding customers or suppliers,

negotiations, contracts, agreements and settle payments electronically place safely and efficiently (Turbans, 2006).

Technological advancement has become the strength point of a dynamic economy (resources). The recent increase in development of information communication technology (ICT) has provided suitable ground for the improvement of the organizations' performance. With the development of these technologies in business and trade, the organizational performance is gaining an unprecedented improvement. This improvement can obviously be investigated in operational, financial and market sectors. Organizations are increasingly seeing the benefits arising from e-commerce as they expand geographical coverage giving them a larger potential market into which they can sell their products and services (Rastogi, 2002). Some of the sectors that have high potential for early adoption of e-commerce are: Financial (stock exchanges and banks), automobiles industry, retail, tourism industry and manufacturing.

Some researchers argue that information technology has value but it is not a source of competitive advantage because infrastructure, technology and technical skills are easily copied and obtained (Hayes & Wheelwright, 1984; Barney, 1986).

Bharadwaj, (2000) argued that infrastructure information technology alone cannot be viewed as independent components. Developing integration infrastructure will take time, effort, learning experience and financial risk (Weil & Broadbent, 1998). Competitors will not receive the same results as a result of the investment in information technology and the same because not enough time, ambiguity and social complexity (Dierickx & Cool, 1989). For example, Dell and Nike have a complex arrangement of information technology and expand gradually in several years. Both have infrastructure information technology that has links with business activities that support coordination between business partners and customers worldwide. Routine and complex business relationships are difficult to be copied and copied, and the unique characteristics of information technology or ecommerce are also fixed. In all these situations where technological resources for information technology and ecommerce value, if it is not easily imitated, and if it is distributed throughout the various organizations, and is complex, it may be a source of competitive advantage.

E-commerce technology has the potential because it is able to integrate, develop and combine with other resources such as management skills, business networking, synergy information and customer networks. Research is seen together with the ability to rapidly changing environment (especially when technologies and markets still grow) may help to explain why e-commerce capabilities with excellent performance in the influence of an organization. Zhang and Lado's (2001), the involvement of information technology into a competitive advantage depends on the "How do and how it is used". In other words, whether e-commerce technology can be a source of organizational capability depends on how it is used to produce results. E-Commerce Technology does not have such features are rarely found, not moving and cannot be copied, but it is a source of complement to enhance the strength of other resources and capabilities and at the same time can reduce the weaknesses of other sources (Fay, 2000; Teng & Cummings, 2002). Without combination with other resources, use of information technology cannot achieve gains beyond normal levels. Thus the use of E-commerce can be considered as able to merge and integrate with other resources to create competitive advantage (Amit&Schoemaker, 1993; Bharadwaj, 2000).

1.1.2 Concept of Financial Performance

Performance is a contextual concept associated with the phenomenon being studied (Hofer, 1983). In the context of organizational financial performance, performance is a measure of the change of the financial state of an organization, or the financial outcomes that results from management decisions and the execution of those decisions by members of the organization. Since the perception of these outcomes is contextual, the measures used to represent performance are selected based upon the circumstances of the organization(s) being observed. The measures selected represent the outcomes achieved, either good or bad.

Most management research focuses on the determinants of performance. For instance, Kunkel (1991) proposed that new venture performance was a function of new venture strategy and industry structure. Kunkel tested the relationship between two independent variables and the dependent construct of new venture performance. The focus of Kunkel's research was on the hypothesized relationship between certain independent variables and certain dependent variables. The independent variables are proposed as determinants of the changes in the dependent

variable. The changes in the dependent measure are considered to represent “performance” caused by the variations in the independent measures. The critical point here is that performance as a concept involves measurement of the effects of organizational actions.

Performance is the outcome of all organization operations and strategies (Wheelen and Hunger, 2002). Measuring financial performance accurately is critical for accounting purposes and remains a central concern for most organizations. Performance measurement systems provide the foundation to develop strategic plans, assess an organization completion of objectives and remunerate managers (Ittner and Larcker, 1998).

Financial performance is essential to the survival of firms in the competitive and uncertain environment. Management is eager to learn how the effort of service quality improvement is related to an organization performance (Sousa and Voss, 2002). Financial performance ultimately reflects whether or not service quality is realized in a firm. Financial performance is conceptualized as the extent to which a firm increases sales, profits and return on assets. These are the indicators of financial performance and manifest the wellbeing of a firm collectively.

In this study, the performance of the airline is measured by its return on assets (ROA). Illo, (2012) defined ROA as the net income divided by total assets. ROA will reflect how well an airline’s management is in using the airline’s real investment resources to generate profits and the ROA is widely used to compare the efficiency and operational performance of airlines as it looks at returns generated from the assets financed by the airline. For this reason, ROA has been chosen as the dependent variable.

Another measure of profitability is the return on equity (ROE) which indicates how effectively the management of the enterprise is able to turn the shareholders’ funds (i.e. equity) into net profit. It is the rate of return flowing to the shareholders (Samad, 1999). Though not widely used as ROA, it is also a standard indicator to compare financial performance in organizations. The higher the ROA and ROE reflect higher managerial efficiency of the organization and vice-versa Illo (2011).

Hassan and Bashir, (2003) state that reasons for using ROA as one of the measurements of an organization’s profitability is that it shows the profit earned per unit of asset and reflects the

management ability to utilize real investment resources to generate profit. Furthermore, Rivard and Thomas (1997) argue that profitability is best measured by ROA because it is not distorted by higher equity multipliers.

1.1.3 E-commerce and Financial Performance

E-commerce allows firms to sell products, advertise, purchase supplies, bypass intermediaries, track inventory, eliminate paperwork, and share information. In total, electronic commerce is minimizing the expense and cumbersomeness of time, distance and space in doing business, which yields better customer service, greater efficiency, improved products and higher profitability (Asiabugwa and Munyoki, 2012)

To survive in the modern marketplace, air-travel businesses need to give consumers what they want, which is low prices and a wide choice. E-commerce affords them a way to do that, but to utilize it without diluting revenue, the airlines need to implement yield-management systems that can optimize revenue. These systems look at historical bookings and probable trends to forecast passenger's willingness to pay the asked fares. According to Yang (2001), the revenue management system should instantly determine the flights, itineraries, prices and number of seats to put on the web, as well as constantly monitor the markets for relevant indicators. Only under these circumstances would the airline be able to dynamically, optimally and proactively price all seats at varying price structures in a real-time response to customer requests. Reid and Bojanic (2006) define revenue management (RM) as "the combining of people and systems in an attempt to maximize revenue by coordinating the processes of pricing and inventory management."

According to de Alarcon (2005, Telefonica CSR), the actual cost per transaction goes down considerably with e-commerce based transactions as opposed to traditional ones. Online promotions are not only much cheaper than traditional promotions, such as travel catalogues and media advertising, but their interactivity and possibility of personalization also makes them more effective. A paper ticket costs on average five euros more than an e-ticket when everything is taken into consideration. Additionally, with Global Distribution Systems (GDS) and Customer Relationship Management (CRM) based reservation tools, the middleman i.e. the travel agent,

can be cut out, and thus the 5-25% commission that these charged can now be either passed on to the customer in savings or retained by the company as profit.

Rigas (2006) states that CRM is a quantum step in marketing where customer profiles are created on the airline database, customer's travel patterns, product and service priorities and much more. These are customized to the passengers' needs and airlines may charge a premium for this. CRM targets high yield passengers or those willing to travel off-peak thereby enhancing load factors. CRM comprises the acquisition and deployment of knowledge about customers to enable an airline to sell more of their product and service more efficiently (Flanagan and Sadie 1998).

According to Jiang, (2003) electronic Customer relationship management (e-CRM) involves far more than automating processes in sales, marketing, and service and then increasing the efficiency of these processes. It involves conducting interactions with customers on a more informed basis and individually tailoring them to customers' needs. There are only three ways to increase the profitability of a customer base; acquire more customers, optimize the value of existing customers, or retain the right customers longer. All of these benefits must be achieved with lower costs. Airlines realize that an integrated e-CRM strategy will allow them to manage customer and supplier relationships more effectively than ever before, allowing them to build long-term customer relationships, brand loyalty and repeat sales that result in increased, sustained profitability.

The challenge is how to overcome hurdles, minimize the risk and guarantee results. Rather than seeking all the answers before making an effective start in e-Business, companies should first define a clear roadmap of their objectives, implement and measure the success of a pilot project, and build from there. The greatest danger is allowing the pace at which the market and technologies are changing to delay the opportunity that is e-Business. The end result is a better bottom line-successful e-CRM can mean millions of dollars in incremental revenue from increased customer retention, greater revenue per customer, the ability to cross-sell and up-sell customers, better customer loyalty and greater customer satisfaction. That is the true potential of an IT infrastructure built around enterprise storage-something every company needs to consider as a means to gain competitive advantage in both the old and the new economy.

The GDS system has revolutionized air-travel behind the scenes, by “improving product distribution and customer service through dynamic ticket pricing and frequent flyer programmes” (Smith et al, 2001, Interfaces). The systems have consolidated information from airlines across the globe and in the process brought airlines, agents and consumers together in one big online marketplace. These have expanded to include ancillary services such as hotel reservations and car rentals, thus providing customers with more convenience and value-for-money while at the same time helping airlines to improve efficiency and generate extra income. Emmer et al. (2003) explain “travel agents’ computer systems, which were referred to as computer reservation systems (CRSs) for years, are now called global distribution systems (GDSs) because of their global marketing reach”. The four GDSs – Amadeus, Galileo, Sabre and World-span – have been referred to as “the backbone of the modern travel distribution system”

1.1.4 Airline Industry

Airline profits continue to be throttled down by the global economic downturn, high fuel costs and the prospect of ever more stringent environmental regulations. In order to survive and prosper in these conditions, airlines must rationalize their processes and increase asset utilization to a greater degree than ever before. This will require business-driven IT transformation—that is, the fundamental redesign and integration of business systems and processes within and across airline functions. Airlines will have to carefully manage the internal demand for IT services, implement project delivery methodologies that focus on business process design and change management, and adopt a sourcing strategy that enables them to match suppliers to project goals on the basis of the capabilities and degree of collaboration required. Those that do will be able to significantly raise their business performance and earn improved returns on their IT investments.

E-commerce has a significant impact on business costs and productivity and has a chance to be widely adopted due to its simple applications. Thus it has a large economic impact. It gives the opportunity for “boundary crossing” as new entrants, business models, and changes in technology erode the barriers that used to separate one industry from another. This increases competition and innovation, which are likely to boost overall economic efficiency. The potential value of ecommerce has received extensive coverage in research and trade publications with several successful e-commerce stories. E –commerce will open fresh sources of revenues and

opportunities for firms, it will bring more dialogue between business and consumer on a number of levels within the supply chain that will result in greater revenue generation. Airlines rely heavily on e-commerce for many purposes. One primary benefit is it reduces the number of employees needed, save money through lower costs of reservations, sales offices, advertising and agent fees and commissions (Hoq *et al.*, 2005)

Through the e-commerce platform, Airlines enhance their relationship with their passengers who will book directly with the airline rather than through travel agents. In addition, airlines increase their revenues through sales of optional services such as baggage, seat assignments and also ancillary services such as car-hire, hotels and insurance. E-commerce enables airlines to offer more services to customers, more channels to deliver their business, more intelligence to understand their business, greater efficiency and lower cost.

In the Financial year 2012/2013, direct costs on commission on sales for Kenya airways (KQ) were KES.4.2Billion. This has considerably increased overtime due to the proportionate increase in sales over rally. However, as web sales continue to increase, the agency commissions payable with respect to web sales have been zeroed since the passengers do not have to book via the agent but use the web. For KQ, web sales performance has continued to register improvements in response to various e-commerce initiatives that have been put in place to drive sales through this channel. The initiatives include new website look and a new web booking portal. During the FY12-13, a total of USD 34.8Million sales were driven through the web compared to USD 28.8Million in the FY11-12 representing a growth of 21%. At KQ, online sales are significant in Kenya, Europe and middle -East due to high internet penetration in these markets (Kenya Airways Limited Published Financial statements, March 2013). Online sites continue to strengthen the profitability by refining their business models and leveraging the capabilities of the internet.

Specifically, this study establishes whether there's an effect between the dependent variable i.e., financial performance measured by return on assets and the independent variables: Number of passenger transactions via the web and agency fee that should considerably decrease due to the direct use of the web platform as travel agents are by-passed.

1.2 Research Problem

The cutting edge for business today is electronic commerce. The main vehicle of electronic commerce unequivocally is the Internet and the World Wide Web. With the rapid advancement in the Internet software and hardware and the infrastructure, the electronic commerce is becoming more and more popular. Use of ICT in business has been able to make valuable strides towards achieving the goals of organizations that indeed has increased customer satisfaction and profitability. E-commerce integration covers a wide range of application such as electronic Marketing (Mazandarani, 2010) customer support services (Molla and Licker, 2001), electronic ordering and delivery (Senn, 2000) and electronic payment systems (Hua and Guan, 2000). Today e-commerce is perceived as a new business approach toward customer satisfaction and profitability since it is related to activities that improve efficiency and effectiveness of business activities leading to high organizational performance.

E-commerce is changing all business functional areas and their important tasks, ranging from advertising to paying bills. E-commerce has attracted significant attention in the last few years. This high profile attention has resulted in significant progress towards strategies, requirements and development of e-commerce applications (Upkar, 2002; Afshar et al., 2010). E-Commerce offers lower costs per business transaction, especially with respect to mailing and paper costs (Lawal, 2010). Fewer mistakes occur in paperwork because fewer people handle the data. Customer satisfaction is heightened due to better access to order and promotional data. The old rules are breaking down. Companies now share information with competitors, producing “competition”. Suppliers and buyers share information: Economic and cultural boundaries are disappearing – in some market segments businesses must be global (Johnson, 2003).

While various studies have been done in reference to e-commerce, none has been done in regards to the effect of e-commerce on the financial performance of airlines in Kenya depicting the existence of a knowledge gap. The various studies that have previously been done surrounding the aspects of E-commerce include a survey of potential for adoption of ecommerce by tour operators in Nairobi (Mbuvi, 2000), An investigation of the business value of e commerce (Muganda, 2001), A survey of the impact and challenges of Business ecommerce in Kenya

(Kiyeng, 2003), An evaluation of e-commerce application by microfinance institutions in Kenya (Kipkech, 2009). Wanyoike et al., 2012 did a study on ICT attributes as determinants of E-commerce adoption by formal small enterprises in urban Kenya, and they found that small formal enterprises in urban Kenya are influenced to adopt e-commerce by being able to observe visible results emanating from its use such as simplification of work routines, efficient coordination among various value chain partners and improved customers services that leads to customer satisfaction. These studies show the effectiveness of e-commerce applications on the improvement of operational performance of business. Eid (2011) studied the use of e-commerce in business management and concluded that the use of electronic commerce mechanisms is effective on market share and customer satisfaction of the companies.

Allen and Fjermestad (2001) showed that electronic commerce applications had a high impact on new products development and product quality improvement which itself increases the market share and customer satisfaction. Stroehle (2008) was of the opinion that the application of electronic commerce in the industry is influential on the improvement of the effectiveness of marketing activities. The financial effect of e-commerce in airlines has not been an area of emphasis in these studies and as such the reason for this study.

1.3 Research Objective

This research project will establish the effect of e-commerce on the financial performance of airlines in Kenya with specific reference to KQ which is the national carrier of Kenya.

1.4 Value of the Study

This study is of great importance considering that e-commerce has become a necessity in the airline industry to remain competitive.

The government of Kenya will be enlightened in a bid to make policies relating to e-commerce and IT in Kenyan corporations. The government shall be keen to harness the IT infrastructure in the country as the world continues to increasingly rely on the internet as the e-commerce platform. E-commerce has introduced new business models and competitive strategies requiring the government involvement to maintain a free, open, and competitive market place. Legislative

government branches will also have to set rules regarding unique economic aspects of e-commerce for example taxing online purchases for tax regimes where there is sales tax. In addition, e-commerce may require government rules to protect travellers from privacy and security issues.

The study is useful to airline management as airlines continue to invest heavily in IT as a necessity in order to show the potential benefits from a financial angle. Airline governing bodies like KCAA, AFRAA, KAAO and IATA can know the kind of support the airlines need and offer relevant training to enhance appropriate strategy development. Existing, current and potential investors in the aviation industry will get information trends in the airline industry as a result of strategy implementation. Travel agents are also made aware of the technology and other IT innovations in the low cost framework adopted by some airlines.

Customers will be able know the developments in the airline industry and they can be part of the future developments in the industry by actively giving their feedback and making use of the dynamic products being offered by the e-commerce platform through the airline websites.

As new challenges and opportunities emerge in the business environment, change is inevitable. This calls for continuous research to ascertain the actual situations rather than living on assumptions. The findings of this study therefore will prove useful to scholars and academicians who may wish to use them as a basis for further research on this subject.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter provides the theoretical review of the study. In the theoretical review two main theories have been covered, the technological organizational and environmental (TOE) model and the resource based view theory. The chapter will also focus on the various studies done with respect to ecommerce and IT and show how financial performance has been measured.

2.2 Theoretical Review

E-commerce is an unfolding phenomenon in view of technological advancement. From the research perspective, technological innovations have led to the development of various theories related to the diffusion of information technology (IT) and information systems (IS). A review of literature indicates that there is a rich stream of research focusing on technology diffusion on individuals and organizations (Cooper and Zmud, 1990). Some of the popular areas studied were on adoption and/or usage of different types of technologies such as electronic fund transfer (EFT), electronic data interchange (EDI), enterprise resource planning, adoption drivers, adoption barriers or hindrance, and many others. In the late 1990s, however, the focus seems to shift to e-commerce adoption. In line with the objectives of this research, the following subsections discuss one of the more popular models, i.e. the TOE model and the corresponding RBV theory in brief.

2.2.1 Technological, Organizational and Environmental Model

Realizing the importance of technology adoption, Tornatzky and Fleischer (1990) developed the TOE model to evaluate technology adoption. The TOE model is consistent with the theory of innovation diffusion in organizations by Rogers (1983). The model identifies three aspects of firm's characteristics that influence the process of adopting, implementing and using technological innovations (Robertson, 2005) which is explained below:

1. *Technological context.* Technological context describes both existing and new technologies relevant to the firm such as prior technology usage, and number of

computers in the firm which determines the ability of the firm to move to e-commerce and other technology initiatives.

2. *Organizational context.* Organizational context refers to descriptive measures related to organizations such as firm scope, firm size and managerial beliefs.
3. *Environmental context.* Environmental context focuses on areas which the firm conducts its business operations, with the priority given to external factors influencing the industry that have significant impacts on the firm such as government incentives and regulations.

According to De Pietro *et al.* (1990), the three suggested elements interact with each other in influencing technology adoption decisions.

One can safely conclude by drawing upon prior theoretical and empirical evidences that the TOE model has been a popular foundational model used for studying the drivers contributing to successful e-commerce initiatives from the interactions of the three characteristics, particularly in examining issues such as adoption, implementation and usage.

Dedrick and West (2003), however, believe that the TOE framework is just taxonomy for categorizing variables and does not represent an integrated conceptual framework or a well developed theory. However, they agree that the model is a useful analytical tool to distinguish between inherent qualities of an innovation itself and the motivations, capabilities, and broader environmental context of adopting organizations. As e-commerce has been viewed as a global technological innovation (Kraemer *et al.*, 2006), more meaningful insights on the whole process of e-commerce diffusion can be generated if the TOE model is used to study e-commerce adoption and value creation in conjunction with other theories or model. To achieve this, Zhu and Kraemer (2005) combined the TOE model with the RBV theory to study the post-adoption variations in usage and value of e-business. As the drivers of e-commerce are categorized into three characteristics; technology, organization, and environment, the value creation of e-commerce is analyzed from a resource-based perspective that stems from the unique characteristics of the internet, i.e. the front-end functionalities and back-end integration (Zhu, 2004). The next sub-section discusses the RBV theory and relates it to the current research.

2.2.2 Resource-based view (RBV) Theory

The RBV theory has been developed to facilitate the understanding of how organizations achieve sustainable competitive advantages (Caldeira and Ward, 2003). Rooted in the strategic management literature, the RBV theory focuses on the idea of costly-to-copy attributes of the firm as sources of business returns and as a means to achieve superior performance and competitive advantage (Conner, 1991). The theory argues that sustained competitive advantage is generated by the unique bundle of resources at the core of the firm where business owners build their businesses from the resources and capabilities that they currently possess or acquired. In general, the RBV theory addresses the central issue of how superior performance can be attained relative to other firms in the same market and posits that superior performance results from acquiring and exploiting unique resources of the firm (Saffu, 2004).

Prior Information System (IS) literature indicates that the RBV theory has been used to analyze IT capabilities (Mata *et al.*, 1995) and to explain how the business value of IT resides more in the organization's skills to leverage on IT as compared to the technology itself (Soh and Markus, 1995). It shows that the business value of IT depends on the extent to which IT is used in the key activities in the firm's value chain (Zhu and Kraemer, 2005). In relation to e-commerce innovation, the RBV theory is used to demonstrate how firms leverage their investments in e-commerce to create unique internet-enabled capabilities that determines a firm's overall e-commerce effectiveness (Zhu, 2004).

Although some people might argue that e-commerce technologies are already available in the software and hardware market (e.g. EDI and EFT) for which the investment in e-commerce will not create value, there is a counterargument that regardless of how commodity-like the technology is, the architecture that removes the barriers of system incompatibility and makes it possible to build a corporate platform for launching e-business applications is never a commodity (Keen, 1991). The costly-to-copy attributes of e-commerce capabilities are tightly connected to the resource base and embedded in the business process of the firms but the degree varies as the firms themselves are unique with respect to their resource endowments (Smith *et al.*, 2001). As such, the value creation through information sharing and the availability of online communities will lead to performance advantages in e-commerce (Lederer *et al.*, 2001).

Looking at the application of the RBV theory in discussing e-commerce usage and value creation, Zhu and Kraemer (2005) attempt to integrate the TOE model and the RBV theory as their conceptual model to assess the use and value of e-business in organizations. By investigating the e-business functionalities that make use of the unique characteristics of the internet, which consequently enable value creation, they posit that e-business leverages the unique characteristics of the internet to improve business performance. In this case, e-business capabilities are classified as front-end functionalities and back-end integration. The front-end functionalities refer to the medium in which customers interact with the marketplace. It refers to the seller's portal, electronic catalogues, a shopping cart, a search engine and a payment gateway. On the other hand, activities related to order aggregation and fulfillment, inventory management, purchases from supplier, payment processing, packaging, and delivery are known as back-end integration of the business (Turban *et al.*, 2006). By applying the RBV theory in looking at the post-adoption variations in usage and value of e-business, Zhu and Kraemer (2005) found that both front-end functionalities and back-end integration contribute to value creation of e-business, but back-end integration has a much stronger impact.

2.3 Review of Empirical Studies

Empirical evidences and results from various studies show similar trends on the positive impact of e-commerce and technological innovation.

Hoq *et al.*, 2005 studied the economic impact of e-commerce. The objectives of the study was to show the impact of e-commerce on business cost and productivity, to evaluate status of e-commerce, to identify how e-commerce reduces cost of customer services and after sales services. The study used secondary information from published books, journals and official statistical documents. Findings of the study were e-commerce reduces the cost of executing a sale, costs associated with the procurement of production cost and costs associated with making and delivering the product.

Dimitrios (2004) discusses that Information Communication Technologies (ICT's) have revolutionalized the entire business world. The airline industry in particular has fostered a dependency on technology for their operational and strategic management. Airlines were early

adopters of ICTs and have a long history of technological innovation, in comparison to many other travel and tourism businesses. This paper discusses comprehensive research, including exploratory research with airline executives, using qualitative methods to examine the use of ICTs in the contemporary airline industry and to discuss recent developments in the industry. The work demonstrated that the airline industry was using the Internet to improve its distribution strategy and reduce costs. It also used Intranets and internal systems to develop tactical and strategic management. In addition, Extranets were being gradually used for communicating with partners and to support business-to-business (B2B) relationships. The effort demonstrated that ICTs will be critical for the strategic and operational management of airlines and will directly affect the future competitiveness of airlines.

Jawabreh *et al.*, 2012 explored the impact of Information Technology on Profitability of Airlines Industry on Royal Jordanian Airlines. The data was collected from the financial statements of Royal Jordanian Airlines and analyzed by using financial and statistical tools. The main objective of the study was to examine the relationship between IT and financial performance by estimating the contribution of IT investment to airlines performance by financial ratios, in the same year of investment, the second year (one-year lag effect), or the third year of the investment (two-year lag effect). From this study, it showed that some ratios showed good results and the airline still had the opportunity to improve effectively its financial performance and long term and short term solvency in future.

Hammer (1990) stresses that organizations should “obliterate rather than automate” believing that technology are often introduced for technology sake without contributing to the overall effectiveness of the operation. However, traditional banks lack of resources usually result in a compromise situation (Vossen, 1999). It is important to link technology to innovation in sustaining competitiveness. Organizations that can combine customer value innovation (Kim and Mauborgne, 1999) with technology innovation have increased chance of enjoying sustainable growth and profit.

Wilson (1993), Freund , Konig and Roth (1997), Radeck, Wenninger and Orlow (1997), O’Sullivan (2000) and others have been engaged in unending discourse on the positive payoffs emanating from the utilization of IT in banks and other financial institutions. Such academic

debates have resulted in the origin of the term ‘information technology productivity paradox’ which is concerned with appraising the impact of IT on operational efficiency and the productivity of organizations.

A cursory look at the industry level studies of the nineties such as the works of Wilson (1993), Jordan, John and Kartz (1999), Furst, Lang and Nolle (1998) portray that in many instances a positive correlation is posited between increased investment in IT and productivity.

On the contrary, other works such as Strassman (1990), Morrison and Berndt (1990), Dos-Santos and others (1993) show that an additional investment in IT does not necessarily contribute positively to productivity. Such works argue that the estimated marginal benefits are less than the estimated marginal costs; that for each additional dollar spent in IT equipment, the marginal increase in measured output was only eighty cents. Brynjolfsson and Hitt (1996) noted that most of such results from researches account for what he referred to as the ‘economic theory of equilibrium’. This means increased profitability is not necessarily a by-product of increased spending in information technology.

Ojung’*a* (2005) investigated e-commerce services in commercial banks in Kenya. His study gave various outputs and some of them included bank to bank e-commerce service utilization, bank to customer electronic payments methods and extent of usage of electronic payment methods. The e-commerce services by commercial banks in Kenya has been influenced by the need to increase customer base, expand geographical reach, meet customer demands and keep pace with technological changes. The impact of the use of technology has led to improved customer service, increased revenue, reduction of operation and cost and increased market share. Magutu et al., (2009) modelled the effects of e-commerce adoption on Business Process Management: Case Study of Commercial Banks in Kenya.

Dinda (2010) Surveyed e-commerce Strategies and Models in Kenya. The study established the strategies and models that the Kenyan online companies have employed, the challenges they encounter and how to solve them so as to enjoy the e-commerce benefits and use them as a tool for strategic management of the organizations, by use of both qualitative and quantitative research approach. Web analysis and interviews were done to get data of all online companies.

Nyaanga (2007) did the effects of e-commerce adoption on business process management in commercial banks in Kenya and found out that most banks have embraced use of e-commerce and focused their businesses in collaborating with business partners and this has improved the image of the banks besides profit making. The results also showed that the major barriers encountered by banks in the increased use of e-commerce in business process management are conservative organizational cultures and lack of industry standards.

Korir (2005) studied the impact of e-commerce as a facilitating tool for business on tour operators in Nairobi and found out that many tour operators have embraced e-commerce and are applying it as business tool for business. Findings were that many tour operators enjoy the benefits of e-commerce as a tool of business. However, there are factors that are influencing the operations such as lack of privacy, insecurity in payments and information abuse.

A study on the effects of technological innovations on the financial performance of commercial banks in Kenya depicts that most Kenyans trust the use of the ATM as compared to other technological innovations. It also depicts that online account opening has not been widely used in Kenya (Kimmingi, 2010). A study on the relationship between IT conceptualization and bank performance depicted that organizations conceptualize IT as a means to create impact on its performance. Organizations make decisions to adopt IT due to industrial pressure. It concludes that firms invest in IT depending on its financial capabilities as well as its technical features. Organizational culture or value also influences firm's decision making on IT investment (Muasya and Nixon 2009).

Kariuki (2011) determined the relationship between the level of technological innovation and financial performance of the commercial banks in Kenya. The descriptive study found that commercial banks have continuously employed various technological innovations which have led to increased financial performance of commercial banks in Kenya through increased sales, return on equity and profits increment.

Asiabugwa and Munyoki (2012) study aimed at establishing the relationship between e-commerce strategy and performance of commercial banks in Kenya, and the factors influencing the adoption of ecommerce strategy. The study adopted a cross sectional design, and targeted

commercial banks in Kenya under the umbrella of Kenya Institute of Bankers Association (KIB). Data analysis was through measures of central tendency, dispersion and correlation analysis.

The results indicated that there was a strong relationship between the e-commerce strategy and performance of commercial banks in Kenya. The findings also indicated that the main factors which influenced the adoption of e-commerce strategy in banks to a larger extent are customer support service and the payment systems.

2.5 Conclusion from Literature Review

The literature review clearly reveals that e-commerce does create an impact on the performance of organizations. No research has been done to show the relationship between e-commerce and financial performance of airlines in Kenya.

This study therefore has brought out the ecommerce effects to airlines and tried to measure the value of e-commerce by focusing on the financial performance of the airline using the profitability ratio of Return on assets and net income over a period of ten years.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out various stages and phases that will be followed in completing the study. The chapter describes the methodology that was used to reach the objectives of the study. In this chapter, the research methodology is presented under the following sections; research design, data collection procedures and finally data analysis.

3.2 Research Design

This study employed descriptive case study research design. A descriptive study is concerned with determining the frequency with which something occurs or the relationship between variables. According to Cooper and Schindler (2003), a descriptive study finds out the who, what, where, and how of a phenomenon which is the aim of this study. The approach is appropriate for this study since the researcher collects detailed information through descriptions and is useful for identifying variables and hypothetical constructs.

According to Polit and Beck (2003), in a descriptive study, researchers observe, count, delineate, and classify. They further describe descriptive research studies as studies that have, as their main objective, the accurate portrayal of the characteristics of persons, situations, or groups, and/or the frequency with which certain phenomena occur.

3.3 Data Collection Method

The study was conducted using secondary data from the financial reports of Kenya Airways for a period of ten years from financial year March 2004 to March 2013. These reports included audited financial statements obtained either in soft or hardcopies, any publicly available information from the company websites and other websites and any useful financial reports that can give more detailed information.

Cooper and Schindler (2003) explain that secondary data is a useful quantitative technique for evaluating historical or contemporary confidential or public records, reports, government documents and opinions.

3.4 Data Analysis and Presentation

The quantitative data collected was analyzed by the use of descriptive statistics using Statistical Package for Social Sciences (SPSS) and presented through percentages, means, standard deviations and frequencies. This was done by tallying, computing percentages as well as describing and interpreting the data in line with the study objectives and assumptions through use of SPSS. The information was displayed by use of tables and in prose-form. Table presentations were used to present the data collected for ease of understanding and analysis.

The study used inferential statistics in the analysis. This included correlation and linear multiple regression. Parsons' correlation was used to test the relationship of the dependent and independent variables of the study, while linear multiple regression was used to test the impact of the independent variables on the dependent variable. Quantitative data was presented in form of tables while explanation of the same was presented in prose.

Regression model

The study adopted the following multiple regression model

$$\begin{aligned}Y_1 &= a + b_1X_1 + b_2X_2 + e \\Y_2 &= a + b_1X_1 + b_2X_2 + e \\Y_3 &= a + b_1X_1 + b_2X_2 + b_3X_3 + e\end{aligned}$$

Where:

Y_1 is the value of the Dependent variable (Y), what is being predicted or explained which is Return on Assets.

Y_2 is the value of the Dependent variable (Y), what is being predicted or explained which is Net Income.

Y_3 the values of return on assets and net income respectively with control variable X_3 .

a is the Constant or intercept.

b_1 is the Slope (Beta coefficient) for independent variable X_1 .

b_2 is the Slope (Beta coefficient) for independent variable X_2 .

X_1 is the First independent variable that is explaining the variance in Y, that is, Number of passenger transactions via the web.

X_2 is the second independent variable that is explains variable Y, that is, Agency fee on commission.

X_3 is the fuel control variable.

e- Error term

The study had to incorporate a control variable, fuel cost, in the study. This is to be able to get better insight of the analysis while controlling fuel, which is a major cost for the airline.

CHAPTER 4: DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

The main purpose of the study was to investigate the impact of e-commerce on the return on assets and profitability in Kenya Airways. This chapter contains the findings and the interpretation that will be used to ascertain the research objective of the impact of e-commerce on return on assets in Kenya Airways. Since the study uses regression analysis, it begins by analyzing the descriptive nature of the data, then the relationship between return on assets and number of web users and commissions on sales.

4.2 Data presentation

4.2.1 Descriptive Statistics

Table 1: Descriptive Statistics

	Net Income	Return on Assets	Web Pax No.s	Commission on sales	Fuel Cost
N Valid	10	10	10	10	10
Missing	0	0	0	0	0
Mean	1326.600	.106187192	75.70	3070.100	20862.200
Std. Deviation	4111.9894	.2133845539	45.721	650.2435	12288.9981

From Table 1 above, the descriptive information provided is the mean and standard deviation for return on assets, net income, number of web passengers, commission on sales and fuel cost. This information is for the past 10 years, making our N to be 10. Of concern from the data provided above is the standard deviation for all the variables that were used in the study. The high variability means that predictability of information for analysts, and even for the investors would be a problem. This can be seen from the standard deviation of net income, which was due to some losses made as at March 2009 and March 2013.

4.2.2 Return on Assets analysis

a) Without control variable

Table 2: Commission on Sales and Web Passengers on Return on Asset Regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.479 ^a	.229	.009	.2124228815

a. Predictors: (Constant), Commission on sales, Web Pax No.s

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.094	2	.047	1.041	.402 ^a
	Residual	.316	7	.045		
	Total	.410	9			

a. Predictors: (Constant), Commission on sales, Web Pax No.s

b. Dependent Variable: Return on Assets

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.162	.390		.414	.691
	Web Pax No.s	-.003	.002	-.576	-1.178	.277
	Commission on sales	4.826E-5	.000	.147	.300	.773

a. Dependent Variable: Return on Assets

The regression model provides three tables in the output for analysis. R usually represents the multiple correlation coefficients showing the quality of prediction, while the R^2 represents the proportion of variance in the dependent variable that can be explained by the independent variables. As shown in Table 2, R shows a value of 0.479 which indicates that the independent variables are low predictors of Return on Assets, while R^2 shows that the independent variables explain 22.9 percent of the proportion of variance of the dependent variable, return on Assets.

The ANOVA table tests whether the overall regression model is a good fit for the data. It tests the statistical significance of the test and also the F-Value which checks the variance both within the samples and the variance between the samples. The ANOVA table shows the F-Value and whether the independent variables statistically significantly predict the dependent variable. From the table, the output $F(2,7) = 1.041$, $p(0.402) > 0.05$ shows that the regression model is not a good fit of the data. The coefficients table showed that the independent variable coefficients, i.e. web passengers and commission on sales had a weak positive impact on return on assets.

The regression model in this case was:

$$Y = 0.162 - 0.003(\text{web passengers}) + 0.0000482(\text{Commission of sales})$$

b) With Control Variable: Cost of Fuel

Table 3: Commission on Sales and Web Passengers regression on Return on Assets with Fuel control.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.760 ^a	.577	.366	.1699282790

a. Predictors: (Constant), Fuel Cost, Commission on sales, Web Pax No.s

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.237	3	.079	2.731	.136 ^a
	Residual	.173	6	.029		
	Total	.410	9			

a. Predictors: (Constant), Fuel Cost, Commission on sales, Web Pax No.s

b. Dependent Variable: Return on Assets

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.600	.463		-1.294	.243
	Web Pax No.s	.003	.003	.611	.922	.392
	Commission on sales	.000	.000	1.297	1.999	.093
	Fuel Cost	-3.916E-5	.000	-2.256	-2.222	.068

a. Dependent Variable: Return on Assets

Table 3 provides the study with an R value of 0.760 which indicated that the independent variables are good predictors of Return on Assets, while R^2 shows that the independent variables explain 57.7 percent of the proportion of variance of the dependent variable, Return on Assets.

The ANOVA table above shows the F-Value on whether the independent variables statistically significantly predict the dependent variable. From the above table, the value of $F(3,6=2.731)$, and $p(0.136)>0.05$ showed that the regression model was not a good fit of the data. The coefficients table showed that the independent variable coefficients, i.e. web passengers and commission on sales with a control variable, cost of fuel, had weak positive impact on return on assets.

The regression model in this case was:

$$Y = -0.6 + 0.003(\text{web pax}) - 0.00003(\text{fuel cost})$$

4.2.3 Net Income Analysis

a) With no control variable

Table 4: Commission on Sales and Web Passengers regression on Net Income with no control

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.692 ^a	.479	.330	3364.9537

a. Predictors: (Constant), Commission on sales, Web Pax No.s

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.292E7	2	3.646E7	3.220	.102 ^a
	Residual	7.926E7	7	1.132E7		
	Total	1.522E8	9			

a. Predictors: (Constant), Commission on sales, Web Pax No.s

b. Dependent Variable: Net Income

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	16451.617	6179.820		2.662	.032
	Web Pax No.s	28.084	36.181	.312	.776	.463
	Commission on sales	-5.619	2.544	-.889	-2.209	.063

a. Dependent Variable: Net Income

Table 4 provides the study with an R value of 0.692 which indicated that the independent variables are statistically good predictors of Net Income, while R² shows that the independent variables explain 47.9 percent of the proportion of variance of the dependent variable, Net Income. The ANOVA table shows the F-Value on whether the independent variables statistically significantly predict the dependent variable. From the table above, the values F(2,7= 3.22), and p (0.102)>0.05 showed that the regression model was not good a fit of the data. The coefficients table showed that the independent variable coefficients, i.e. web passengers and commission on sales had positive levels of prediction on net income.

The regression model in this case was:

$$Y = 16451 + 28.084(\text{web sales}) - 5.619(\text{Commission of sales})$$

b) With control variable: Fuel Costs

Table 5: Commission on Sales and Web Passengers regression on Net Income with Fuel control

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.791 ^a	.626	.439	3079.2692

a. Predictors: (Constant), Fuel Cost, Commission on sales, Web Pax No.s

ANOVA^b

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.528E7	3	3.176E7	3.350	.097 ^a
	Residual	5.689E7	6	9481898.993		
	Total	1.522E8	9			

a. Predictors: (Constant), Fuel Cost, Commission on sales, Web Pax No.s

b. Dependent Variable: Net Income

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6917.725	8397.016		.824	.442
	Web Pax No.s	97.462	56.005	1.084	1.740	.132
	Commission on sales	-.891	3.859	-.141	-.231	.825
	Fuel Cost	-.491	.319	-1.466	-1.536	.175

a. Dependent Variable: Net Income

Table 5 provides the study with an R value of 0.791 which indicated that the independent variables are positive predictors of Net Income, while R² shows that the independent variables explain 62.6 percent of the proportion of variance of the dependent variable, Net Income. The ANOVA table shows the F-Value on whether the independent variables statistically significantly predict the dependent variable. From the table above, F(3,6=3.350), and p(0.097)>0.05 showed that the regression model was not a good fit of the data. The coefficients table shows that the independent variable coefficients, i.e. web passengers and commission on sales have positive levels of prediction on net income (0.791).

The regression model in this case would be:

$$Y = 6917 + 97.462(\text{web passengers}) - 0.891(\text{Commission of sales}) - 0.491(\text{fuel cost})$$

4.2.4 Correlation matrix

Table 6: Correlation matrix

		Net Income	Return on Assets	Web Pax No.s	Commission on sales
Net Income	Pearson Correlation	1	.510	-.341	-.659*
	Sig. (2-tailed)		.132	.335	.038
	N	10	10	10	10
Return on Assets	Pearson Correlation	.510	1	-.468	-.277
	Sig. (2-tailed)	.132		.172	.439
	N	10	10	10	10
Web Pax No.s	Pearson Correlation	-.341	-.468	1	.735*
	Sig. (2-tailed)	.335	.172		.015
	N	10	10	10	10
Commission on sales	Pearson Correlation	-.659*	-.277	.735*	1
	Sig. (2-tailed)	.038	.439	.015	
	N	10	10	10	10

*. Correlation is significant at the 0.05 level (2-tailed).

From Table 6 above, analysis shows that web passengers has a correlation coefficient of -0.341 on net income, and a correlation coefficient of -0.468 on return on assets. The commission on sales has a correlation coefficient of -0.659 on net income, and a correlation coefficient of -0.277 on return on assets. The two independent variables, web passengers and commission on sales have a high correlation amongst each other. The high level of correlation between the independent variables brings a problem of multicollinearity in the regression analysis. This high correlation between the independent variables is the reason for significant differences between the standardized and un-standardized beta values from the tables.

4.3 Summary and interpretation of the findings

Data analysis was done from the provided data and regression was the main analysis done, with Pearson's correlation test done as a confirmatory test, as well as a test for multicollinearity through the independent variables correlation. For the regression analysis, four tests were done to ascertain whether the independent variables had an impact on the dependent variable. These tests were (i) web passengers and agency commission on sales (independent) on return on assets (dependent), (ii) web passengers and agency commission on sales (independent) on return on assets (dependent) with fuel cost as control variable, (iii) web passengers and agency commission on sales (independent) on net income (dependent) with no control variable, and (iv) web passengers and agency commission on sales (independent) on net income (dependent) with fuel as control variable.

From the regression analysis tests (i), the regression of web passengers and agency commission on sales on return on assets showed that the two independent variables were not good indicators of return on assets, with an R value of 0.479 and an R^2 value of 0.229. This value showed that the independent variables accounted for 22.9% of the variance of return on assets. The ANOVA value which tests whether the regression model is a good fit for the data had a value of 0.402, which was way above the significant value of acceptance of 0.05 and therefore indicated that the independent variable cannot significantly predict the dependent variable, return on assets.

From the regression analysis tests (ii), the regression of web passengers and agency commission on sales on return on assets with fuel cost as a control variable showed that the two independent variables were good indicators of return on assets, with an R value of 0.76 and an R^2 value of 0.577. This value showed that the independent variables accounted for 57.7% of the variance of return on assets. The ANOVA value of 0.136 was above the significant value of acceptance of 0.05 which indicated that the independent variables cannot significantly predict the dependent variable, return on assets.

From the regression analysis tests (iii), the regression of web passengers and agency commission on sales on net income with no control variable showed that the two independent variables were not good predictors of return on assets, with an R value of 0.692 and an R^2 value of 0.479. This

value showed that the independent variables accounted for 47.9% of the variance of return on assets. The ANOVA value of 0.102 was above the significant value of acceptance of 0.05 which indicated that the independent variable cannot significantly predict the dependent variable, return on assets.

From the regression analysis tests (iv), the regression of web passengers and agency commission on sales on net income with fuel cost as control variable showed that the two independent variables were not good indicators of return on assets, with an R value of 0.791 and an R^2 value of 0.626. This value showed that the independent variables accounted for 62.6% of the variance of return on assets. The ANOVA value of 0.097 was above the significant value of acceptance of 0.05 with indicated that the independent variable cannot adequately predict the dependent variable, return on assets.

Correlation study was also done to check the relationship of the dependent variables, return on assets and net income with the independent variables, web passengers and commission on sales. The study showed negative correlation between the dependent variables (return on assets and net income) and independent variables (web passengers and agency commission). However, there existed a relationship between the independent variables, number of online sales and agency commission on sales, a situation leading to multicollinearity which affects the output of the analysis.

The results above are contrary to the expectation that online ticketing would improve efficiency and reduce agency costs; hence increase profitability of a company. Other studies had indicated an improvement in profitability and return on assets as a result of web sales.

A closely related study was conducted on the impact of Information Technology on Profitability of Airlines Industry on Royal Jordanian Airlines. The data was collected from the financial statements of Royal Jordanian Airlines and analyzed by using financial and statistical tools. Hypothesis analysis was adopted to show whether IT investments had any impact on Financial performance or not. The findings were of negative relationships and further contributed to the debate of whether IT investment adds value in any way to quantifiable performance outcomes. The unexpected negative relations found emphasized the need to incorporate the contextual

features of qualitative studies so that it could be discovered what organizational factors are important in facilitating positive relationship between IT and profitability. Jawabreh *et al.*, 2012.

Hoq *et al.*, 2005 studied the impact of e-commerce on business cost and productivity, to evaluate status of e-commerce, to identify how e-commerce reduces cost of customer services and after sales services. The study used secondary information from published books, journals and official statistical documents. Findings of the study were e-commerce reduces the cost of executing a sale, costs associated with the procurement of production cost and costs associated with making and delivering the product hence improving profitability.

CHAPTER 5: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

The emergence of internet over the years has changed business models on how they conduct their businesses, with businesses conducting their businesses online. The study looked at the impact of e-commerce on financial performance. The overall objective of the study was to investigate the impact of e-commerce on the financial performance of airlines in Kenya, and in this case Kenya Airways. The dependent variables that were considered to analyze the study were return on assets and net income, while independent variables that were brought out that may measure the impact of e-commerce were number of web passengers and agency fees.

Secondary data was collected from the company's financial results for a ten year period and data analysis was done by use of descriptive statistics and regression analysis, together with Pearson's correlation test. The results were presented in tables. The analysis included descriptive information and the relationship between the return on assets and net income as the dependent variables, and the number of web passengers and the agency fees as the independent variables. Fuel cost was introduced as a control variables to have proper analysis of the data. Tests were carried out without and with the control variable.

The output from data analysis showed that there was weak positive impact of the independent variables, number of web passengers and agency fees on the dependent variables, return on assets and net income. This can be attributed to the small percentage of online bookings in relation to the total number of passengers for it to have a significant impact.

The study recommended that other measures of e-commerce can be analyzed in further studies. These may be non-financial benefits that also affect performance of the airline and other yardsticks can be used to measure performance. Also, studies may be done in other large airlines in global markets so that the impact of e-commerce can be analyzed since internet penetration is wider and there's likely to be higher percentage of online bookings.

5.2 Conclusion

The objective of the study was to ascertain the impact of e-commerce on financial performance of Kenya Airways. The results of the study showed that independent variables, number of web passengers and agent commission on sales, have a weak positive impact on return on assets and net income. This has made the study to conclude that the independent variables do not provide good prediction on the dependent variables. For return on assets, it was expected that web passenger bookings would greatly impact positively on return on assets, but it showed that it had no significant impact on the return on assets. This is because of the increase in total assets through purchase of aircraft by the airline that made the return on assets to reduce. This enabled the study to perform tests using net income as the dependent variable. This helped the study to hold the total assets constant. Agency commission costs had a weak positive impact on the return on assets. This could also be attributed to the fluctuation of return on assets as a result of total assets. The tests were done with fuel costs as a control variable and showed no major change in the output.

For net income analysis, it can be seen that there was positive impact of the web passengers on the net income of the company, though insignificant. This is because of the small percentage of online bookings as compared to the total number of passengers. The agency commission on sales variable had no impact on net income as expected, even though the impact was insignificant. There was some difference even with the introduction of control variables fuel costs.

Previous studies from the literature review showed that online bookings contributed positively to the financial performance of companies. This is because the percentage of e-commerce uptake is high as compared to Kenyan businesses. Online bookings reduce the total costs of passenger bookings and therefore improve profitability. With the growth in use of internet, e-commerce is expected to grow as the consumer demography is becoming internet literate. Future studies on the topic might indicate a different result from the one in this study as the economy continues to embrace e-commerce.

5.3 Policy Recommendations

With the growth of internet in the country as a result of fiber cable, e-commerce has not grown as it has been expected. This may be due to fear of online transaction due to online security fears. In Kenya Airways, despite online tickets being cheaper than normal ticketing, the uptake is still small. From the findings it has been shown that e-commerce has contributed little to the performance of the company. It is therefore important for the airline and other e-commerce stakeholders to come up with proper models of measuring e-commerce outcomes.

In this respect, the study therefore recommends companies to keep track of their online transactions. This will enable the company to adequately measure relevant output.

Measures of e-commerce to be clearly defined by companies as they vary from industry to industry, and therefore each company should be able to uniquely and effectively outline the true measure of e-commerce.

Companies should Sensitize and create awareness of e-commerce to their customers, at the same time providing adequate online security for them. Online security for internet users is important as people have been known to incur losses stemming from internet fraud.

5.4 Limitations of the study

The concept of e-commerce varies from one company to another since they adopt different business models with it. One of the limitations of the study was the derivation of exact variables to measure as an indicator of e-commerce impact. The use of return on assets and net income are some of the ways of measuring e-commerce impact but may not be adequate.

Also, the impact of e-commerce cannot be measured only in financial terms, but also in non-financial terms which are non-quantifiable. This was not taken into consideration when carrying out the study. Qualitative aspects also have an impact on performance of an organization.

The collection of secondary of data of the earlier years for web passengers was a bit of challenge due to numerous changes of information systems in the company. Therefore it took a bit of time.

5.5 Suggestions for Further Research

The study suggests that more insight research should be done on e-commerce in Kenya and other factors that may affect it, including other variables which may have further impact than currently analyzed. In particular, the impact of e-commerce may be done in international airline companies which have greatly embraced online bookings.

More empirical findings may be sought to determine a true linear relation of the independent variables and dependent variables. Indicators of e-commerce need to be expounded further and also the measurement of e-commerce outcome needs to be further explored.

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APPENDIX II: ANALYZED DATA

Year	Net Income	Total assets	Average Total assets	Return on Assets	Web Pax No.s	Commission on sales	Fuel Cost	Total No. of Pax
As at Mar	Kshs. Million	Kshs. Million	Kshs. Million		Thousands	Kshs. Million	Kshs. Million	Thousands
2004	1,302	29,408.00	26,831.50	0.0485251	23	2,056.00	5,187.00	1,701.17
2005	3,882	11,562.00	5,781.00	0.6715101	32	2,958.00	8,446.00	2,041.49
2006	4,829	17,853.00	23,630.50	0.2043545	44	2,797.00	13,221.00	2,386.25
2007	4,098	77,287.00	44,424.50	0.0922464	52	2,560.00	15,887.00	2,601.35
2008	3,869	76,780.00	47,316.50	0.0817685	52	2,799.00	15,623.00	2,762.05
2009	(4,083)	74,931.00	76,109.00	-0.0536467	56	3,295.00	24,555.00	2,824.71
2010	2,035	73,263.00	75,021.50	0.0271256	88	3,246.00	18,819.00	2,890.21
2011	3,538	78,743.00	76,837.00	0.0460455	130	2,785.00	24,778.00	3,136.79
2012	1,660	77,432.00	75,347.50	0.0220313	151	3,927.00	40,714.00	3,644.49
2013	(7,864)	122,670.00	100,706.50	-0.0780883	129	4,278.00	41,392.00	3,664.84