

**THE EFFICACY OF INFORMATION AND COMMUNICATION
TECHNOLOGY IN CREATING COMPETITIVE ADVANTAGE
IN 3-5 STAR-RATED HOTELS IN NAIROBI, KENYA**

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UNIVERSITY**

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DECLARATION

This Thesis is my original work and has not been presented for a degree or for any other award in any other University.

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DEDICATION

I dedicate this work to my late father, Mr. Isaya Onyango who made alot of sacrifices to give me my earlier education.

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OPERATIONAL DEFINITIONS OF KEY TERMS

- Competitiveness** Pertains to the ability and performance of a firm, sub-sector or country to sell and supply goods and services in a given market, in relation to the ability and performance of other firms, sub-sectors or countries in the same market, (Porter, 1985).
- Competitive Advantage:** These are the benefits accruing to a firm in terms of revenue and the firms' position in the market share, which is manifested in improved performance in terms of better productivity and efficiency. It is a superiority gained by an organization when it can provide the same value as its competitors but at a lower price, or can charge a higher price by providing a greater value through differentiation. It can also be defined as an organizational capability to perform in one or many ways better than competitors find difficult to imitate (Kotler, 2000; Porter, 1985).
- Customer Relation Management:** Customer Relationship Management is an information industry term for methodologies, software and usually internet capabilities that help an enterprise to manage customer relationships in an organized way, such as building appropriate database for each client with the aim of synchronizing business processes such as sales activities, marketing and customer care services using technology (Henry & Lucas, 2005).
- Central Reservation System:** Is a computerized system that stores and distributes information and any other business transactions of a hotel, resort or other lodging facilities. It is also a tool used to reach the global distribution systems and the internet distribution systems from one single system.
- Employee Empowerment** A management practice of sharing information, rewards and power with employees so that they can take initiative and make decisions to solve problems and improve service and performance.

Global Distribution Systems	Global Distribution System is a computerized, centralized system that provides travel related transactions, covering everything from airline tickets, to hotel rooms and rental cars.
Information & Communication Technology	Information & Communications Technology is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware, software and satellite systems. For the purpose of this study, ICT is used to imply use of various technologies in the hotel industries (Tesone, 2006; O'Brien, 2004).
Marketing :	The activities of a company associated with buying and selling of a product or service. It includes advertising, selling and delivering products to people. People who work in a Marketing department of companies try to get the attention of a target group by using slogans, packaging design, celebrity endorsements and general media exposure.
Property Management System:	Property Management System is a system that integrates and coordinates the overall hotel's functions greatly increasing the operational efficiencies. It is also known as the Hotel Operating System (Hotel OS), (Kasavana, 2006).
Productivity	It refers to the volume of output produced from a given volume of input of resources. If a firm becomes more productive, it has become more efficient, since productivity is an efficient measure which has the ability to produce things of economic value (Krugman, 1994).
Return On Investment:	Return on investment is a performance measure used to evaluate the efficiency of an investment or compare the efficiency of a number of investments. It is a measure of the company's gain in monetary value (Porter. 1985)
Service Delivery:	A service delivery framework (SDF) is a set of principles, standards, policies and constraints used to guide the design, development, deployment, operation and retirement of services by a service

provider with a view of offering a consistent service experience to a specific community in a specific business context.

Hotels : A commercial establishment providing lodging, meals and other guest services. A hotel can qualify to be termed as a hotel by having six letting rooms, at least three of which must be attached (ensuite). Hotels can also be classified into 'star' categories.

ABBREVIATIONS & ACRONYMS

ANOVA	Analysis of Variance
CRS	Central Reservation System
HRM	Human Resource Management
ICT	Information and Communication Technology
IT	Information Technology
OHRS	Online Hotel Reservation System
PMS	Property Management System
ROI	Return on Investment
CCK	Communications Commission of Kenya
KNBS	Kenya National Bureau of Statistics
CMP	Contemporary Marketing Practises
eM	e-Marketing
EPZA	Export Processing Zones Authority
US	United States

ABSTRACT

Despite the many feasible benefits of ICT in the organizational competitiveness, the extent to which ICT has been applied to carve a niche in the hospitality industry still remains unclear. Various studies have demonstrated that companies which leverage Information and Communication Technology and product differentiation create an environment where ICT has a great impact in the business arena. While there exists some studies on ICT, none has focused on the efficacy of ICT in creating competitive advantage within the selected hotels in Nairobi, and how to innovatively and strategically use it. Various scholars have found that the use of ICT per se does not create competitive advantage. The main purpose of this study was to examine the efficacy of Information and Communication Technology (ICT) in creating competitive advantage in selected hotels in Nairobi County. The research was carried out in 3-5 star hotels which forms about 80% of the total income of the star-rated hotels in the country. The study used a total sample size of twenty four (24), 3 to 5 star-rated hotels in the country and was designed to include the cross-sectional descriptive survey research design. A sample size of two hundred and seventy four (n=274) respondents were targeted from the 24 hotels. Two hundred and thirty four (234) questionnaires inclusive of twelve (12) interview guides were filled and returned, which formed about 85% response rate. The structured questionnaires were both open and closed ended. Both proportionate and purposive sampling techniques were used to sample the respondents for the study. The study used the split-half technique to determine the reliability of the research instruments. The collected data was then analyzed using the linear and multiple regression, the Pearson Correlation and the Analysis of Variance (ANOVA) and the related test of significance was applied appropriately. The study found out that the use of ICT in Service Delivery and Competitive Advantage were positively and significantly correlated. The results also revealed that the use of ICT in Employee Empowerment and Competitive Advantage were positively and significantly correlated. Further, results revealed that the use of ICT in Marketing and Competitive Advantage were also positively and significantly correlated. Based on these findings, the study concluded that the use of ICT in service delivery, employee empowerment and marketing had a positive and significant influence on competitive advantage. Finally, the study recommended that all the hotels should innovatively and strategically integrate their websites with Property Management Systems (PMS) to promote efficiency within the organizations. This would lead to quality service delivery which easily translates to customer loyalty and retention.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

Information and Communication Technology (ICT) may be defined as an umbrella term that includes any communication device or application, including radio, television, cellular phones, computers and satellite systems. For purposes of this study, ICT is used to imply the use of various technologies in the hotel industries to enhance efficiency in the organizational activities (Tesone, 2006; EPZA, 2005; O'Brien 2004). Since the 1980's ICT has been changing the way business is being conducted in the Hospitality and Tourism industries (Buhalis & Law, 2008). First and foremost, ICT has dramatically transformed business structures, creating strategies and identifying resources that gives firms a competitive advantage. It is the World's fastest growing economic sector. It has turned the globe into an increasingly interconnected network of individuals, firms, hotels and governments communicating and interacting with each other through a variety of channels and providing economic opportunities transcending borders, languages and cultures (Omae & Ateya, 2011; EPZA, 2005).

Information and Communication Technology (ICT) has also enabled the creation of new strategies in firms, coupled with the internet has enhanced the provision of new ways of how to reach customers and has expanded markets amongst the stakeholders (Walsham, 2001; Taylor & Francis, 1998; Henry & Lucas, 2005). The use of the internet as a powerful marketing tool is becoming a positive trend and an important core competency for hospitality businesses (Vanucci & Kerstetter, 2001). ICT can provide value chains within the organizations thus enhancing their core competencies and creating organizations capable of integrating multiple

technologies and coordinating diverse production capabilities (Prahalad & Hamel, 1990; Henry & Lucas, 2005). This has also led to new forms of innovation in employment and production, creating a demand for highly-skilled and empowered employees (Wilkin, 2001). The investment of Information Communication Technology is also a cost saving device which results in the reduction of staff, costs on paper and space, as bulky information is stored in the computer (Kasavana & Cahill, 2003; Rice, 2005; Law et al 2009), as well as to provide a platform for accessing the global market (Sahadev & Islam, 2005).

In today's world, access, usage and ownership of ICT is fundamental in linking communities, facilitating businesses and empowering communities both socially and economically (KNBS & CCK, 2010). ICT has not only enabled customers to search for and purchase customized hospitality and tourism products, but has also benefited suppliers by developing, managing and distributing their products without any time limits and Geographical constraints (Buhalis & Law, 2008). Since the rapid development and commercialization of ICTs are advantageous to the hospitality industries, hotels and other tourism-related companies are prompted to adopt these technologies (Sahadev & Islam, 2005). The adoption of ICT is expected to improve service delivery, enhance operational efficiency and reduce costs (Law et al., 2009). It is therefore crucial to enhance accessment of ICT in the rural and remote areas (KNBS & CCK, 2010).

According to Buhalis & Law, (2008), ICT is crucial in promoting efficiency and giving firms' a competitive advantage. This occurs when different facilities of the hotel such as the Central Reservation System (CRS) are well integrated with the Property Management System (PMS), not only greatly increasing operational

efficiencies within the organization but also bringing a fundamental change in the world. This is in view of the development of the Central Reservation Systems (CRS) in the 1970's; the Global Distribution Systems (GDS) of the 1980's and the internet of the 1990's greatly generating a paradigm shift from the traditional norm of operations (Bulhalis & Law, 2008; Emmer et al, 2003; O'Connor & Horan, 2001).

Increasingly, the global market has become broadened and diversified, leading to the high demand for Hospitality business and in particular for hotel industry not only creating business opportunities but also changing the environment into a fierce battlefield, (Thuy & Asambadze, 2010; Henry & Lucas, 2005). Various studies have demonstrated that companies which leverage Information Technology and product differentiation create an environment where ICT has a great impact in the business arena (Burgess, 2000; O'Connor 2008b). ICT has also improved information available to executives hence supporting decision making (Walsham, 2001; Taylor & Francis, 1998; Henry & Lucas, 2005; EPZA, 2005).

The Kenya Government has also recognized the role of ICT in the social and economic development of the nation and promulgated a National ICT policy. The National Information and Communication Policy of 2010 is based on four guiding principles; infrastructure development, human resource development, stakeholder participation and appropriate policy and regulatory framework. According to the Economic Survey of Kenya, 2016, the Government identified ICT as a key enabler to the attainment of goals and aspirations of the vision 2030. An integral step in achieving this objective is to establish ICT access such as costs, literacy level and technological barriers. The Communications Commission of Kenya (CCK) also committed its 2008-2013 Strategic plan to undertake a comprehensive countrywide survey to accurately establish the ICT penetration country wide, which was to lay a

foundation for harnessing the true potential of the ICT sector in Kenya and also identify gaps with a view of developing targeted policy interventions to accelerate ICT access in the country (CCK & KNBS, 2010).

Despite the Government's effort to liberate internet sources hence providing a suitable environment for internet growth, Kenya is yet to fully embrace the technology due to financial constraints during both the implementation and the maintenance stages (EPZA, 2005; Omae & Ateya, 2011). The lack of ICT infrastructure has hampered the provision of efficient and affordable ICT services in the country (EPZA, 2005). E-Commerce has not yet taken off in Kenya due to the absence of the enabling Legislation, a bill called Information Technology which has not been debated in Parliament and the implementation date remains unknown (EPZA, 2005). Emphasis must be placed on the provision and support of infrastructure such as energy, roads and software development; promotion of local manufacture and assembly of ICT equipment and accessories and finally provision of incentives for the provision of ICT infrastructure. On human development, the Government recognizes the various institutions providing ICT education and training to eliminate outsourcing of expatriates, which is quite an expensive venture.

In summary the overall role of ICT in enhancing a competitive advantage in the hotel industry and in turn that of organizations is critical, as firms that create value through information technology are pre-destined to be more successful. Despite this, controversy continues to exist as to whether the productivity payoff is not overstated, thus the need for an investigation into the efficacy of ICT in creating competitive advantage in the hotel industry (Brynjolfsson & Yang, 1996; Khalifa, 2000; Henry & Lucas, 2005; Omae & Ateya, 2011).

1.2 Problem Statement

Despite the many feasible benefits of ICT in the organizational competitiveness, the extent to which ICT has been applied to carve a niche in the Hospitality Industry still remains unclear. Research has not persuasively established an increase in productivity following the introduction of ICT (Cline & Warner, 1999; Sigala, 2002; Siguaw *et al* 2000). A number of explanations have been provided for the above observation. Studies have suggested that the introduction of ICT in poorly run firms does not necessarily increase productivity, hence there is no competitive advantage observed, whereas introduction in well run firms pays off (Cron & Sobol, 1983). In another study Law & Jogaratman (2005) found that hotel decision makers did not understand the importance of ICT in business practice as a result ICT was not used in high level decision making. In addition, Paraskevas & Buhalis (2002) pointed out that managers of independent hotels were reluctant in implementing ICT thus encountering difficulties in gaining competitive advantage. Various studies have also demonstrated that companies which do not leverage Information Communication Technology hence product differentiation have little or no impact in the business arena as far as service delivery and marketing are concerned (Burgess, 2000; O'Connor 2008b). According to Kuria, Peter and Alice (2011), the human capital should also be effectively handled through training and good staff welfare. Consequently, despite the drastic improvement of ICT, the major challenge remaining is the lack of innovativeness, as most hotels have not properly integrated their websites with Property Management System (PMS), drastically reducing the operational efficiencies (Tesone, 2006). In line with the above identified, this study sought to find out the efficacy ICT has played in the creation of a competitive advantage in Kenya's hotel industry.

1.3 Purpose of the Study:

The purpose of the study was to determine the efficacy or effectiveness of ICT in creating Competitive Advantage in 3 – 5 star rated hotels in Nairobi county, Kenya. In particular the study sought to investigate whether there was any significant relationship between the type and level of adoption of ICT and Competitive advantage accruing in the hotels.

1.4 Research Objectives

1.4.1 General Objective

The study was guided by the General Objective which sought to investigate the effectiveness ICT has played in creating a Competitive Advantage within the 3-5 star hotels in Kenya's hotel industry.

1.4.2 Specific Objectives.

The specific objectives were:

1. To investigate the extent to which ICT application in Service Delivery influence the Competitive Advantage of 3-5 star hotels in Nairobi, Kenya.
2. To determine the extent to which ICT applications in Employee Empowerment influence Competitive Advantage in 3-5 star hotels in Nairobi, Kenya
3. To establish the extent to which ICT application in Marketing influence the Competitive Advantage of 3-5 star hotels in Nairobi, Kenya.

1.5 Hypotheses

The study sought to test the following hypotheses:

Ho₁: There is no significant relationship between the use of ICT application in Service Delivery and Competitive Advantage of 3-5 star hotels in Nairobi, Kenya.

Ho₂: There is no significant relationship between the use of ICT applications in Employee Empowerment and Competitive in 3-5 star hotels in Nairobi, Kenya.

Ho₃: There is no significant relationship between the use of ICT application in Marketing and Competitive Advantage of 3-5 star hotels in Nairobi, Kenya.

1.6 Significance of the Study

This study's main aim was to give the policy makers or the management within the Hospitality industry good information to make valid concrete decisions in strategic implementation and management. It was designed to promote changes that bring about competitiveness within the organization. The research was also intended to aid in advancing both the theoretical and practical knowledge and aimed at getting the 'best practice' to act as a benchmark used in organizational problem solving. It would therefore establish a relationship between marketing practices and ICT concepts, greatly impacting in the hotels' performance. The Hoteliers (especially in Kenya) and any firms using these concepts will be the principle beneficiaries and are likely to experience increased profits and improved production, while enjoying better organizational skills in decision making. It also provides avenues for future research for academicians.

1.7 Delimitations

The study particularly focused on 3-5 star hotels in Nairobi and excluded 1-2 star rated hotels. It also excluded other hotels outside Nairobi. This is a crucial factor as the study cannot be viewed in the generalization of the research study, and it therefore cannot act as a true representative of all the hotels in Kenya. This was also due to the fact that not all the current modern star rated hotels were included since at the time of the study they had not been gazetted.

1.8 Limitations Of The Study

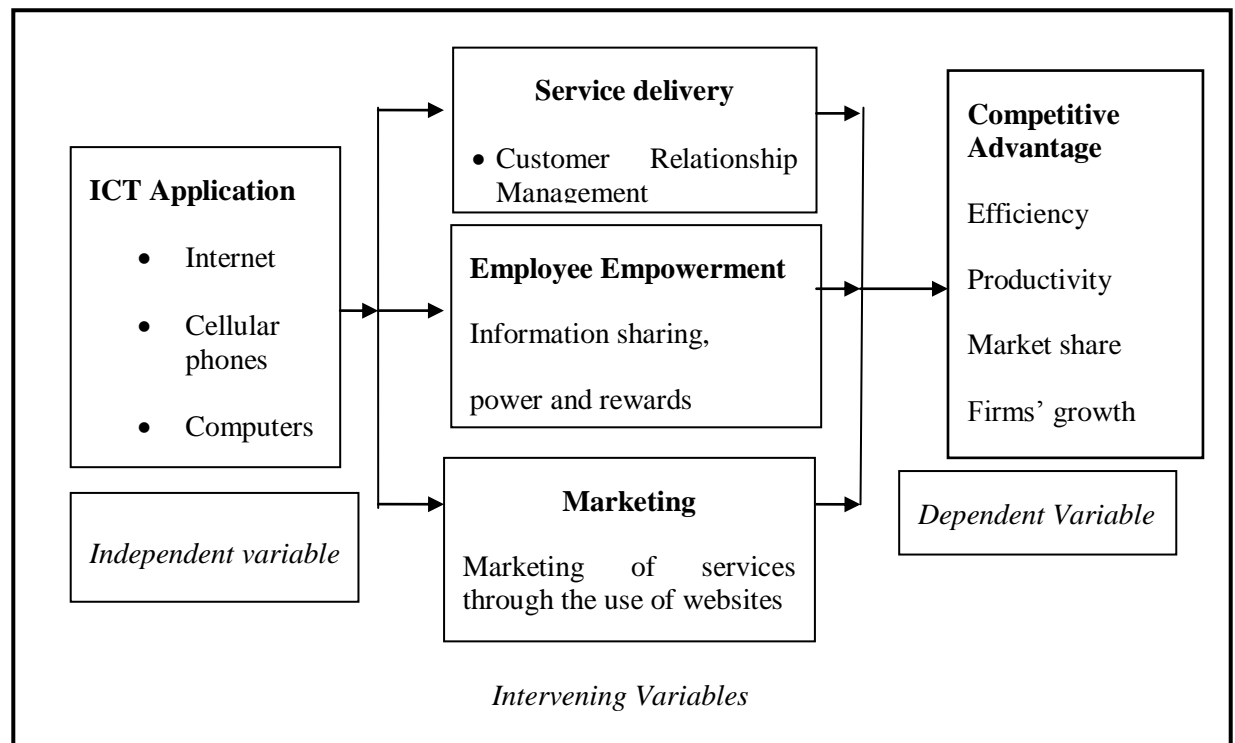
The study experienced the following challenges; first more comprehensive results of the study could have involved more hotels, however this was not accomplished since most three 3-5star hotels had not been gazetted at the time the study took place. The researcher only managed to collect data for only twenty four hotels which had been gazette by 2003.

Second, the researcher concentrated in the room division sector of the hotel ommiting the Food and Beverage Production sector (Kitchen) which could have given a further insight into the research study.

1.9 Conceptual Framework

The growth of ICT has played a key role in every sector of development (Laudon, 1994; Turban 1999; Fuho, 1996). This study examines the competitive advantages created by use of ICT in 3-5 star-rated hotels in Nairobi. Figure 1.1 shows the interaction between ICT application and its impact on the target variables.

Figure 1.1: The Role of ICT in Enhancing Competitive Advantage in Hotel Industry



Source: Adapted and Modified from Van Hoof, 1995; Hitts and Brynjolfsson, 2002

The study found that a firm has a competitive advantage when it is able to create more economic value than its rivals. Economic value is simply the difference between perceived value of a good or service given to a customer and the total cost per unit, including the cost of capital used to produce the good. Thus the magnitude of a firm's competitive advantage is simply the difference between the perceived value created and the costs to produce the goods or service compared to its direct competitors. If the economic value created is greater than its competitors, the firm is said to have a competitive edge over its rivals and vice versa (Hill & Rothaermel, 2008). Therefore profit (Π) = Total Revenue (TR) minus Cost (C) ; $\Pi = TR - C$ where $TR = P \cdot Q$ or price times quantity sold. Revenues are a function of the perceived

value created for the customer and the volume of goods sold. Customers would often value and prefer to purchase a BMW sports car to a Vitz based on the product's features such as performance, design and quality and may therefore be willing to pay more for it, hence the increased revenue. There are therefore three factors to consider, first is the perceived value created by the customer, second, the price of the product or service and lastly the total cost of producing the product or service.

The profit in the hotels may occur due to the innovative use of the PMS coupled with the internet which has firmly become a marketing tool, where marketers have access to technology to customize products and services and communicate directly to target markets. Both the internet and a good intellectual capacity (skilled humanware) increases profitability in a company. In 2000 US based hotel managers saw ICT as a mechanism to create competitive advantages, mainly through improved employee productivity and enhanced revenue generation (Siguaw, Enz & Namasivayam, 2000).

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature on research in ICT adoption and application and the influence on organizational and hospitality facilities' competitiveness both globally and locally. The literature related to the study has been reviewed in order to gain an insight into the research problem. The sources of the literature include books, reviewed journals and internet articles. This chapter is divided into six parts: Information Communication Technology; ICT and Competitive Advantage; ICT and Enhancement of hotel Service Delivery; The Efficacy of ICT in Employee Empowerment; The Efficacy of ICT in Marketing in the hotel industry; The Extent of ICT use in the Hospitality Industry; The Extent of ICT use in the Kenyan Industry; The Efficacy of ICT and Globalization; and a summary of the Literature review.

2.2 Information and Communication Technology

Information and Communications Technology is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware, software and satellite systems (Tesone, 2006; O'Brien, 2004). ICTs are technologies and tools that people use to share, distribute and gather information to communicate with one another through the use of computers and interconnected networks. In addition ICTs are mediums that utilize both telecommunications and computer technologies to transmit information.

The mobility in information transmission has been greatly increased by the fiber optic cables and a steady growth of the internet. The Government of Kenya has continued to focus on the implementation of e-government to enhance the uptake of

ICT in its operations, greatly promoting efficiency. According to the Communications Commission of Kenya (CCK), 2010, ICT was expected to continue growing and penetrating every sector of the country. In the year 2014 and 2015, key ICT indicators showed a robust growth expansion in mobile telephony network and internet services. In 2015 mobile telephony continued to revolutionize the uptake of ICT services, leading to a rise in penetration from 78.5% in 2014 to 85.4% in 2015. Internet subscriptions increased significantly from 16.4 million in 2014 to 23.9 million in 2015. Similarly data speed for computer modems and transmissions increased by 66.7% owing to the availability of the fiber cables (CCK & KNBS, 2010). The value of ICT output also increased by 8.1% at Ksh. 280 million in comparison to 259 million in 2014. This led to an immediate consumption increase of 14.9% (CCK & KNBS, 2010). The value output is indicated below in Table 2.0

Table 2.0 ICT Value Output between 2009-2014

Year	Value of Output	Intermediate Consumption	Value increase index
2010	169,267.8	100,883.7	68,384.1
2011	186,039.9	124,658.6	61,381.3
2012	203,692.9	135,255.4	68,437.5
2013	232,653.1	164,055.1	68,598.0
2014	262,275.4	196,219.6	66,055.8

Statistical Abstract 2015 & KNBS 2010

The number of licenced Internet Service Providers (ISPs) increased by 24.9% from one hundred and seventy seven (177) in 2014 to two hundred and twenty one (221) in 2015. The estimated internet users also expanded by 35% to 35.9 million users over the same period, which automatically led to a total internet subscriptions

increase of 20.2% to 115,111 with fixed fiber optic accounting for 96.7% in 2015.

According to the Economic Survey, (2016), the usage of ICT also increased with the value of ICT exported goods in telecommunication networks reaching 2.1 billion (64%) by 2015 compared to 1.3 billion in 2014. The study also noted a value of ICT imports increase by 23.1% to 53.3 billion in the same year (KNBS, 2010). The above statistical evaluation automatically exposed the country of Kenya to internet access and usage.

2.3 ICT and Competitive Advantage

Competitive advantage occurs when an organization acquires or develops an attribute or a combination of attributes that allows it to outperform its competitors. These attributes can include access to a highly skilled personnel human resources and the innovative use of Information technology amongst others. Therefore the term competitive advantage is the ability gained through the attributes and resources to perform at a higher level than others in the same industry or market (Chrietensen & Fahey, 2003; Porter, 2001). When a firm outperforms its competitors for a long period it is said to have a sustained competitive advantage, such as the innovative use of ICT when intergrated with the PMS. These firms gain more in terms of market share (Hill & Rothaermel, 2008).

In this era of globalization the revolution of ICT has affected the way businesses operate. First, it has changed the business structures and altered the degree of competition. Secondly, it has affected new business operations. Thirdly ICT has created a competitive advantage for businesses which have adopted it in terms of market share, company productivity and strategic product positioning. ICT adoption by firms have provided means of access, processing and distribution of greater

amounts of information within and without the organization. This aids the management to make quick and thoughtful decisions to assist the firms in strategic planning (Jimmy and Li, 2003). A factor which has enabled the firms to penetrate International markets and remain competitive despite challenges posed by globalization, liberalization and technological changes (Sharma and Bhagwat, 2006). The firms also face challenges from the multinational companies in form of reduced costs, improved quality products with high performance rate, a wide range of products and better services, all delivered simultaneously to enhance the value of their customers (Dangayach and Deshmukh, 2003). Various scholars have found out that for any success to be achieved by any company, they must strategically and innovatively integrate the Property Management Systems (PMS) into their websites as the use of ICT per se is not enough.

2.3.1: ICT and Market Share

For a company to sustain a competitive advantage over its rivals, it must develop strategies which are generic as well as resource based in nature. The generic strategy assist the companies to carve a niche in the global market by providing products and services which are not only low cost but are differentiated and have unique features at competitive prices. A competitive advantage which is resource based suggests that a sustainable competitive advantage can only be created by intangible sources such as consumers' needs and preferences and their responsiveness to products and services in terms of quality, promoting efficiency in firms (Bilgihan, Okumus, Nusair & Kwun, 2011). Strategies are a way of companies positioning themselves in the marketplace in order to compete effectively with large International companies.

2.3.2: ICT and Company Productivity

ICT adoption by firms increases productivity in the production process, enhances and increases efficiency of internal business operations (Pokharel, 2005; Taylor & Murphy, 2004). Similarly ICT adoption improves the operational efficiency, reduces operation costs and creates global market access. Firms which have adopted ICT also enjoys innovation, growth, cost reduction and differentiation advantages (Schware, 2003; Daneshvar & Ramesh 2010).

The internet has firmly become a marketing tool, where marketers have access to technology to customize products and services and communicate directly to target markets. Both the internet and a good intellectual capacity (skilled humanware) increases profitability in a company. The internet changes everything about companies and competition, which automatically leads to efficient service delivery. Another example is the CRSs (computer reservation systems) which have permanently changed the way business is done in these Service based industries (Buhalis, 2004). In 2000 US hotel managers saw ICT as a mechanism to create competitive advantages, mainly through improved employee productivity and enhanced revenue generation (Siguaw, Enz & Namasivayam, 2000). The use of the internet also promote e-commerce. Hotels which have no internet and therefore no web presence are greatly disadvantaged as they are not only visible to potential clients but they cannot transact their businesses Internationally.

2.3.3 ICT & a Firm's growth:

A firm's growth depends on a Strategic Product Positioning. Strategy is a set of decisions and actions that result in the formulation of plans designed to achieve a company's objectives, (Pearce & Robinson, 2011). According to Johnson et al

(2008), a strategy is a direction and scope of an organization over the long term through which firms achieve competitive advantages in a changing environment by the configuration of their resources and competences with the aim of fulfilling the customers expectation.

Most scholars have argued that 'positioning strategy' has been evolved from market segmentation, targeting a market structure. However Kotler (2000) has defined positioning strategy from a marketing point of view, as the act of designing a company's offerings and image to occupy a distinct place in the target market's mind. The author argued that positioning strategy is defined as the design and implementation of a retail mix to create an image in the retailers' mind in relation to its competitors.

Companies can develop positioning strategy at different levels; at both the business and corporate levels in an organization, (Johnson et al, 2008). They can develop Product Positioning Strategy at business level, mainly focusing on price and differentiation of products and services. Diversification decisions can also be made at corporate level. Innovation which is another possibility for companies to develop positioning strategy by innovating new ideas, technologies and systems. These innovations can occur in the form of PMS such as the Fidelio and the Opera systems, which if well intergrated in ICT systems, promotes efficiency and productivity in the hotel industry. According Prancevic, Alfrevic & Stumberger (2011), the technological innovations provide a platform where different marketing and customer relationship management practices can be performed using the internet.

2.4 ICT and Enhancement of Hotel Service Delivery

ICT adoption has become crucial in the numerous hotel business transactions (Aslam, 2010). This is observed when dealing with guests while making reservations and when offering credit allowances which have led to the generation of numerous communication networks and extensive written documentation ensuring appropriate payments for services rendered. With the advent of computer systems, hotels are now able to accept reservations within a two-year horizon with minimum problems and at minimal expense. From an accounting and control viewpoint there is none equal to the hotels' enormous volume of small transactions taking place so rapidly and at so many different points of sale (Kasavana & Cahill; 2003; Taylor & Francis, 1998).

In customer relation management, a great focus is placed on customer relationship whereby through the internet and the Porters' five competitive forces (which includes threats of competitors entry into the market; buyer power; bargaining power of suppliers; substitute products, and rivalry or competitors jockeying for a position in the market share), easily creates value addition to customers which result in profitability within the firms activities (Porter, 1990). The internet also detects unique and updated websites, which can directly link the supplier and the customer, hence cutting down costs (Porter, 2001). Porter further observes that the extensive information about products on-line encourages customers to readily purchase more than either the printed catalogues or shop displays could. Web catalogue can also be easily updated to act as brochures providing vital information to customers as it displays clear information and photos of location and various amenities (Porter, 1990; Tesone, 2006). The dynamic management of the buyer behavior is quite crucial. This involves understanding the customer profile and guarding the privacy

of any collected data, Sanchez & Satir (2005). These Scholars further explored a study to evaluate revenues in terms of different reservation modes and found that most organizations used online media as a supplementary way of marketing and heavily relied on offline modes (Stewart & Barr, 2005). However in a further study, Sanchez & Satir (2005) found that groups of hotels which used online reservation modes generated substantial revenue compared to those using offline modes.

ICT plays a number of crucial roles in modern hotel operations. First, it aids the hotels to manage their inventory and its' vast business transactions. Second, the CRS computerized operation systems can be used as a marketing tool through the internet during guest reservation, bookings and sell of tickets to multiple airlines through the global distribution systems (GDS). Finally, it aids the management to increase capacity and yield management and helps to review its revenue policies to avoid loss of revenue in several ways such as through the Call Accounting and Telephone system; Energy Management System; Electronic Door Locking System; Catering Information System and all the Point of Sales (POS) Systems (O'Connor, 2000; Kasavana & Cahill, 2003; Anker and Warden, 2001). As revenue management systems play a vital role in the Hospitality industry it is critical for the hoteliers to protect it. However studies have illustrated that the revenue management staff lack the knowledge of how to protect the systems from their competitors leading to leakages of important financial aspects (Kimes & Wagner, 2001).

Application of ICT in hotel industry has had a positive impact in the provision of competitive advantages in terms of service delivery. According to Prahalad & Hamel (1990), core competencies and capabilities of a firm are created by its ability to coordinate its diverse production skills and effectively integrate its streams of

technology. Lack of this leads to the need to examine the role of ICT in creating competitive advantage globally and in the selected hotels in Nairobi.

2.4.1 The Efficacy of ICT in the improvement of Company Performance

Although Information and Communications technologies (ICTs) is still central to growth and competitiveness, analysis on the impact of ICT on productivity found evidence that use of Computers have led to increase in output. In addition, a brief look at the literature in the recent years, firms with ICT investments which engage in strategic planning have been more productive and tend to have higher levels of performance than their competitors who do not have ICT technologies (Miller & Cardinal, 1994; Hitts and Brynjolfsson, 2002).

2.5 The Efficacy of ICT in Employees Empowerment

One aspect of technology strategy is the development of the human resource capabilities not only to have self efficacy and belief to perform tasks but also to fully embrace the integration of technology with other resources and capabilities of the organization. The effective use of ICT is also closely related to the level of education of employees, which is not very well developed particularly in less developed countries such as Asia and Africa. Lack of investment in training needs is a short sighted view for any organization. As companies have been cutting costs and trimming their organizational needs, many also have been making savings through cutting down training budgets or eradicating them altogether. This has set a bad precedence and a very gloomy and uncertain future. Organizations are often quite prepared to invest in new technology but not in human resource.

Researchers like Kuria, Peter and Alice (2011), revealed that star rated hotels in Kenya have a critical problem of skilled man power, especially chefs, and lacked the

capacity to compete globally. The study explained that human capital in the hotel industry has not been properly handled explaining that unfavorable working conditions, poor payment, poor training and educational level have led to high labor turnover and poor performance (Gilbert & Powell, 1997). According to Paul Banas, the manager of Employee Development and Planning at Ford company said “a better educated and developed workforce is vital not only to an employee’s future but critical for our Nation as well. Life long learning is a requirement for every employee.” Developing a flexible workforce is certainly the way forward for many companies, making them more competitive and enabling them to utilize their optimum efforts of both the workforce and technology when work demands requires. Joint employee education and developmental efforts can be a powerful productivity and quality enhancing tool who’s success depends on both management’s labour accepting co-responsibility (Healy & Dillon, 2004).

Empowered employees through intensive training are able to effectively handle the diverse technologies such as the PMS, the OperaTM and FidelioTM systems which though complex in nature are cost effective devices and when well integrated with the hotels reservation systems are quite user friendly. Since the Hospitality and Tourism industries are knowledge based, employers need to take advantage of ICT in order to build leadership competency (Cox, 2003). However, these systems need to be customized into the Kenyan system (Reynolds 1994).

Another study by Ham et.al (2008) analyzed the computerized operations through the technology acceptance model (TAM) and realized that despite the fact that most hoteliers had incorporated ICT within their operations, the system developers required to pay attention to the restaurant users expectations and perception regarding the ease of use in the systems’ adoption, functional and maintenance

process, as there was a direct relationship between the perceived ease of use, functionality of the system and the restaurant's point of sale's system (POS).

Due to globalization and the technological advancement, many companies have developed online job systems where potential employees post their names and resumes in positions of interest. They are then electronically informed of their short listing and interview schedules. This enables them to plan ahead with minimum stress and costs, (O'Connor & Horan, 2001; Snell & Bohlander, 2007). Managers can get both the internal and external talent online through the internet or on-line advertisement as is seen in e-commerce which is undergoing a virtual revolution and empowering employees.

2.6 The Efficacy of ICT in Marketing in Hotel Industry

We live in a global world with an ever changing phase of technology; the role of traditional marketing is being constantly challenged. Local firms are beginning to face competition from foreign firms located near and far away in other continents. The trend is expected to continue as long as technology is available to facilitate business between a willing buyer and seller (Ngai, 2003; Gregory, 2007). Traditional marketing which is an organizational function and a set of processes for creating, communicating and delivering value to customers, has been transformed by the new technological advances creating new business context throughout time. It had also endeavored to manage customer relationships in ways that benefit the organization and its stakeholders by American Association (Gregory, 2007). The first dramatic implication occurred with the emergence of public press, telegraph, radio, television and fax technology (Ngai, 2003; Gregory, 2007).

Today the internet not only offers tremendous opportunities for marketers but also brings new ways of conducting and approaching consumer markets (Rahman, 2003). It also melts the borders of National markets increasing and shifting the competition into an electronic marketplace, where companies are now competing on International basis due to the global nature of e-commerce (Malhotra & Peterson, 2001). It has proved to be a very powerful marketing and sales tool for gaining strategic advantages in the business world. Several hotels have made attempts to capture some of the growth potential of the internet by creating their websites and are using it for various purposes. According to Ancker & Walden, (2001), hotels that do not have a web presence cannot bridge the gap between their existing and potential customers and also become competitively disadvantaged. It is argued by Migiro & Ocholla, (2005) that the advantages such as cost reduction, improved efficiency among others can be equally enjoyed by smaller accommodation facilities in developing countries. Armijos et al., (2002) contend that technology applications and internet usage have assisted hotel companies in the realization of increase as most major indicators such as gross revenue, average daily rate, revenue per available room and net profit.

The International Hotel & Restaurant Association (IH&RA) has discussed the importance of technologically – induced changes in hospitality in its “Think Tank” sessions at their annual conference (Connolly & Olsen, 2000). The findings suggest that e-commerce and Information Technology would be the most important competitive advantage for any hospitality company to compete successfully and create value for both the customer and the firm (Dev & Olsen, 2000). The coming of the internet and digitalization of information together with the spread of the use of personal computers created the context of e-commerce, in which the core marketing

function has acquired new universal characteristics and directions, including the development of the internet Marketing as a concept (Watson et al, .2000).

2.7 The Extent of ICT use in the Hospitality Industry

Information and Communication Technology has played a major role in boosting the globalization of tourism and hospitality industry by providing efficient tools such as the internet for users to develop, operate and to globally distribute their offers. Hoteliers have captured the exponential growth of the internet use into their businesses through stronger partnerships and connections. They have also benefited from the efficiency created by this systems through well trained staff, which has been manifested in productivity growth, (Koglia et al 2008; Hashim, 2007).

ICT has the advantage of creating and availing knowledge to a wider market. Interested market participant share information, specifications and production process beyond national borders, contributing to a greater transparency resulting in lower prices. At the same time ICT enables companies to have an access to a number of markets and to use global supply chains in a simple and acceptable way (Rooney, Hearn & Ninan, 2005; Shanker, 2008). The ICT environment helps in the fast and accurate decision making by Hospitality and Tourism industries due to increased mobility. They give critical and crucial components such as speed of services and access to information. This in turn empowers employees in terms of skills and delivers highly valued services at competitive costs. It is therefore important in terms of multi-tasking, expanding customer base, raising productivity, controlling costs, working remotely, enabling managers to make fast and accurate decisions and fascilitating collaboration. ICT has also enabled smaller companies to access the wander markets that used to be a preserve for major market players (Vidgen et al. 2004; Kotelnikov, 2007; Balocco et al. 2009).

Due to the popularity of the internet applications, most travel agents use it as their marketing and communication tool. This phenomenon have affected market activities owing to the development of flexible products and services and the advantages of World Wide Web (WWW) and its application for the purpose of promotion and sales (Buhalis & Law, 2008).

2.8 The Extent of ICT use in the Kenyan Industry

This study was as a response to the present crisis in the Kenyan hotels that are threatened by a dwindling International market share. It sought to establish a clear relationship between ICT Application as the independent variable and Competitive Advantage as the dependent variable (Mariga Leah W. K, 2011). Previous studies have suggested that ICT can be used as a strategic instrument that can enable a company to achieve competitive advantage. The studies assert that e-hotels enable a company to retain its market share in a competitive world (Mariga Leah W. K, 2011).

According to Wadongo, Odhuno, Kambona & Othuon (2010), the Hospitality industry has made a significant contribution to the economic development of the country. It is also becoming a source for job opportunities for many people. Wadongo et al, (2010) also argued that the World Travel and Tourism Council (2006) explained that Hospitality industry in Kenya contributed 509,000 jobs in 2007 and forecast that the industry will contribute 628,000 jobs by 2017.

Despite the full liberalization of the internet sources by the Government providing an environment for internet growth, ICT growth has been greatly hampered by poor underlying infrastructure and lack of investors, since Kenya still heavily relies on donor funding and sources financing accessible ICT are very limited . The country is yet to fully embrace the innovative use of ICT. The high cost of technology has

restricted the growth of the Hospitality industry resulting into financial constraints during the implementation, development and the expansion stages. The hotel industry in Kenya requires cultivating & improving its local market in order to compete effectively globally and to create a globally competitive and adaptive human resource through training as most companies still outsource foreign expertise to deal with critical issues (Omae & Ateya, 2011).

2.9 The Efficacy of ICT and Globalization:

As seen in the background information, ICT has turned the globe into an increasingly interconnected network of individuals, firms, hotels, and governments communicating and interacting with each other through a variety of channels and providing economic opportunities transcending borders, languages and cultures (Omae & Ateya, 2011; EPZA, 2005). It has also promoted and enhanced the hotel service delivery; the empowerment of employees in ICT applications and the efficacy of ICT in Marketing in the Hotel Industry.

At a time of globalization when competition is increasingly dynamic, firms must start to become global. This enables them to compete with large International companies. Global competition has forced enterprises to become agile. Agility in business performance has enabled companies to rapidly prosper in a dynamic changing environment. ICT has also played a major role in facilitating the introduction of new products and services and in improving operational processes, and in guiding managerial decision making (Maguire et al., 2007).

However as companies continue contributing to the economy, they are faced with many challenges, first these firms have centralized structures which tend to employ generalists rather than specialists, and this results in lack of knowledge and technical

skills. Secondly, they lack financial resources to invest in ICT infrastructure and to train their ICT users. Mismanagement of ICT can be detrimental to the competitive effectiveness of enterprises. Evidence indicates that the implementation of ICT faces severe financial constraints, and most companies perceive the exercise as an expensive risky and complex procedure which lacks technical expertise, (Irvine & Anderson, 2008; Yeung et al, 2003; Chong et al, 2001; Pires & Aisbett, 2001; Aslam, (2010). Different studies have also indicated that hotel practitioners are reluctant to use ICT applications due to lack of trust in the confidentiality of using the technology due to the unresolved security and privacy issues associated with the use of the internet (Law & Lau,2000; Croes & Tesone, 2004; Kothari et al, 2007). Given the competitive nature of the Hospitality industry and the demand for customers to use this technology in the Orient Europe & America, ICT must be embraced by companies in order for them to excel in the competitive business arena (Connel 2002; Gilbert & Powell-Perry, 2004; Gregory, 2007).

In a different study of Productivity paradox, Kasavana & Cahill (2003) reported that hotel managers believed that some ICT applications are counter productive and concluded that ICT per se did not increase a firm's profitability. They found out that there was no direct correlation between competitiveness and ICT implementation. However there were some indirect positive factors which had an impact on hotel performance, such factors include differentiation and the image of the hotel (Pranicevic, Alfrevic & Stumberger (2011).

2.10 Theoretical Framework

The study found the following theoretical frameworks, first the role of ICT in Contemporary Marketing practices (CMP) which basically explained the challenges experienced by Marketers from the 1990's to the current time. The Information

Communication Technology and the Contemporary marketing practices adopted a theoretical review of both the historical and the current deployment of ICT marketing practices (Coviello, Brodie, Brookes, Palmer, 2003). Over the past 50 years, firms have increasingly relied on technology to support Communication and information processing but have struggled to introduce ICT successfully into their domain since the 1990s experiencing a lot of challenges (Coviello et al 2003).

The '90s was marked by spectacular ICT problems, despite the substantial investments incurred in ICT within the marketing arena (Chen & Ching, 2004). Much effort to gain efficiencies and profitability from the introduction of ICTs such as the internet, sales force automation and customer relationship marketing did not achieve much (Schmelz, Kennedy, Ching, 2004). Marketers realized that ICT implementation lacked focus and strategy. The CMP framework then embraced the e-marketing which encompasses one-to-one marketing and allows mass customization of products and services (Coviello et al, 2003). The first empirical study to use the expanded CMP framework was done using a sample of firms in New Zealand and UK and found that 80% currently use eM (e-Marketing) to either reinforce or transform their organizational status (Coviello, et al 2003) greatly improving the firms' efficiencies and profitability.

Various scholars have proposed a theoretical framework that links ICT applications and Competitive Advantage (Okumus et al., 2011). This study adopts Porters theory of Competitive Advantage (Porter, 1985). According to Porter, competitive advantage is the ability gained through attributes and resources to perform at a higher level than the competitors. These attributes includes a superior market position, skills and resources (Chrietensen & Fahey, 2003; Porter, 1985). Porter suggests that a firm's relative position within its industry determines whether a firm's

profitability is above or below the industry average. The fundamental basis of above average profitability in the long run is sustainable competitive advantage. There are two basic types of competitive advantage a firm can possess namely low cost or differentiation. Three strategies can be used to tackle competition include cost leadership, differentiation and focus. Cost leadership is the ability to produce good quality products or services at a lower cost compared to the competitors. Differential strategy is when a business develops or creates innovative new ideas to make it more attractive and make it stand out compared to the competitors. Focus strategy aim at getting a target group of fewer people or a small sample size rather than dealing with the whole population, such that when marketing strategy was applied, it could be geographical, demographical, physiological or behavioural. Generally, it can be argued that ICT as a factor of production enables a firm to realize lower costs, enhances efficiency, and to increase its competitive advantage.

2.11 Summary of Literature Review

In summary the effect of ICT and the internet has had a great impact both locally as well as globally. With the statistical evaluation of the internet access in Kenya there has been a tremendous use of ICT in many sectors with hotels included. This has been observed in the speed and flexibility of how hotels respond to the customers' needs and also how fast and effective they perform their transactions. However most scholars found out that ICT per se did not fully bring profitability within the organizations and recommended that ICT had to be strategically and innovatively used. The human resource development was also found to be lacking in terms of training and empowering the staff to deal with technology. Therefore the innovative use of ICT can enable both small and medium companies to effectively compete with bigger companies globally This can not only improve the service delivery but

can also play a major role in contributing to the country's social economic growth. Companies which use ICT compete more favourably in the global arena.. The PMS when interfaced with systems such as the CRS have created useful value chains giving the hotel industry a competitive edge.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

This chapter outlines the procedures and methods that were used in the study. It gives an overview of the research design, the target population, research instruments, validity and reliability of the instruments, sample size and sampling techniques, pre-testing, data collection and analysis, logistical and ethical considerations.

3.2 Research Design

This study used cross-sectional descriptive survey research design which was to compare different population groups at a single point in time (Breakwell, Hammond & Schaw, 2005). According to Gay (2003) descriptive studies are normally intended to describe and report the way things are. A research design is a detailed outline of how an investigation will take place. It typically includes how data is to be collected, what instruments will be employed and the intended means of analyzing the collected data. Research design is therefore a framework that has been created to seek answers to research questions. They are characterized by systematic collection of data from members of a given population through questionnaires and interview methods.

This study was designed to use both qualitative and quantitative research approaches. Qualitative research design focused on the entire experience, occurrence or phenomenon and not on specific variables such as ethnographic design, historical design and case studies. The purpose of Quantitative design was to create and test hypotheses, look at the cause and effect factors and make scientific predictions. This research investigated a small number of people drawn from the various selected

hotels and gathered large amounts of information from a relatively small population. Examples where quantitative research designs were used was in experimental design, correlation design and survey design (Blankenship, 2010; Litchman, 2008). The two research design techniques were effectively used together as a mixed method as they compliment and strengthen each other (Veal, 2006; Pyrczack, 2006). Quantitative analysis are also more numerical and concrete in nature and therefore more aligned to Statistics, making it more authentic whereas Qualitative analysis are more abstract.

3.3 Study Area

The study was conducted amongst 3-5 star hotels in Nairobi County as it was observed that this category of hotels had a high rate of ICT use. Nairobi hotels were selected because they source tourists both locally as well as internationally, acting as true representative of the urban set-up (African point, 2010). The selected hotels generates about 80% of the total income of the star-rated hotels in the country, (The Travel & Tourism Competitiveness Report, 2009) hence contributing to the country's immense revenue. The location of the hotels is indicated in Appendix V.

3.4 Target Population

According to the hotels and restaurant authority, there were twenty four 3-5 star rated hotels in Nairobi at the time of study (*The Kenya Gazette Hotel & Restaurant Classification, 2003; Ministry of Tourism, 2010*). These hotels consisted of seven (n-7) five star hotels, one (n-1) four star hotels and sixteen (n-16) three star hotels. Due to the small number, all the star rated hotels in Nairobi were included in the sample frame. These hotels were specifically selected due to their size and facilities available. They also catered for both the local and International tourists. Their

scale of operation also enabled them to afford the ICT which is deemed quite expensive in smaller hotels.

The sample size was drawn from members of staff in the following departments; Sales and Marketing, Front office, Accounts, Housekeeping and the top management. The total number of staff in all the hotels included had a total population of nine hundred and twelve (912) respondents. According to Krejcie and Morgan (1970), in Appendix IV, (a table for determining the sample size), for a population of nine hundred (900) the sample size is two hundred and sixty nine (269). The same scholars also recommended that for a population of one thousand (1000) one required a sample size of two hundred and seventy eight (278) at 95% Confidence Level and 0.5 margin of error. Therefore the estimated sample size was calculated as an average of two hundred and sixty nine (269) and two hundred and seventy eight (278) which is two hundred and seventy four (274). No further Scientific formula was required in connection with the use of the tables.

3.4.1 Sampling techniques of hotel staff

Purposive sampling technique was used to sample the hotels and the respondents. This sampling technique was found appropriate as it enabled the selection of only those respondents who were considered to have the information required for the study. Proportionate sampling technique was used for the employees in all the twenty four (n-24) hotels. This sampling technique was found appropriate as it enabled the researcher not to have a bias during the study, since it gave all the respondents an equal chance to answer the questions. The researcher worked closely with the management team to select staff from the following departments: Sales and Marketing, Front office, Accounts and the housekeeping departments, due to their intensive use of ICT. However the Food and beverage department was not included

which limited the scope of the study.

3.4.2 Sampling of Top Managers

Purposive sampling procedure was used to arrive at twenty four (n=24) top managers. From each of the twenty four selected hotels, one top manager was picked. They were expected to provide reliable information on the application of ICT in hotel industry.

3.4.3 Determining the Sample size

The total target population for the study was nine hundred and twelve (912) from which a sample size of two hundred and seventy four (274) was required. Proportionate sampling technique was done whereby a sample was selected based on the percentage contribution of each hotel to the total population such that the sample size was directly proportional to the number of staff in each hotel. The researcher distributed the questionnaires to the staff through the managers and used the following formula to determine the sample size of each hotel:

$$n_s = \frac{n \times T_{ss}}{T}$$

Where:

n_s = Number of staff to be included in the sample

n = Total number of staff in selected departments in each hotel

T_{ss} = Total population in the selected 3-5 star hotels = 912

Example for Sarova Stanley Hotel, staff population = 91. Therefore number to be included in the sample is calculated as follows:

$$n_s = \frac{91 \times 274}{912} = 27.3 = 27$$

Therefore the staff sample size determined for each hotel is as indicated in Table

3.1.

Table 3.1: Selected Sample Size of staff from each hotel

S/N	Selected Hotels	Sales & Marketing	Front Office	Accounts	H/Keeping	Top Mgt	Staff population	sample size
1	The Sarova Stanley Hotel	15	23	17	35	1	91	27
2	Norfolk Hotel	8	10	7	19	1	45	13
3	Nairobi Serena	6	20	19	12	1	58	17
4	Safari Park Hotel	10	20	21	19	1	71	21
5	Hilton Hotel	13	20	20	18	1	72	21
6	Laico Regency	10	24	11	12	1	58	17
7	Hotel Intercontinental	14	25	18	30	1	88	26
8	Fairview Hotel	5	7	4	8	1	25	8
9	Landmark Hotel	3	9	3	10	1	26	8
10	Utalii College	3	11	5	13	1	33	10
11	Milimani Hotel	4	12	4	3	1	24	7
12	Six Eighty Hotel	9	10	15	10	1	45	14
13	Hotel Boulevard	5	9	4	5	1	24	7
14	Bounty Hotel	4	6	3	5	1	19	6
15	Marble Ark Hotel	2	3	3	2	1	11	4
16	Ambassadeur Hotel	10	15	5	14	1	45	13
17	Silver Spring Hotel	10	9	10	5	1	35	11
18	Sportsview Hotel	7	8	9	21	1	46	14
19	Hotel Southern Blue	2	3	1	2	1	9	3
20	Blue Hut Hotel	2	3	3	3	1	12	4
21	Panafric Hotel	4	11	2	8	1	26	8
22	Fig Tree Hotel	5	3	1	4	1	14	4
23	Kwality Hotel	2	3	3	4	1	13	4
24	Karibu Hotel	5	6	6	4	1	22	7
	TOTAL	158	270	194	266	24	912	274

3.5 Research Instruments

This study used structured questionnaires to collect data from the employees working in the departments of Sales & Marketing, Accounts, Front office and housekeeping. Interview guides were used for the top managers. The questionnaires were divided into four sections: section I had demographic information; section II contained Application of ICT in hotel operations; section III contained ICT in empowering employees and section IV had ICT and Marketing in the hotel industry. The interview guide had only one section which covered the areas under investigation which included application of ICT in Service Delivery; Application of ICT and employee empowerment; the role of ICT in Marketing and the role of ICT in competitive gains in the Hotel Industry. Appointments were secured with the top managers and the interviews carried out in their offices.

3.6 Test of Validity

The researcher employed sampling validity method (subjective assessment of the content of each research item). The researcher used two groups of experts who included lecturers at the Technical University of Kenya to assess the concepts which the instruments were intended to measure, and the second group included trained experts in the field working in the ICT departments, who would countercheck and confirm the accuracy of the concepts being measured (Mugenda & Mugenda, 2004).

3.7 Test of Reliability

Reliability is the degree to which a research instrument yields consistent results or data after repeated trials. If a test is administered to a subject twice and gets the same score in each case, then there is reliability of the instrument (Mugenda and Mugenda, 1999). Errors may arise at the time of data collection and may be due to inaccuracy of either the researcher or the instrument. The study used split-half

technique, where the collection of data was done only once, coded and processed by the use of an appropriate data analysis software. This process was used to split the groups into even and odd numbers. Computation was done to get the total score and to give an internal correlation coefficient. If the result were between 0.5 to 0.9 (which is a high correlation coefficient) then the results would be accepted. If it falls below 0.4 they would be rejected (Mugenda and Mugenda, 2004).

3.8 Pre- testing of Research Instruments

To ensure reliability and validity of the study, the researcher used structured questionnaires which were developed from the literature review and organized on the basis of the background information and research objectives. This was to ensure relevance to the research problem. The questions were tailored to gauge the efficacy of use of ICT in the various selected hotels in order to gain competitive advantage.

In consultation with the top management, the pre-test was conducted to twenty (20) employees in the two selected hotels, namely the Sankara (5 star hotel) and the Ngong Hill hotels (3 star hotel). Pre-testing was done before the main research work. These particular hotels were purposively selected from the class of hotels not targeted for the study and not documented in the Kenya Gazette. The results of the pre-testing were therefore not incorporated in the final findings. Any modification would then be done before the questionnaires were distributed to the actual selected hotels. It also ensured the reliability and validity of the instruments. Reliability measure the degree to which the research instrument yield consistent results after repeated trials while validity is the degree to which the results obtained from the analysis of the data actually represent a phenomena under study.

3.8.1 Measures and Construct of Variables

The independent or predictor variable in this study was the ICT applications. Items were developed to capture and measure the impact of each component of ICT. Instruments were developed to measure the attitudes and perceptions of respondents on identified ICT variables such as Service Delivery, Marketing and Employee Empowerment. The study used both the ranking and the rating scale techniques in the questionnaires to get appropriate measures from the respondents as indicated in table 3.2 below. The ranking technique was used together with the likert scale to determine the competitiveness and efficiency levels of different categories of hotels. The rating scale was applied in structured questions to determine the extent of customer satisfaction in all the hotels.(Kothari, 2004).

Table 3.2: Construct Measures

VARIABLES	MEASURE	SCALE
Age	Dichotomous	Nominal
Work experience	Multicotynous	Interval
Education level	Dichotomous	Nominal
Employee empowerment	Multicotynous	Ordinal (Likert scale)
ICT Application in hotel operations	String (Monodichotonous)	Nominal
Marketing in the hotel industry	Multicotynous	Ordinal (Likert scale)

3.9 Data Collection Techniques

The data for the study were collected using questionnaires and in depth personal interviews. The researcher first got an appointment with the General Manager of the star-rated hotels to explain the purpose of the study and to obtain their consent. Once this was done, the researcher then identified participating departments and sought

the assistance of two research assistants to distribute the questionnaires to the staff members in each of the selected department. The questionnaires were collected at a later date. Before the data collection commenced the researcher thoroughly briefed the research assistants on how to effectively distribute the questionnaires . The researcher also worked hand in hand with the assistants and frequently visited the hotels as a follow-up. The assistants however did not participate in the pre-test, this was done by the researcher.

3.10 Data Analysis

The study used both the quantitative and qualitative techniques of data analysis. The collected data was then organized and prepared for analysis by coding and entry into spreadsheets for eventual analysis using the appropriate statistical software package. The Quantitative data was organized and prepared by coding using a suitable statistical package.

A simple linear regression analysis was used to determine how the dependent variable (Y) would be measured as an index computed from the independent variable. Therefore the independent variable (X) was used to predict a single variable (Y). Relationship between the variables would be based on null and alternative hypothesis as stated in the objectives (Mugenda and Mugenda 2004).

The quantitative data from the questionnaires was analyzed using descriptive statistical measures such as mean, median, mode, percentages and frequencies to describe the hotels' characteristics. Inferential statistics was also used. Multiple regression analysis was used to find out the inter-relationship between the independent and the dependant variables. Pearson Correlation analysis tested the hypotheses and investigated the regression type of relationships amongst a set of

observed or latent responses and also a set of observed or latent predictors.

The Qualitative data was analyzed through thematic analysis where the responses were grouped into themes. First the study identified the basic themes, selected the important ones, and then carefully classified them into appropriate thematic units, segments, codes and expressions. Secondly the classified themes were subsequently organized, grouped then integrated accordingly to summarize basic emerging themes. Finally these were then super ordinated by introducing the global thematic aspects (Blankenship, 2010; Litchman, 2008).

3.11 Logistical and Ethical Considerations

The study fulfilled the requirements as follows: first the researcher got a letter of clearance from Kenyatta University Graduate School. Secondly the researcher got a research permit from the National Commission for Science, Technology & Innovation (NACOSTI), Appendix VI to facilitate in the data collection. Thirdly, appointments were booked from the hotels before any visitation took place. Fourthly, the research instruments were developed and pre-tested, and the research assistants were also trained on data collection using the instruments. Fifth, a detailed work plan was developed, giving the study's logistics, data analysis and report writing and finally every information obtained from the establishments was treated with utmost confidentiality.

CHAPTER FOUR

4.0 FINDINGS AND DISCUSSION

4.1 Introduction

This chapter deals with the presentation of results and discussions of the findings. The chapter is organized based on the following sub-headings: demographic information; influence of ICT in Service Delivery; the effect of ICT application in Employee Empowerment and Competitive Advantage; ICT and competitiveness in hotel marketing. The discussion of the findings were based on the three research objectives as well as the test of hypotheses.

4.2 Response Rate

The number of questionnaires that were administered to the respondents were 274. A total number of 234 questionnaires were properly filled and returned by both the staff and the top managers. This included 24 interview guides which were administered to the top managers out of which only 12 were successfully completed. This represented an overall response rate of 85.40% Table 4.1.

Table 4.1: Response Rate

Response (staff)	Freq. (staff)	Percent (staff)
Returned	234	85.40%
Unreturned	40	14.60%
Total	274	100%

According to Mugenda and Mugenda (2003) and also Kothari (2004) a response rate of above 50% is adequate for a descriptive study. Babbie (2004) also asserted that return rates of above 50% are acceptable to analyze and publish an article, out of which 60% is good and 70% is very good. Based on these assertions from renowned scholars, 85.40% response rate is very good for the study. The Managers

and the members of staff seemed to have similar views about ICT applications and Competitive Advantage. According to one manager who said that the use of ICT in the hotels had made it easier for the employees to handle transactions much faster and with a lot of professionalism as compared to the old times where traditional ways such as the use of paperwork was more emphasized (Manager IV, 2013). This view collaborated with what the members of staff said.

4.3 Demographic Information

This study considered the demographic information of the respondents. The two major categories of respondents who participated in this study included the members of staff and the managers. The demographic information studied included gender, age, working experience, level of education, department and period served in the organization. The findings are in the figures below.

4.3.1 Gender of Respondents

As indicated in figure 4.1 below most of the respondents (53%) were male while 47% were female.

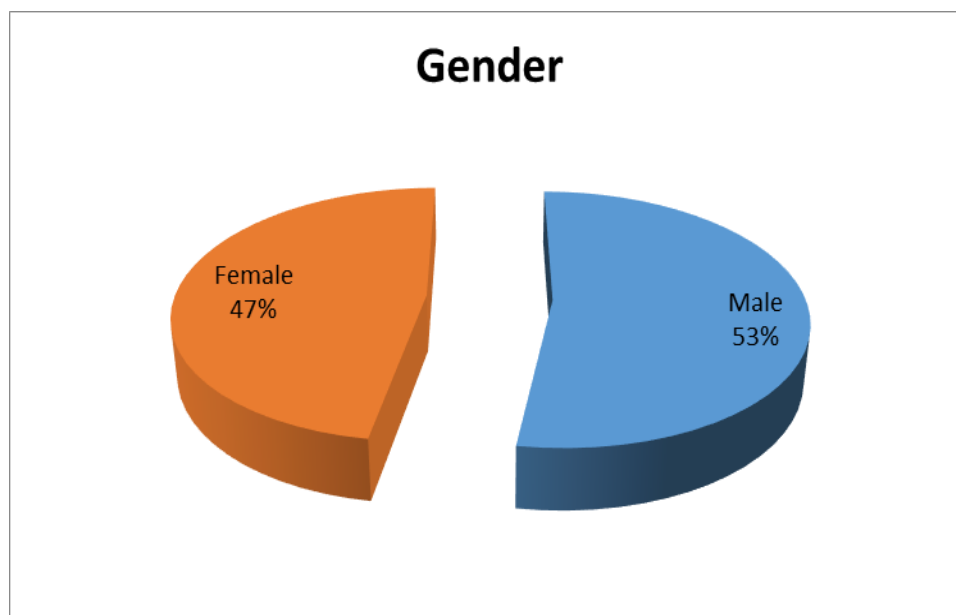


Figure 4.1: Gender of Respondents

4.3.2 Age of the Respondents

As indicated in figure 4.2 below, most 135 (58%) of the respondents were between the ages of 20-30 years. There were 63 (27%) respondents aged between 31-40 years, 27 (12%) between ages 41-50 and 9 (4%) were over 50 years.

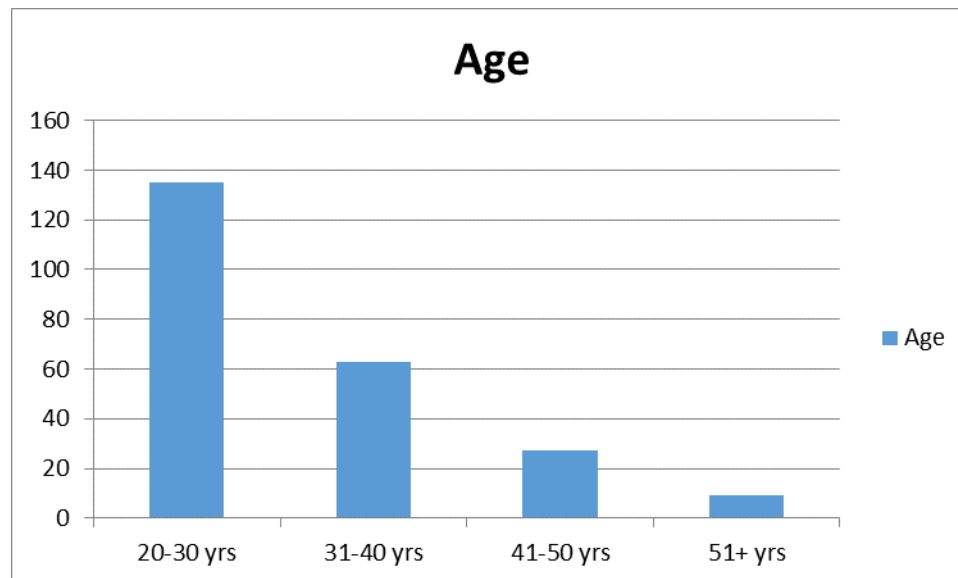


Figure 4.2: Age of Respondents

4.3.3 Work Experience

Regarding the work experience, most, 60% of the staff had an experience of more than 5 years. 25% had an experience of between 3-5yrs and 2% had an experience of below 2yrs. The study also revealed that 65% had been in their respective organizations for at least 3 years and above as indicated in figure 4.3 below.



Figure 4.3: Work experience of staff

4.3.4 Level of Education

On the level of education, majority 162 (69%) were Diploma holders while a few 48 (21%) were undergraduate. A few 12 (5%) were KCSE holders and another 12 (5%) had masters degree as indicated in figure 4.4

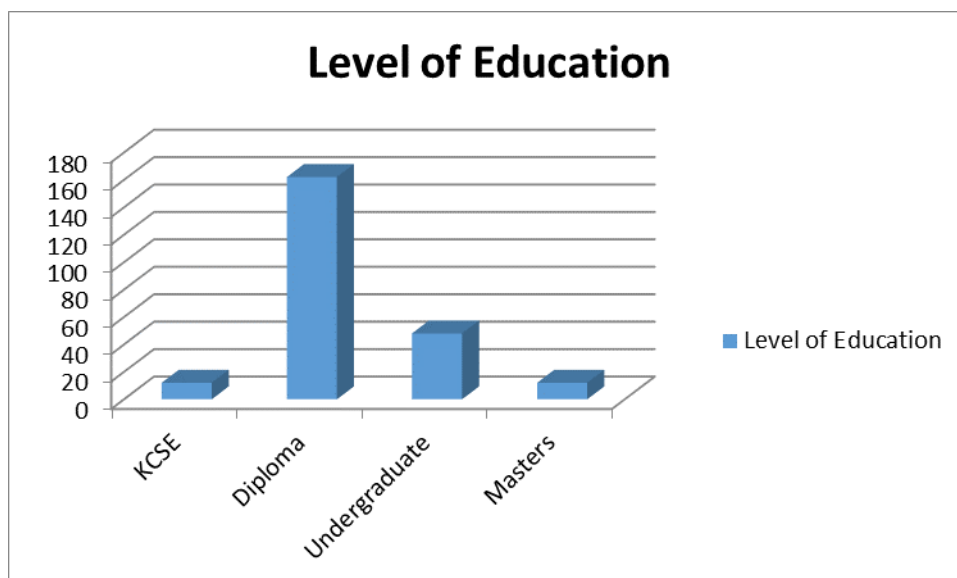


Figure 4.4: Level of Education

4.3.5 Departments in the Organization

The staff were from diverse departments with 72 (31%) in Sales and Marketing; 60 (26%) from Front Office, 57 (24%) from Accounts and 45 (19%) from Housekeeping. (8%) of the top managers came from Sales & Marketing, (8%) from Accounts, (59%) from Front office and (25%) from Housekeeping department as shown in fig. 4.5

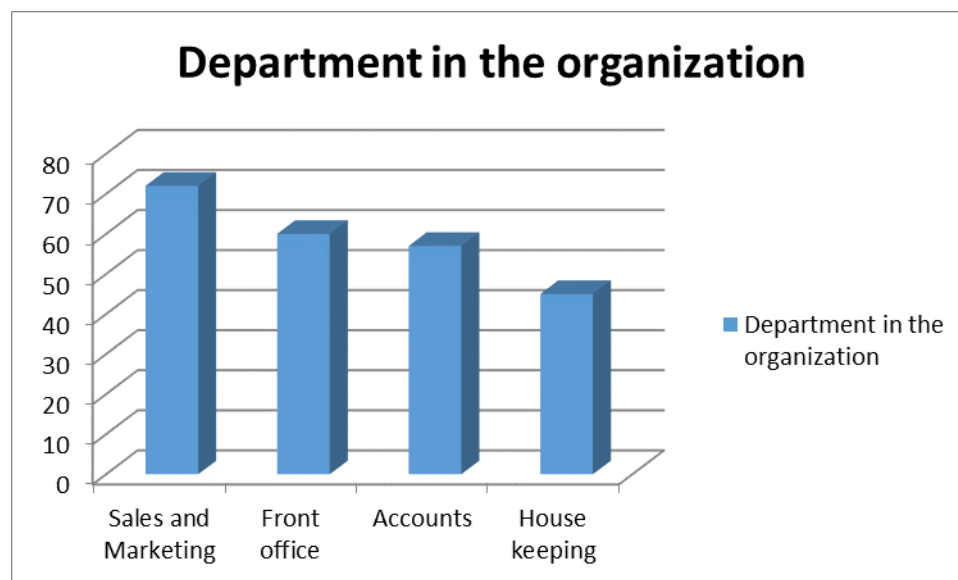


Figure 4.5: Departments in the Organization

4.3.6 Period in the Organization

In work experience 30 (13%) had worked for less than one year; 51 (22%) had worked between 1-2 years; 90 (38%) had worked between 3-4 years and (27%) had worked for 5 years and above as indicated in figure 4.6

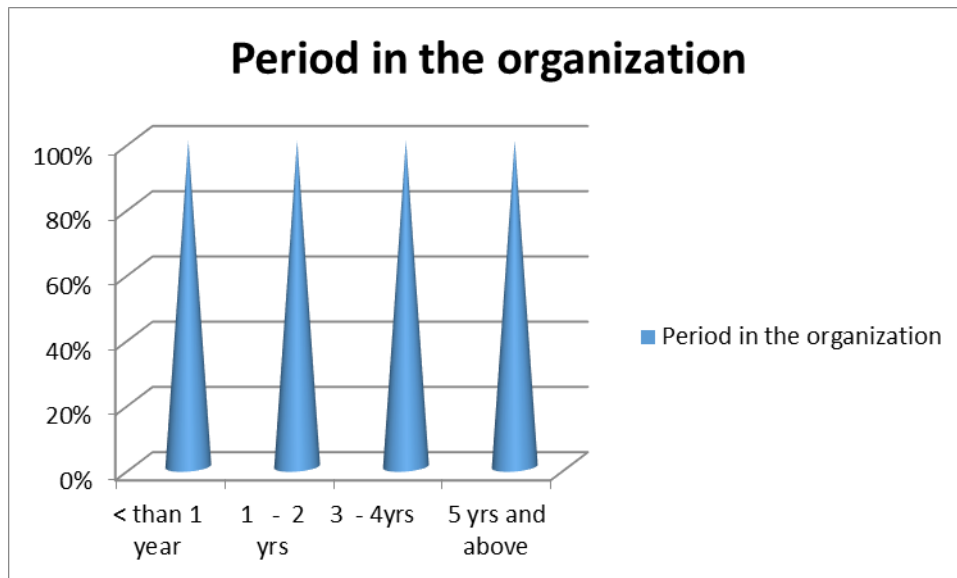


Fig 4.6: Period in the Organization

4.3.7 Top Managers:

For the top managers (67%) were male while (33%) were female, as shown in fig.4.7

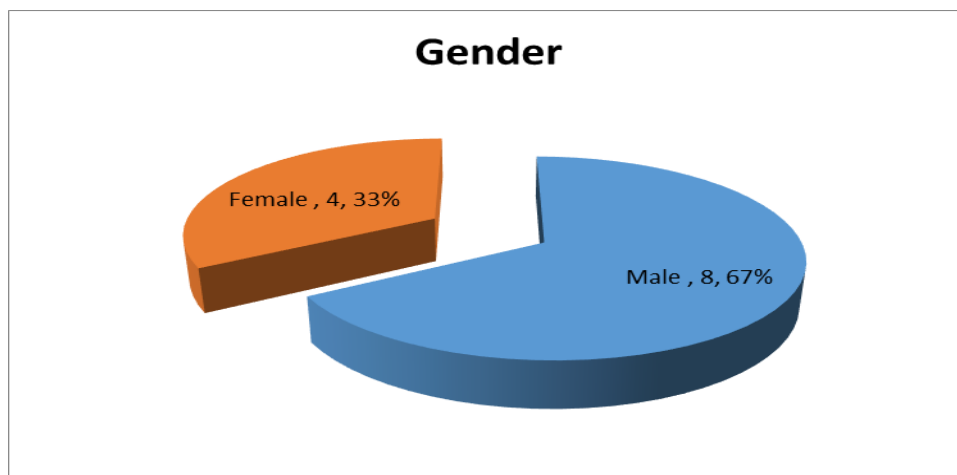


Figure 4.7: Gender for Top Management staff

4.3.8 Work Experience

For the top management 13 (1%) had worked in the organization for two years and below; 27 (4%) had worked for 3-5 years and 38 (7%) had worked for between 6-10 years. None had worked for more then eleven years as indicated in fig. 4.8

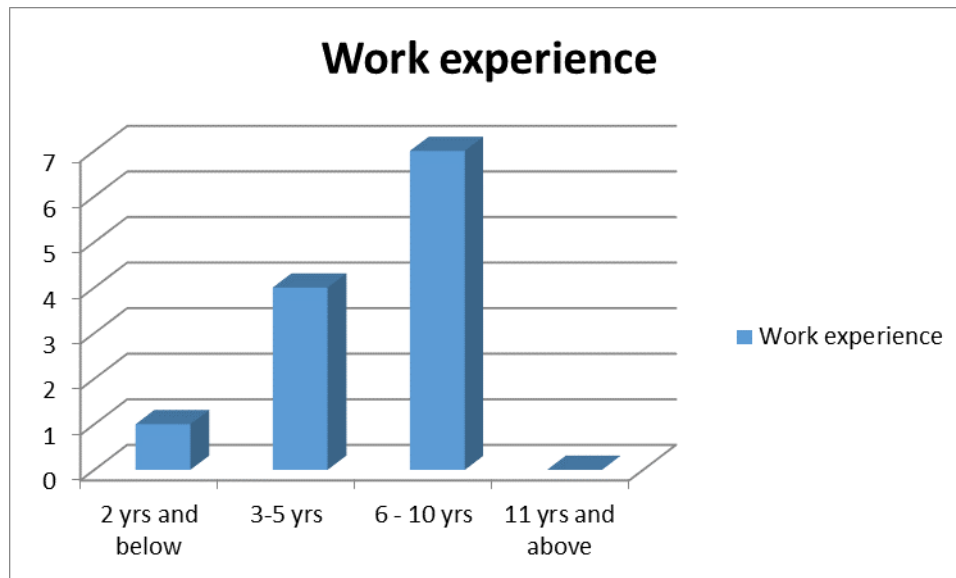


Figure 4.8: Work Experience for Management Staff

From the above findings the distribution shows some gender based disparities, with most hotels employing the youth who are known for their ambition and versatility. The older generation who are more experienced are fewer. On the education level, the majority were Diploma holders, ultimately becoming fewer as the education level ascends. These findings concur with one hotel manager who argued that Diploma holders were more Practical oriented than Degree holders, leading to an important implication concerning the education sector which should promote technology middle level colleges which produces “hands on graduates” (Manager 1, 2015).

4.4 Influence of ICT Application in Service Delivery on Competitive advantage

The first objective of the study was to investigate the influence of ICT Application in Service Delivery on Competitive advantage. The respondents were asked to indicate the extent to which they agreed or disagreed with statements about the influence of ICT Application. The results are provided in Table 4.1.

Table 4.1: The Perceived Influence of ICT on Service Delivery

Statement	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree	Mean	Std Dev
Has enabled numerous and better transactions in booking systems	23%	69%	2%	3%	3%	1.88 ±	0.64
Has enhanced hotels to manage their inventory	12%	70%	5%	10%	3%	2.08 ±	0.62
Has enabled wide distribution of networks	15%	63%	6%	8%	8%	2.04 ±	0.76
Has enabled hotels to quickly and flexibly respond to the market	23%	69%	0%	0%	8%	1.92 ±	0.73
Has contributed to the firm's and consequently the country's economic growth	31%	65%	0%	0%	4%	1.77 ±	0.64
Average						1.94	0.68

In terms of booking services, the majority (92%) of the staff members agreed that ICT applications had enabled numerous and better transactions in booking systems, with 69% who strongly agreed while 23% merely agreed. However, (2%) were neutral and a few (6%) of them disagreed with 3% strongly disagreeing. When it came to inventory management, 82% of the staff members agreed that ICT applications had enhanced the hotels' capability to manage their inventory appropriately, out of this 12% agreed while the majority 70% strongly agreed. However (5%) were neutral, Another 13% disagreed with 3% who strongly disagreed while the rest 10% just disagreed. Furthermore, the majority (78%) agreed that ICT had enabled wide distribution of networks for the hotel, which consisted of 15% who agreed while the majority of 63% who strongly agreed. However 6% were neutral and only 16% disagreed. Additionally, most (92%) of the

staff agreed that ICT applications had enabled them to quickly and flexibly respond to the market and client needs. This had 23% who agreed while 69% strongly agreed. Only 8% strongly disagreed and none were neutral.

When asked whether the application of ICT had enhanced better bookings in the reservation systems and also brought about enhanced competitive advantage in the industry in terms of quality of services, the top managers also gave the following views regarding the influence of ICT use on the service provisions of the hotel. They reported that improving service provision in the hotel, the application of ICT had made it easier to control checks and balances than paperwork. ICT had also enabled all departments to have their own documentations and improved the management of guest rooms and rates. Further expounding, one of the managers said that:

‘Through the application of ICT in my hotel, service provision has been increased and this has helped a lot in saving time. Further, through the improved service provision, the hotel has been able to improve customer satisfaction and expectation’ (Manager I).

During the distribution of the hotels’ networks, an earlier study by Arth, (2012) found that alternative systems were used by some hotels. For instance the systems used to enhance hotel operations are the Online Hotel Reservation System (OHRS) and Central Reservation System (CRS). The use of information and communication technology (ICT) in Front Office operation is widely applied in day-to-day business. This is because it improves the efficiency of better management of the Front Office operations, from star hotels to budget hotels, using one form or the other of ICT (Arth, 2012). Use of the Online Hotel Reservation System (OHRS) conveniently helps clients to search for room availability across properties and chains hotels acting as an effective marketing tool.

These findings indicate that the use of ICT Application which is well integrated with PMS enhances service delivery in the hotel industry. ICT Application has not only reduced paperwork but has also improved better hotel transactions, increasing revenue and ultimately playing a major role in the Country's economic growth. The average Likert scale of the responses is 1.94 which indicates that majority of the respondents agreed with the statements. The standard deviation was 0.68 which indicates that the responses were varied.

The findings also concur with other studies which states that firms apply ICT in their business in order to be effective and maintain efficiency. ICT plays a number of crucial roles in modern hotel operations, such as in the inventory management, booking among other business transactions. ICT in hotel industry has had a positive impact in the provision of competitive advantages in terms of service delivery. There are also numerous transactions occurring at the same time, drastically lowering costs (Aslam, 2010). With the advent of computer systems, hotels are now able to accept reservations within a two-year horizon with minimum problems and at minimal expense. These findings also collaborate with Kasavana & Cahill, (2003), who stated that from the Accounting and control viewpoint there is none equal to the hotels' enormous volume of small business transactions taking place so rapidly and at so many different points of sale. Kasavana & Cahill (2003) further enumerated the roles ICT had played in the modern hotel operations as follows: first, ICT has aided the hotels to manage their inventory and their vast business transactions. Second, these authors confirm that CRS computerized operation systems can be used as a marketing tool through the internet during guest reservation, bookings and sale of tickets to multiple airlines through the global distribution systems (GDS). Finally, it aids the management to increase capacity and yield management and

helps to review its revenue policies to avoid loss of revenue in various ways.

The above comprehensive findings concur with the fact that the use of ICT in the hotel industry has indeed enabled numerous and better transactions in booking systems; therefore enabling quick and flexible response to the market and client needs, ultimately contributing to the firm's and the country's economic growth. The increasing complexity of ICT allows for the capturing of additional information to facilitate management of revenue rather than solely per-room yield, Vidgen et al, (2004). However, this ability is constrained by factors beyond the technology, such as the fragmentation of the industry particularly in the way it interacts with a range of available booking channels (Ancker & Warden, 2001).

4.4.1: Application of ICT in hotel operations

The respondents were presented with a list of ICT applications which included Fidelio and the Opera system, two of the most commonly used categories PMS in Kenya and the majority (77%) of the staff members asserted that their hotel reservation system was integrated with Fidelio based ICT PMS system, while on the other hand only a few 23% stated that their hotel reservation system was integrated with Opera based ICT PMS system. None of the respondents mentioned any other PMS systems in the study, an indication of the popularity of the two. These results showed that innovation was another possibility for companies to develop positioning strategy by creating new ideas, technologies and systems. These innovations can occur in the form of PMS which if well integrated into the hotels' Central reservation systems, financial accounting systems and sales and marketing systems promotes efficiency and productivity in the hotel industry. According to Pranicevic, Alfrevic & Stumberger (2011), the technological innovations provide a platform where different marketing and customer relationship management practices

can be performed using the internet.

When the hotel managers were asked to expound whether their hotels used PMS and which particular departments this usage was most popular, one manager said that:

'In my hotel, we use the Fidelio System for the purposes of accounting, reservations, hotel revenues, hotel billing system. Further, ICT in my hotel industry has been used mainly for the purpose of facilitating communications between departments. The system is also applied in Front Office to post bills, in reservations, house-keeping's room management, maintenance, stores, purchasing (procurement) and in Point of sale (POS) (Manager II).

These findings concur with Scholars such as Buhalis & Law, (2008), who stated that ICT had dramatically transformed business structures creating strategies and identifying resources that had given firms a competitive advantage. This was observed when different facilities of the hotel such as the Central Reservation System (CRS) were well integrated with the Property Management System (PMS), not only greatly increasing operational efficiencies within the organization but also bringing a fundamental change in the world. This is in view of the development of the CRS in the 1970's; the Global Distribution Systems (GDS) of the 1980's and the internet of the 1990's greatly generating a paradigm shift from the traditional norm of operations (Bulhalis & Law, 2008; Emmer et al, 2003; O'Connor, 2001). ICT has also improved information available to executives hence supporting decision making (Walsham, 2001; Henry and Lucas, 2005; EPZA, 2005).

4.4.2.: ICT Facilities Used to Enhance Services in Hotels

The respondents were given a list of facilities which a hotel room is expected to have, and were informed to tick the ones which were mainly used in the hotel, as indicated in Table 4.2.

Table 4.2: ICT facilities used in hotel/guest rooms

ICT facilities used in hotel/guest rooms	Yes		No	
	(Freq.)	(%)	(Freq.)	(%)
Internet and e-mail	234	100	-	-
Wake-up calls	200	85.5	34	14.5
Fidelio/Opera System	190	81.2	44	18.8
Electronic door locks	224	95.7	10	4.3
Voice mail	189	80.8	45	19.2

All the staff members (100%) indicated that the internet and e-mail were used extensively in the hotels and guest rooms. An overwhelming majority (85.5%) of the staff members mentioned that ICT facilities used in their hotels and guest rooms were the wake-up calls. Only a few (14.5%) of them indicated that it was not used at all. When asked to indicate whether either the Fidelio or Opera micros systems were being used in the hotel, majority (81.2 %) of the 77% said they used the Fidelio system and only 23% said they used the opera according to 4.3.1. Most of the staff members agreed that they used one of the facilities in the reservation at the front office desk, noting the daily arrivals and guests' registration; cashiering (billing) and in night audit which deals with financial reports, and finally in Housekeeping where room management is done. Only 18.8% said they did not use the facilities in the reservation desk. In terms of electronic door locks, a vast majority (95.7%) of the staff members asserted that in their hotel, electronic door

locks were being used, with only 4% indicating that they had no electronic door locks. On voicemail, 80.8% agreed that they used voicemail in their hotels and guest rooms while a few 19.2% said that they did not use voicemail in their hotels and guest rooms.

The above findings concur with Scholars such as Cline and Warner (1999), who found that hotel customers prefer a hotel based on the quality of services provided and expect comfort and convenience in the guestroom. Rowe (1999) reported that more than half of business travelers prefer a hotel that offers voice mail and internet. According to a study conducted by Reid and Sandler (2004) other accruing benefits included wake-up systems, electronic door-locks were ranked as the most beneficial. Likewise Van Hoof (1995) examined the technology needs and perceptions of the hotels Managers and found that 92.7% of the managers agreed that the use of technology enhanced the effectiveness of the hotels operation, while 81 percent said it enhanced customer satisfaction. Hoteliers generally regard ICT applications as one of many ways to connect a bridge with prospective guests. In this manner information communication technology can play a crucial role in helping hoteliers learn more about the guests and their preferences (Lee, 2003).

The internet use has become very powerful and popular in our day to day life. This facility is not only used in the hotels but also in the offices. It also assists in fast communication through emails and enhances virtual learning. This has minimized the Geographical distance within countries & regions, such that people and even firms can interact with one another quite effectively.

4.4.3 Correlation between ICT Application in Service Delivery and Competitive Advantage

For objective one, Correlation analysis was conducted between the use of ICT in Service Delivery and Competitive Advantage. Results are shown in Table 4.3.

Table 4.3: Relationship between ICT & Competitive Advantage

Variables	Pearson Correlation	Competitive Advantage	Use of ICT in Servicedelivery
Competitive advantage	Pearson Correlation	1.000	
	Sig. (2-tailed)		
Use of ICT in service delivery	Pearson Correlation	.239**	1.000
	Sig. (2-tailed)	0.000	
**correlation is significant at the 0.01 level (2-tailed).			
*correlation is significant at the 0.05 level (2-tailed).			

The above table presents the results of the correlation analysis. The results revealed that use of ICT in Service Delivery and Competitive Advantage were positively and significantly correlated ($r=0.239$, $p=0.000$), such that an increase of service delivery by one unit lead to an increase of competitive advantage by 0.239 at the 0.01 level (2-tailed).

Application of ICT in hotel industry has had a positive impact in the provision of competitive advantages in terms of service delivery. According to Prahalad & Hamel (1990), core competencies and capabilities of a firm are created by its ability to coordinate its diverse production skills and effectively integrate its streams of technology. This implies that lack of this leads to the need to examine the role of ICT in creating competitive advantage globally and in the selected hotels in Nairobi.

4.4.4 Hypothesis testing for Objective One

The null hypothesis for the first objective was: The use of ICT in Service Delivery does not have a significant effect on competitive advantage within the 3-5 star-rated hotels in Nairobi. The alternative hypothesis for the first objective was: use of ICT in service delivery has a significant effect on competitive advantage within the 3-5 star-rated hotels in Nairobi. The hypothesis was tested by running an ordinary least square regression model. The acceptance/rejection criteria was that, if the p value is less than 0.05, the H_0 is not rejected and vice versa. Results are shown in Table 4.4.

Table 4.4: Regression results

Variable	B	Std. Error	T	Sig
(Constant)	1.111	0.117	9.477	0.000
Use of ICT in Service delivery	0.212	0.057	3.75	0.000

Since Cal.p value of $0.000 < 0.05$ critical, the null hypothesis (H_0) was rejected and the alternative hypothesis (H_a) was adopted which states that there a significant relationship between Service Delivery and Competitive Advantage hence use of ICT in service delivery has a significant effect on competitive advantage within the 3-5 star-rated hotels in Nairobi.

4.5 Influence of ICT application in Employee Empowerment and Competitive Advantage

The second objective of the study was to determine the effect of ICT Application in Employee Empowerment and Competitive advantage. The respondents were given a set of statements and asked to indicate the extent to which they felt ICT had improved the employees work performance and their ability to use the PMS. The results are presented in table 4.5.

Table 4.5: The influence of ICT has on the Employee Empowerment and Competitive Advantage

The effect ICT has on the employees empowerment	True	Not true	Not sure	Mean	Std Dev
ICT use in the organization has enabled the employees to be more flexible and enhanced their ability to meet customers needs more efficiently.	73%	19.20 %	8%	1.35	0.618
Use of ICT has led to effective management by the employees.	65%	20%	15%	1.5	0.748
Average				1.43	0.68

An overwhelming majority (73%) of the staff members agreed that ICT use in their organization had enabled employees to be more flexible and enhanced their ability to meet customers' needs more efficiently, with 19% who said that this did not apply and another 8% were not sure. Additionally, most (65%) of them affirmed that use of ICT had led to effective management of the hotels' technologies by the employees with 20% indicating that it did not apply and a further 15% were not sure. The average Likert scale of the responses is 1.43 which indicates that majority of the respondents agreed to the statements. The standard deviation was 0.68 which indicates that the response rates were varied. Moreover, the managers also gave various responses regarding the influence of ICT application in the empowerment of employees in the hotel industry. They reported that application of ICT enabled the employees to be in a better position to learn new systems and helped them to work more professionally. Further, one of the managers reported that:

'The application of ICT in my hotel has made it easier for my employees to handle transactions faster and with professionalism as compared to the old times where paperwork was being utilized. In the

long run, application of ICT has empowered employees to improve on overall productivity' (Manager IV, 2013).

Therefore the staff must be well trained in order to handle the complex technologies which occurs when computers are intergrated with PMS.

In this inclusive study, the ICT used in the sampled (selected) hotels has enabled the employees to be more productive. Application of ICT has also led to intensive staff training and enabled the employees to be able to effectively handle the diverse technologies such as the PMS the Opera™ and Fidelio™ systems which though complex in nature are quite cost effective devices. For any company to succeed it should not only invest in technology, but it must also strive to invest in its human resource. According to Paul Banas, the manager of employee development and planning at Ford company, 'for a better educated and developed workforce is vital not only to an employee's future but critical for our Nation as well, life long learning is a requirement for every employee.' Developing a flexible workforce is certainly the way forward for many companies, making them more competitive and enabling them to utilize their optimum efforts of both the workforce and technology when work demands requires. Joint employee education and developmental efforts can be a powerful productivity and quality enhancing tool who's success depends on the management's labour accepting co-responsibility. Trained staff are usually more flexible to handle any new technology, Healy & Dillon, (2004).

4.5.1 Correlation between ICT Application in employee empowerment and Competitive Advantage

Correlation analysis was conducted between Use of ICT in employee empowerment and competitive advantage. Results are shown in table 4.6.

Table 4.6: Correlation matrix

Variables	Correlation index	Competitive advantage	Employee_ Empowerment
Competitive advantage	Pearson Correlation	1.000	
	Sig. (2-tailed)		
Use of ICT in employee Empowerment	Pearson Correlation	.345	1.000
	Sig. (2-tailed)	0.000**	
** Correlation is significant at the 0.01 level (2-tailed).			

Table 4.6 presents the results of the Pearson correlation analysis. The results revealed that the use of ICT in employee empowerment and competitive advantage are positively and significantly correlated ($r=0.345$, $p=0.000$), such that a unitary increase of employee empowerment leads to an increase in competitive advantage by 0.345 units at the 0.01 level (2-tailed). According to Paul Banas, the manager of employee development and planning at Ford company who believes in a developed workforce, that can eventually be flexible enough to handle the diverse technologies. This implies that training used in empowering staff is very crucial, in our work places. Companies which organizes regular in-service training for their staff always experiences more productivity than those who do not. Staff empowerment enhances guest management.

4.5.2 Hypothesis testing for objective two

The null hypothesis for the second objective was: The use of ICT in employee empowerment does not have a significant effect on competitive advantage within the 3-5 star-rated hotels in Nairobi. The alternative hypothesis stated that there was a significant relationship between the use of ICT application and employee

empowerment. The hypothesis was tested by running an ordinary least square regression model. The acceptance/rejection criteria was that, if the Calculated p-value is less than 0.05, the Ho is rejected but if it is greater than 0.05, the Ho is accepted. In this case the Ho, p-value of 0.000 was realized and thus the Ho was rejected (see table 4.7).

Table 4.7: Regression results for Employee Empowerment

Variable	B	Std. Error	T	Sig
(Constant)	1.055	0.092	11.514	0.000
Use of ICT in employee empowerment	0.295	0.053	5.596	0.000

Since the null hypothesis was rejected, the alternative hypothesis applies, thus: use of ICT in employee empowerment has a significant effect on competitive advantage within the 3-5 star-rated hotels in Nairobi.

4.6 The Extent of ICT Application in Marketing and Competitive Advantage

The third and last objective of the study was to establish the effect of ICT Application in Marketing and Competitive Advantage within the 3-5 star-rated hotels in Nairobi. The following are some of the ICT related technologies used for Marketing in the Hospitality industry. The respondents were given a list of these technological devices and requested to indicate to what extent each practice had been adopted within their organization as indicated in table 4.8

Table 4.8: Use of ICT in Marketing in the hotel industry

Statement	Very large extent	Large extent	Neutral extent	Small extent	No extent at all	Mean	Std Dev
Use of websites for marketing the services offered	71%	14%	7%	5%	3%	1.55	1.01
Use of facebook/Twitter/YouTube for marketing organization services	42%	33%	17%	5%	3%	1.92	1.012
Use of emails	71%	24%	3%	2%	0%	1.37	0.664
Use of TVs and Radio	4%	10%	15%	35%	36%	3.88	1.123
Average						2.18	0.95

According to the findings, majority (85%) of the staff affirmed that websites were used, with 71% emphasizing that they were used to a very large extent for marketing the services, while 14% said it was only used to a slightly large extent. 7% were not sure and 5% said they were used to a small extent with a further 3% saying that it was not used at all. Also, quite a number (75%) of the staff members stated that facebook/Twitter/YouTube were used for marketing organization services to a large extent, with 42% indicating that it was used to a very large extent and 33% said that it was used to a relatively large extent. 17% were not sure, and a further 5% said it was used to a small extent and 3% said it was not used at all. Majority (95%) of them alleged that use of emails as a tool for marketing was done to a very large extent, with the majority of 71% strongly emphasizing that it was used to a great extent, 24% indicated that it was used to a large extent, while 3% were not sure and a further 2% indicated that the usage was to a small extent. Some (14%) of them mentioned that use of TVs and Radio as a tool of marketing was done to great extent, while 15% were neutral, a further 35% indicated that the usage was done to a small extent and 36% said there was no effect. The average likert scale of the

responses is 2.18 which indicates that majority of the respondents agreed to the statements that the use of ICT in marketing has been adopted to quite a large extent. The standard deviation was 0.95 which indicates that the responses were varied.

When the managers were asked whether they used ICT as a marketing tool, majority responded positively and stated that their systems were integrated with the internet and most of their websites were well integrated with PMS. This implied that there was a lot of e-commerce, whereby most hotels' facilities were well displayed to potential clients, a far cry from the traditional manual catalogues previously used. Virtual e-learning also took place within companies. This ultimately enhanced staff training enabling them to handle the diverse aspects of the technology.

The above findings concurred with earlier researchers who found that the internet had proved to be a very powerful marketing and sales tool for gaining strategic advantages in the business world as well as in e-commerce (Malhotra & Peterson, 2001). Several hotels have made attempts to capture some of the growth potential of the internet by creating their websites and are using the internet for various purposes (Malhotra & Peterson, 2001). According to Ancker & Walden, (2001), hotels that do not have a web presence cannot bridge the gap between their existing and potential customers and also become competitively disadvantaged. It is argued by Migiro & Ocholla, (2005) that the advantages such as cost reduction, improved efficiency among others can be equally enjoyed by smaller accommodation facilities in developing countries. -Armijos et al., (2002) contend that technology applications and internet usage have assisted hotel companies in the realization of increase as most major indicators such as gross revenue, average daily rate, revenue per available room and net profit.

4.6.1 Extent of use of ICT to Facilitate of Marketing

The respondents were further asked to confirm the extent to which the use of ICT had facilitated Marketing in their organization. The results are indicated in figure 4.9

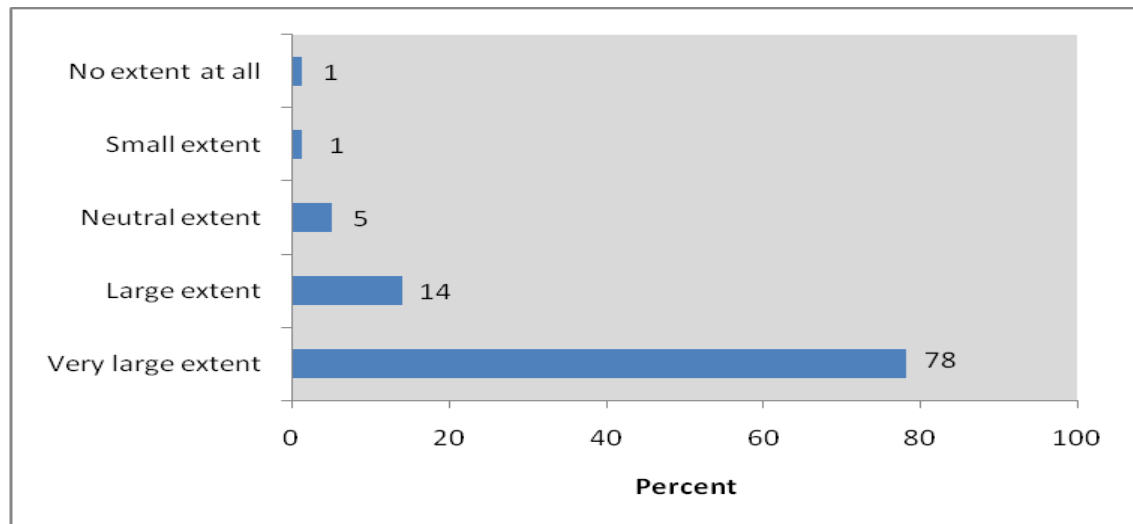


Figure 4.9: Extent of use of ICT in facilitation of marketing

Three quarters of the staff asserted that use of ICT in facilitation of marketing was to a very large extent while 14% mentioned that it had done so is to a large extent. 5% were neutral, and a few (1%) stated that use of ICT in facilitation of marketing was to a small extent and another (1%) said it had no effect at all.

According to earlier researchers, extensive networking is growing both within and between partner organizations (Amor 2002). The proliferation of the Internet, Intranets and Extranets supports communications between employees, units, organizations, as well as with external partners and consumers. Intranets and Enterprise Resource Planning (ERP) systems provided inter-organizational efficiency between processes, departments and functions enabling enterprises to reduce labour cost, systems that support an integrated electronic infrastructure. The respondents were also asked to indicate some of the Marketing benefits accruing

from the use of ICT applications as indicated in table 4.9

Table 4.9: Participants responses on ICT and the Marketing Benefits

	VLE		LE		N		SE		No. E	
	N	%	N	%	N	%	N	%	N	%
Communicating and promoting the E-business image	173	74	43	18	12	5	3	1	3	1
Communicating hotel's products and services	84	36	93	40	45	19	9	4	3	1
Providing company information to customers and stakeholders	12	15.4	46	59	10	12.8	10	12.8	-	-
Effectively communicating the firm's physical or virtual promotional activities	63	27	84	36	48	21	30	13	9	4
Sales leads and customer/market data	33	14	63	27	78	33	45	19	15	6
Allowing customers to communicate and interact with the hotel online	159	68	69	29	3	1	3	1	-	-
Allowing direct sales and facilitating online payments (transactional sites).	30	13	63	27	75	32	51	22	15	6
Enhanced the customers to be able to link with the hotels' front desks' reservation systems	174	74	45	19	9	4	3	1	3	1
Enhanced customer service hence retaining customer loyalty.	15	6	33	14	69	29	81	35	36	15

KEY:

VLE = Very large extent

N = Neutral

No.E = No extent

LE = Large extent

SE = Small extent

Majority (74%) of the staff agreed that the use of ICT in marketing of their hotels had facilitated easy communication and promotion of the e-business image to a very large extent, 18% who agreed to a large extent, 5% were neutral, a further 1% said to

a small extent and another 1% affirmed that it had no effect. When asked whether ICT communicated the hotels' products and services, 76% agreed out of which 40% mentioned that ICT had indeed contributed to a very large extent, and 36% said it had done so to a very large extent, while 19% said to a relatively large extent. A further 19% were neutral, 4% agreed to a small extent and only 1% said it had no effect. As to whether there was effective provision of the company's information to the customers and stakeholders, most (59%) of the staff members affirmed that use of ICT had indeed contributed in providing company information to customers and stakeholders to a large extent, while 15.4% said it had done so to a very large extent. About 12.8% said it had a small effect and another 12.8% were neutral. On communicating the firms's physical and virtual promotional activities, some 63% agreed, out of which 27% agreed to a very large extent, 36% to agreed to a large extent while 21% were neutral. 13% agreed that it had done so to a small extent and only 4% said it had no effect. On sales benefit, quite a number (33%) of staff members were neutral that use of ICT had contributed to sales leads and customer/market data. However a few (27%) stated that use of ICT had indeed contributed to sales leads and customer/market data to a large extent, 14% affirmed that it had done so to a very large extent, 19% to a small extent and only 6% said it had no effect.

Most (68%) of the staff members agreed that use of ICT for marketing purposes had benefited the customers in general by allowing them to communicate and interact with the hotel as well as creating online content to a very large extent, 29% agreed to a large extent while only 2% were neutral with 1% saying it did so to a small extent respectively. On whether it allowed direct sales and fascilited online payments, only 40% affirmed, out of which only 13% agreed to a very large extent while 27%

agreed to a relatively large extent, 32% were neutral, 22% agreed to a small extent and only 6% said it had no effect at all. In enabling customers to link with the hotels desk reservation systems, a huge 74% affirmed to a very large extent, 19% agreed to a large extent, 4% were neutral and only 2% were negative. On whether it played a role in retaining customer loyalty 20% agreed, with 6% who agreed to a very large extent and 14% agreed to a large extent. 29% were neutral, 35% agreed to a small extent and 15% said it had no effect.

The hotel managers also had their own opinions regarding the influence that ICT had in terms of marketing. Most of them reported that through ICT, the hotel had been able to increase a good number of customers who frequent the outlets; it had also improved communication processes between the hotels and the customers. Regarding the increased productivity in the selected hotels, one of the top managers (Manager E) said that:

'The use of ICT brings about enhanced productivity in the hotel industry. Moreover there is rise in total revenue due to improved customer service, billing of guests/customers and increased guest satisfaction. Ensuring speed in service delivery, measuring set standards, data storage and increased access of guest's history, room availability, and occupancy status also enhanced productivity.'

Additionally the study sought to gauge the increase of productivity and hence competitive advantage in the selected hotels in Nairobi's Hotel Industry. Productivity is the relationship between the quantity of output and input used to generate that output. It is basically a measure of the effectiveness and efficiency of an organization in generating output with the resources available. Essentially, productivity measurement is the identification and estimation of the appropriate

output and input of measures (Krugman, 1994). On the other hand Competitive Advantage are the benefits accruing to a firm in terms of revenue and the firms' position in the market share, which is manifested in improved performance in terms of better productivity and efficiency. It is in this regard that the respondents were asked to indicate whether they agreed with the various statements regarding the use of ICT and its influence on the productivity and hence the competitive advantages gained in the hotel industry.

These findings concurred with the Aslam, (2010), which indicated that ICT adoption had become crucial in the numerous hotel business transactions, which was observed when dealing with guests while making reservations and when offering credit allowances, as this also led to the generation of numerous communication networks and extensive written documentation ensuring appropriate payments for services rendered. With the advent of computer systems, hotels are now able to accept reservations within a two-year horizon with minimum problems and at minimal expense. From an accounting and control viewpoint there is none equal to the hotels' enormous volume of small transactions taking place so rapidly and at so many different points of sale (Kasavana & Cahill; 2003; Taylor & Francis, 1998). It was also found that ICT had not only enabled customers to search for and purchase customized hospitality and tourism products, but had also benefited suppliers by developing, managing and distributing their products without any time limits and geographical constraints (Buhalis & Law,2008). In another study Van Hoof (1995) examined the technology needs and perceptions of the hotels Managers and found that 92.7% of the managers agreed that the technology enhanced the effectiveness of the operation, while 81 percent said it enhanced customer satisfaction. Hoteliers generally regard ICT applications as one of many ways to connect a bridge with

prospective guests. In this manner information technology can play a crucial role in helping hoteliers learn more about the guests and their preferences (Lee, 2003), hence increasing customer loyalty.

4.6.2 Correlation Analysis between ICT Application & Marketing on Competitive Advantage

Correlation analysis was conducted between the Use of ICT in Marketing and Competitive Advantage. Results are shown in table 4.10.

Table 4.10: Correlation matrix

Variable	Correlation index	Competitive advantage	Use of ICT in Marketing
Competitive advantage	Pearson Correlation	1.000	
	Sig. (2-tailed)	0.000**	
Use of ICT in marketing	Pearson Correlation	.446	1.000
	Sig. (2-tailed)	0.000**	
** Correlation is significant at the 0.01 level (2-tailed).			

Results in Table 4.10 presents the results of the correlation analysis. The results revealed that use of ICT in Marketing and Competitive Advantage are positively and significantly correlated ($r=0.446$, $p=0.000$), such that a unitary increase of ICT Application leads to an increase in Marketing by 0.446 units.

Traditional Marketing has been transformed by the new technological advance creating new business context throughout time. The first dramatic implication occurred with the emergence of public press, telegraph, radio, television and fax technology (Ngai, 2003; Gregory, 2007). Today the internet not only offers tremendous opportunities for marketers but also brings new ways of conducting and

approaching consumer markets (Rahman, 2003).

4.6.3 Hypothesis testing for Objective 3

The null hypothesis for the third objective stated that the use of ICT in Marketing does not have a significant effect on competitive advantage within the 3-5 star-rated hotels in Nairobi. The alternative hypothesis for the third objective was: Use of ICT in marketing has a significant effect on competitive advantage within the 3-5 star-rated hotels in Nairobi. The hypothesis was tested by running an ordinary least square regression model. The acceptance/rejection criteria was that, if the p value is greater than 0.05, the Ho is not rejected but if it is less than 0.05, the Ho fails to be accepted. Results are shown in table 4.11.

Table 4.11: Regression results

Variable	B	Std. Error	T	sig
(Constant)	0.755	0.107	7.024	0.000
Use of ICT in marketing	0.37	0.049	7.581	0.000

The p-value of 0.000 indicated that the null hypothesis was rejected, hence the alternative hypothesis which states that the use of ICT in marketing has a significant effect on competitive advantage within the 3-5 star-rated hotels in Nairobi applied.

4.7 Overall Inferential Statistics

Inferential analysis was conducted to generate correlation results, model of fitness, and analysis of the variance and regression coefficients.

4.7.1 Overall correlation analysis

Overall Correlation analysis was conducted between all the independent variables and the dependent variable. Results are shown in table 4.12.

Table 4.12: Correlation between ICT, Service delivery, Employee empowerment & Marketing:

Variables	Correlation index	Competitive advantage	Use of ICT in Service delivery	Use of ICT in Employee empowerment	Use of ICT in Marketing
Competitive advantage	Pearson Correlation	1.000			
	Sig. (2-tailed)				
Use of ICT in Service delivery	Pearson Correlation	.239	1.000		
	Sig. (2-tailed)	0.000**			
Use of ICT in Employee empowerment	Pearson Correlation	.345	0.100	1.000	
	Sig. (2-tailed)	0.000**	0.126		
Use of ICT in marketing	Pearson Correlation	.446	0.037	0.034	1.000
	Sig. (2-tailed)	0.000**	0.573	0.603	
** Correlation is significant at the 0.01 level (2-tailed).					

Results in Table 4.12 presents the results of the correlation analysis. The results revealed that use of ICT in service delivery and competitive advantage are positively and significantly correlated ($r=0.239$, $p=0.000$). The results also revealed that the use of ICT in employee empowerment and competitive advantage are positively and significantly correlated ($r=0.345$, $p=0.000$). Further, results revealed that Use of ICT in marketing and competitive advantage are positively and significantly correlated ($r=0.446$, $p=0.000$). Application of ICT in hotel industry has had a positive impact in the provision of competitive advantages in terms of service

delivery. According to Prahalad & Hamel (1990), core competencies and capabilities of a firm are created by its ability to coordinate its diverse production skills and effectively integrate its streams of technology. Lack of this leads to the need to examine the role of ICT in creating competitive advantage globally and in the selected hotels in Nairobi.

Traditional marketing has been transformed by the new technological advance creating new business context throughout time. The first dramatic implication occurred with the emergence of public press, telegraph, radio, television and fax technology (Ngai, 2003; Gregory, 2007). Today the internet not only offers tremendous opportunities for marketers but also brings new ways of conducting and approaching consumer markets (Rahman, 2003).

4.7.2 Regression analysis of Service Delivery, Employee Empowerment and Marketing

The results presented in table 4.13 indicates the fitness of model used of the regression model in explaining the study phenomena use of ICT in service delivery, Use of ICT in employee empowerment and Use of ICT in marketing were found to be satisfactory variables in explaining competitive advantage. This is supported by coefficient of determination also known as the R square of 34.4%. This means that the organization's use of ICT in service delivery, in employee empowerment and in marketing explain 34.4% of the variations in the dependent variable which is competitive advantage. This results further means that the model applied to link the relationship of the variables was satisfactory.

Table 4.13: Model Fitness

Indicator	Coefficient
R	0.586
R Square	0.344
Adjusted R Square	0.335
Std. Error of the Estimate	0.46831

In statistics significance testing the p-value indicates the level of relation of the independent variable to the dependent variable. If the significance number found is less than the critical value also known as the probability value (p) which is statistically set at 0.05, then the conclusion would be that the model is significant in explaining the relationship; else the model would be regarded as non-significant. This simply implies that for an increase in any of the three variables there is an increase of 34% in the competitive advantage.

Table 4.14: Analysis of Variance

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	26.425	3	8.808	40.163	0.000
Residual	50.443	230	0.219		
Total	76.868	233			

Table 4.14 provides the results on the analysis of the variance (ANOVA). The results indicate that the overall model was statistically significant. Further, the results imply that the independent variables are good predictors of performance. This was supported by an F statistic of 40.163 and the reported p value (0.000) which was less than the conventional probability of 0.05 significance level. Regression of coefficients results were presented in table 4.15.

Table 4.15: Regression of Coefficients

Variable	B	Std. Error	T	Sig
(Constant)	0.02	0.15	0.16	0.873
Use of ICT in service delivery	0.17	0.05	3.58	0.000
Use of ICT in employee empowerment	0.27	0.05	5.79	0.000
Use of ICT in marketing	0.36	0.04	8.00	0.000

Table 4.15 shows that use of ICT in service delivery and competitive advantage are positively and significantly associated ($r=0.17$, $p=0.000$). This means that a unit increase in the application of ICT in service delivery leads to an increase in competitive advantage of the hotels by 0.17 units. The results revealed that Use of ICT in employee empowerment and competitive advantage are positively and significantly associated ($r=0.27$, $p=0.000$). This means that a unit increase in the application of ICT in employee empowerment leads to an increase in competitive advantage of the hotels by 0.27 units. Further, results revealed that Use of ICT in marketing and competitive advantage are positively and significantly associated ($r=0.36$, $p=0.000$). This means that a unit increase in the application of ICT in marketing leads to an increase in competitive advantage of the hotels by 0.36 units. The overall Correlation between ICT, Service delivery, Employee empowerment & Marketing & Competitive Advantage which are all positively and significantly associated is a clear indication that the innovative use of ICT in the Hospitality industry is the way forward for firms who intend to leverage their products & services to gain a competitive edge.

Thus the optimal model for the study is;

$$\text{Competitive advantage} = 0.02 + 0.17X_1 + 0.27X_2 + 0.36X_3$$

Where;

X_1 = Use of ICT in service delivery

X_2 = Use of ICT in employee empowerment

X_3 = Use of ICT in marketing

With 0.02 being the constant factor it simply implies that an increased usage of ICT Applications on Service Delivery results to an increase in Competitive Advantage; similarly an increase of ICT Application in Employee Empowerment results into an increase of Competitive Advantage. Similarly, increased usage of ICT Application in Marketing would results in increased Competitive Advantage.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of findings, conclusions and recommendations and suggestions for further research.

5.2 Summary of Findings

The major findings which were based on the study objectives are summarized below

5.2.1 Application of ICT in Service Delivery on Competitive Advantage

The first objective of the study was to investigate the effect of ICT Application in Service Delivery and Competitive advantage. On application of ICT in hotel operations, overwhelming majority of the staff members indicated that their hotel reservation system was intergrated with either the Fidelio system (77%) or the Opera (23%). These were mainly used in most hotels for purposes of accounting, resevations and hotel billings. ICT applications had enabled numerous and better transactions in booking systems and inventory appropriately. Moreover use of ICT had enabled hotels to quickly and flexibly respond to the market and client needs. ICT facilities such as emails and internet were largely used as depicted in the study findings, which formed about 100% of clients usage.

Results from the regression analysis showed that use of ICT in service delivery and competitive advantage were positively and significantly associated ($r=0.17$, $p=0.000$). This means that a unitary increase in the application of ICT in service delivery lead to an increase in competitive advantage of the hotels by 0.17 units.

5.2.2 Application of ICT in Employee Empowerment on Competitive Advantage

The second objective of the study was to investigate the effect of ICT Application in employee empowerment on Competitive advantage. It was evident that majority (73%) indicated that the use of ICT applications had enhanced their ability to increase competitive advantage in the organization. Thus the use of integrated PMS enabled the employees to be more flexible and enhanced their ability to meet customers' needs more efficiently. It consequently reduced a lot of manual paper work which had been an earlier norm.

The results from the regression revealed that the use of ICT in employee empowerment and competitive advantage are positively and significantly correlated ($r=0.27$, $p=0.000$). This means that a unitary increase in the application of ICT in employee empowerment leads to an increase in competitive advantage of the hotels by 0.27 units. The average likert scale of 1.43 also collaborated with the above results and indicated that most of the respondents agreed that application of ICT played a major role in employee empowerment

5.2.3 Application of ICT in Marketing and Competitive Advantage

The third and last objective of the study was to investigate the effect of ICT Application in Marketing on Competitive advantage within the 3-5 star-rated hotels in Nairobi. In marketing, use of websites (85%), facebook and twitter (65%) were largely used by the selected hotels for marketing the services. The use of emails, formed another ninety six (96%), with another seventy eight percent (78%) of the staff affirming that the use of ICT in the facilitation of marketing was done to a very large extent. Further, a majority (74%) agreed that the use of ICT in Marketing of their hotels had facilitated easy communication and promotion of the e-business.

ICT had increased a good number of customers who frequent the outlets; thus improving communication processes between the hotels and the customers. Another sixty eight percent (68%) confirmed that its use had allowed customers to communicate and interact online. On competitive gains, ICT had been crucial in improving employee performance thus empowered employees were able to effectively manage the diverse ICT technologies. E-business or E-commerce through the internet has brought both the Multinational companies and the local companies at par, such that both can transact businesses without any Geographical constraint. It has also increased Virtual learning and interactions amongst the company staff.

Results from the regression analysis revealed that the use of ICT in marketing and competitive advantage were positively and significantly associated ($r=0.36$, $p=0.000$). This means that a unitary increase in the application of ICT in marketing leads to an increase in competitive advantage of the hotels by 0.36 units.

5.3 Conclusion

5.3.1 Application of ICT in service delivery

Based on the findings above the study concluded that the use of ICT in service delivery has a positive and significant influence on competitive advantage. ICT plays a number of crucial roles in modern hotel operations. The study found that the use of ICT per se does not enhance competitive advantage. It is therefore crucial for most firms to innovatively integrate their websites with PMS such as the Fidelio and the Opera systems which aids the hotels to manage their inventory, and its' vast business transactions. Second, the CRS computerized operation systems can be used as a marketing tool through the internet during guest reservation, bookings and sell of tickets to multiple airlines through the global distribution systems (GDS)

if well integrated with the PMS. Finally, it can also aid the management to increase capacity and yield management and help to review its revenue policies to avoid loss of revenue. The use of the PMS based technologies not only promotes efficiency but aids in the increase of yield management in the hotels.

5.3.2 Application of ICT in Employee Empowerment

Based on the findings above the study concluded that the use of ICT in employee empowerment had a positive and significant influence on competitive advantage. The study concluded that application of ICT had led to intensive staff training and enabled the employees to effectively manage the Fidelio system which though complex in nature was quite a cost effective device and when well integrated with the hotels reservation systems its user friendly. However the staff and management felt that the integrated PMS should be customized into the Kenyan system to allow easy manipulation thus reducing its cost effectiveness. Secondly the high cost of technology had restricted the growth and expansion of the Hospitality industry resulting into financial constraints during the implementation, development and the expansion stages.

According to Scholars such as Banas of Ford company who observed that firms who only invest in technology and not the human resource could not leverage their transactions efficiently. A more flexible staff was quite crucial in handling the advanced technology hence promoting efficiency.

5.3.3 Application of ICT in marketing

Based on the findings above the study concluded that use of ICT in marketing has a positive and significant influence on competitive advantage. Internet has proved to be a very powerful marketing and sales tool for gaining strategic advantages in the

business world as well as in e-commerce (Gregory, 2007). Several hotels have made attempts to capture some of the growth potential of the internet by creating their websites and are using the internet for various purposes.

5.4 Recommendations

Based on the findings and conclusion above, the study recommends hotels should adopt ICT in service delivery, employee empowerment and marketing in order to improve quality, enhance customer retention and create awareness. Below are specific recommendations:

1. According to the Literature review, the use of ICT per se does not enhance competitive advantage. However the results of the study indicate that application of ICT in service delivery and competitive advantage was positively and significantly correlated. Therefore it recommended that companies, hotels included should strategically and innovatively find ways of enhancing and promoting performance and efficiency through application of ICT intergrated with PMS functions. In particular the use of ICT in marketing, service delivery and in empowering employees.
2. The theoretical knowledge in this study was found in the test of hypotheses, where the research deduced that the objectives were significantly correlated. This was mainly found in the advancement of knowledge from a theoretical perspective. Porter's theoretical knowledge which was adopted in the study placed a great emphasis on cost leadership, differentiation and focus strategies. He suggested that for any firm to succeed, only one mentioned strategy could be used at any given time. However the study recommended that two or more strategies can be used for a firm's success.

3. Most firms tend to invest heavily in technology, instead of investing in the human resource. The research found that application of ICT in employee empowerment and competitive advantage was positively and significantly correlated. The study therefore recommended that hoteliers should empower their employees to handle advanced ICT technologies. Given the competitive nature of the Hospitality industry and the demand for customers to use this technology, this called for the hoteliers to train their employees to facilitate them in enhancing customer management. This aspect promoted the advancement of theoretical knowledge in the area where ICT was applied.
4. According to Banas firms require a more flexible and trained staff to facilitate hotel transactions. Based on the study it is recommended that education and training of employees education in the use of ICT would be a powerful and productive and quality enhancing tool.
5. The study recommends that hotels should make use of ICT in very innovative and strategic ways, which can position them to gain advantage over their competitors.
6. Due to the radical change of the market and customer behavior, the critical decision for most hotel businesses is to develop their ICT business character so that it is compatible with the new information technology era which promoted cost benefit analysis due to the differentiation aspects of products and services..
7. The research recommends the use of e-marketing to enable hotel businesses to improve their visibility, interactivity, efficiency and competitiveness. The future of the hotel industry is electronic and Information Technology will

play a leading role in the transformation of the whole sector.

5.5 Suggestions For Further Studies

The study sought to investigate the role ICT had played in creating competitive advantages. This called for analysis of the 3-5 star hotels only in Nairobi, the capital city of Kenya's hotel industry. In future, researchers should consider other 3-5 star hotels which are not within Nairobi County to determine the extent to which the result of this study can be generalized.

Secondly, the research was mainly confined to the room division sector, sales and marketing and Accounts departments in the hotel. It did not cover the Food and Beverage section, Personnel, Logistics and the Human resource area. These forms a good platform for future research.

Thirdly, the study used cross sectional descriptive data collection vs the longitudinal one. In cross section data collection, the data is only collected at one point in time whereas in longitudinal method, data collection is done over a long period of time giving more concrete results. It is recommended that future studies adopts the longitudinal method to trace changes related to adoption of ICT overtime.

Finally the market share and hence the hotels' growth in terms of profit results were based on the respondents perception and reports and no actual measurements were done. The study suggested that more research to be carried out where more accurate measurements can be done for better accurate results.

REFERENCES

- African point, (2010). World Travel & Tourism Council of Kenya. *International Journal in Tourism Management*. Vol 2. pp 2-4
- Anckar, B. & Walden, P. (2001). Introducing web technology in a small peripheral hospitality organization. *International Journal of Contemporary Hospitality Management*. Vol. 11, pg 302-315.
- Arth, O. L.,(2012). “ Choosing a Reservation Representation Company”, Retrieved 27th May 2016
- Armijos, A., DeFranco, A., Hamilton, M., & Skorupa, J., (2002), “Technology trends in the lodging industry: A survey of multi-unit lodging operators”, *International Journal of Hospitality Information Technology*, 2(2), pp.1-18
- Aslam, (2010). ICT Adoption in hotels’ Performance. *Journal of Hospitality & Tourism Technology*. 2(1), 45-57.
- Babbie, D. (2004). *Research Methodology. Methods & Techniques*. Irwin/McGraw-Hill, USA.
- Barton, D. (2001). Directions for literacy research: *Analysing language and social practices in a textually-mediated world*. *Language and Education*, 15 (2-3). pp. 92-104. ISSN 0950-0782
- Balocco, R.Mogre, R & Toletto, G.(2006). Mobile internet & SMEs; a focus on the adoption, *Industrial management & Data Systems*, Vol 109,No. 2; pp 245-261
- Bilgihan, A. Okumus, Nusair & Kwun (2011). Information Technology applications and competitive advantage in hotel companies. *Journal of Hospitality & Tourism Technology*, 2(2), 139-153
- Blankenship, D. C (2010). *Applied Research and Evaluation Methods in Recreation*, Frostburg State University, United States.
- Borg, W. R. & Gall, M.D. (1989). *Educational Research*. White Plains, New York: Longman.
- Breakwell, G.M, Hammond, S & Fife-Schaw, (2005). *Research Methods in Psychology* (6th Ed). London, Sage Publication
- Brynjolfsson, E. (1993), “The productivity paradox of Information technology”, *Communications of ACM, International Journal of Operations & Production Management*, Vol.36. No. 12, pp. 67-77.

- Brynjolfsson & Yang S-K (1996) Information technology and productivity: a review of the literature. *Advances in Computers International Journal of Business Management*, 43: 179-214
- Buhalis, D. Law,R. (2008), “Progress in information technology and tourism management; 20 years on and after the internet – the state of ecotourism research”, *Tourism Management*, Vol. 29 No. 4, pp. 609-623.
- Burgess, C. (2000), “The hotel financial manager- challenges for the future”, *International Journal of Contemporary Hospitality Management*, Vol. 12. No. 1, pp. 6-12.
- Chadee D, Kumar R (2001) Sustaining the International Competitive advantage of Asian firms: a conceptual framework and research propositions. *International Journal Operations & Production Management*, Vol 18; 461-480
- Communications Commission of Kenya & Kenya National Bureau of Statistics, (2010). National ICT Survey Report, 2016
- Corbin, J. & Strauss, A (2005), ‘Grounded Theory Research; Procedures, Canons and Evaluative Criteria; *Qualitative Sociology*, Vol 13; 3-4.
- Coviello, N. Brodie, R., Brookes, R, Palmer, R.A. (2003), “Assesing the role of e-Marketing in Contemporary Marketing Practises,” *Journal of Marketing* Vol. 19 No. 7-8, pp 857-81
- Chen, J., Ching, R. (2004). “ An empirical study of the relationship of ICT intensity amd organizational absorbtive capapcity on CRM performance,” *Journal of Global Information Management*, Vol. 12 No. 1, pp.1-17
- Christensen C.M & Fahey (2003); *The innovator’s solution; Creating & Sustaining successful Growth*; Boston, Massachussets; Harvard Business School Press.
- Cho, W. & Olsen, M. (1998). A study to understanding the impact of Information Technology on Competitive advantage in lodging industry. *Journal of hotel Tourism Research* , Vol. 22 , pg 376-394.
- Chong, S., Pervan, G; & Bauer, C, (2001). Implementation Success of Internet-based Electronic Commerce for Small & Medium-sized Enterprises in Australia. *International Journal of Business Management*, 14th International Bled Electronic ,Bled, Slovenia,June 25-26
- Cline, S. & Warner, M. (1999). *Hospitality 2000: the technology, ground breaking study probes strategic and investment issues*. Retrieved January 10, 2011 from www.hftp.org/members/bottomline/ back

issues/1999/September/H2000.htm

- Cline, S. (1999). Hospitality 2000: The Technology, Lodging Hospitality. *International Journal of Contemporary Hospitality Management* Vol. 55 No. 7, pp. 18-26.
- Connolly, D. J., & Olsen, M. D. (2000), "Hospitality IT: What does the future hold?" *FIU Hospitality Review*, 18(2), pp. 22-36.
- Cox, M. (2003), "The E-MBA action learning: lessons for hospitality leaders", *International Journal of Contemporary Hospitality Management*, Vol.15 No. 6, pp.352-4.
- Constantinides, E., (2002), "The 4S Web-Marketing Mix model", *Electronic Commerce Research and Applications* Volume 1, Issue 1, Spring 2002, pp. 57-76
- Croes, R.R, Tesone, D.V. (2004), "Small firms embracing technology and tourism development: evidence from two nations in Central America", *International Journal of Hospitality Management*, Vol. 23 No. 5, pp.557-64.
- Cron, W. & Sobol, M. (1983). The relationship between Computerization and Performance. *Information Management, International Journal of Contemporary Hospitality Management*, Vol. 6 No 1, pp 171-81.
- Dangayach, G.S., & Desmukh, S,G.,(2003). Evidence of manufacturing strategies in Indian industry. *International Journal of Production Economics*, 83: 279-298.
- Dev, C. S., & Olsen, M. D. (2000), "Marketing challenges for the next decade," *Cornell Hotel and Restaurant Administration Quarterly*, 4 (1), pp. 41-47.
- Emmer, R.M., Tauck. C., Wilkinson, S., Moore, R. G. (1993), "Marketing hotels using Global Distribution systems", *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 34 No. 6, pp.80-9.
- EPZA (2005). Kenya Information & Communication Technology Sector, Nairobi: Export Processing Zone Authority.
- Fuho C, (1996). Information Technology Implementation Strategies for Manufacturing Organizations. *International Journal Operations & Production Management*, 7(6), 77-100
- George, D. & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and Reference*.11.0 update (4th ed.).Boston: Allyn &Bacon.
- Gall, M. D., Borg, W. R. and Gall, J. P. (2003). *Educational research: An*

introduction. (7th Edition). White Plains, New York: Longman

- Gay, L.R. (2003). *Educational Research: Competencies for analysis and application* (5th Ed.) New Jersey: Prentice Hall Inc.
- Gilbert, D., Powell-Perry, J. (2004), "Exploring developments in web based relationship marketing within the hotel industry", *Journal of Hospitality & Leisure Marketing*, Vol. 9, No. ¾, pp. 141-60.
- Gursoy, D., Swanger, N. (2007), "Performance-enhancing internal strategic factors and competencies: impacts on financial success" *International Journal of Hospitality Management*, Vol.26 No.1, pp.213-27.
- Gratzer, M and Winiwarter, W. (2003). The Role of the Internet in the SME hotel sector in Austria. In G. Goos, J.
- Gregory G.T (2007), "*Introduction to the Special Section: The American Marketing Association's New Definition of Marketing: Perspectives on Its Implications for Scholarship and the Role and Responsibility of Marketing and Society*," *Journal of Public Policy & Marketing*, 26 (Fall), 243–50.
- Ham, S., Kim, W, G., Forsythe, H.W. (2008), "Restaurant employees' technology use intention: validating technology acceptance model with external factors", *Journal of Hospitality & ----Leisure Marketing*, Vol. 17 No. ½, pp..78-98.
- Hashim, J. (2007). Information Technology (ICT) adoption among SME owners in Malaysia. *International Journal of Business & Information*; Vol, 2, No, 2: pp. 221-246
- Hartmanis and J. Van Leeuwen (Eds.), *Web and Communication Technologies and Internet-related Issues* (pp28-39). Springer: Berlin.
- Healy, P. & Dillon, L. (2004), *Industrial & Commercial Training* Vol.27 Number 5 pp 2; MCB Commercial Press: ISSN 0019-7858
- Henry, C. & Lucas, J.R. (2005). *Information Technology. Strategic Decision Making for Managers*. Chicago: Wiley Publishers
- Hill, C.W.L., & Rothaermel, F.T (2008). The performance of incumbent firms in the face of radical technological innovation. *Academy of Management Review*, 28(2), 257-274
- Hitts, L. & Brynjolfsson, E. (2002). *Information technology, Organizational transformation and Business performance*. Cambridge: Cambridge press.

- Hoof, V. (1995). Technology needs and perceptions. Cornell Hotel and Restaurant Administration Quarterly. . *International Journal Operations & Production Management*, Vol. 36 No. 5, pp. 64-9.
- Irvine W, & Anderson, A (2008). Information Communication Technology, peripherality and smaller Hospitality businesses in Scotland. *International Journal of Entrepreneurial Behavior & Research*, 14 (4) 200.
- Jimmy J.M.,& Li, K.X., (2003). Implications of ICT for knowledge management in globalization. *Journal in information management and computer security*, 11: 167-174.
- Johnson, G., Scholes, K. & Whittington, R. (2008). Exploring Co-orporate Strategy : text & cases, 8th edition, Prentice-hall, London, Pearson education ltd.
- Kasavana, M.L and Cahill, J.J. (2003). *Managing Technology in the Hospitality Industry* (4th Ed). Michigan. Educational Institute of the American Hotel and Lodging Association.
- Kasavana, M, L (2006), *Innovative Guest Facing Application* (5TH Edition). Michigan Educational Institute of the American Hotel and Lodging Association.
- Khalifa, A. (2000). Enhancing the Performance of Banking Operations Through Appropriate Information Technology, *Information Technology in Nigerian Banking Industry*.
- Kogliah, N. Santhaparaj, A,S & Eze, U.C.(2008). An empirical study of website adoption among small & medium enterprises in Malaysia, proceedings of the 10th International Business Information Management Association, (IBIMA), Conference on Innovation & Knowledge Management in Business Globalization; Kuala Lumpur, pp 339-351
- Kotelnikov, V. (2007). Small & Medium Enterprises & ICT UN Development programme – Asians Pacific Training Centre for Information & Communication Technology for Development, UNDP Regional Centre, Bangkok.
- Kotler,R.. (2000). Marketing management: Millenium edition, upper saddle river, NY. Prentice – Hall.
- Kothari, C.R (2004). *Research Methodology. Methods & Techniques*. New Delhi, India. New Age International Publishers Ltd.
- Kothari, T. Hu, C. Roehl, W. S. (2007), “Adopting e-procurement technology in a chain hotel: an exploratory case study”, *International Journal of Hospitality*

Management, Vol. 26 No. 4, pp. 886-98

- Kimes, S.E. Wagner, P.E. (2001), "Preserving your revenue-management system as a trade secret", *Cornel Hotel and Restaurant Administration Quarterly*, Vol, 42 No. 5, pp.8-15.
- Krejcie, R.V & Morgan D.W (1970). Small Sample Techniques. The NEA Research Bulletin, Vol. 38 (December, 2005), p. 99.
- Krugman. P., (1994). *The Age of Diminishing Expectations*. MIT Press
- Kuria, S., Wandari, P., & Alice, O. (2011). Factors influencing labor turnover in 3-5 star Hotels in Kenya: An International Journal of Humanities & Social Sciences, 1(20), December 2011, DOI; 10.5897/JHMT.11.022
- Law. R. Jogaratnam. G. (2005), "A study of hotel information technology applications", *International Journal of Contemporary Hospitality Management*, Vol.17 No.2, pp.170-80.
- Law, R., Leung, R., Buhalis, D, (2009), "Information technology applications in hospitality and tourism: a review of publications from 2005-2007", *Journal of Travel & Tourism Marketing*, Vol. 26 No. 5/6, pp. 599-623.
- Law, R., Lau, M. (2000), "The computer millennium bug's impact on the hotel industry, a case study of the Kowloon Hotel", *International Journal of Contemporary Hospitality Management*, Vol. 12 No. 3., pp.170-8.
- Laudon K. C & Laudon J.T (1994). *Management Information System Organization and Technology*. Macmillan
- Lee, S. (2003). Technology, service quality, and customer loyalty in hotels: Australian Managerial perspectives. *Managing Service Quality, Journal of Hospitality and Tourism Research*, Vol. 13 No. 5, pp. 423-32.
- Litchman, M. (2008). 'Qualitative Research in Education' *International Journal of Contemporary Hospitality Management*, Vol. 18 pp 16-20
- Maguire, S., Koh, S.C.L., Magrys, A., (2007). The adoption of e-business & Knowledge Management in SMEs, *SCH: An International Journal*, 14(1): 37-58
- Mariga, Leah W. L (2011) <http://ir-library.ku.ac.ke/handle/123456789/1841>
- Malhorta, N. K., & Peterson, M., (2001). "Marketing research in the new millennium: emerging issues and trends", *Marketing Intelligence & Planning*, 19 (4), pp.216-235

- Mobile Life Report (2006). *How mobile phones change the way, we live*. Retrieved July 30, 2010 from www.mobilelife2006.co.uk
- Mugenda, O.M. & Mugenda, A.G. (2003). *Research Methods: Quantitative and Qualitative Approaches*. Nairobi: ACTS Press.
- Miller, C. C., & Cardinall L.B (1994), Strategic Planning and Firm performance: a synthesis of more than 2 decades research. *Academy of Management Journal*, 37, (6), 1649-1665
- Migiro, S. O., & Ocholla, D. N., (2005), “*Information and communication technologies in small and medium scale tourism enterprises in Durban, South Africa*”, *Information Development*, 21(4), pp. 283-29
- O’Brien J.(2004). *Management Information Systems; Managing Information Technology in the Business Enterprise*. Irwin/McGraw-Hill, USA.
- O’Connor, P. & Horan, P. (2001). An analysis of web reservations facilities in the top 50 international hotel chains. *International Journal of Hospitality Information Technology*, Vol. 3, pgs. 371-385.
- O’Connor, P. (2001). *Using Computers in Hospitality*. London: Cassell.
- Omae, A. & Ateya, O (2011). Information Technology and Competitive Advantage in Kenya. *Journal of Hospitality & Tourism Management*, 3(3), 145-153.
- Orange, R. (2006) *Improved Work-Life Balance. The Role of ICT*. Thomson’s Corporation. USA
- Ngai, E.W.T., (2003). “*Commentary; Internet marketing research (1987-2000): a literature review and classification*”. *European Journal of Marketing*, 37 (1/2), 24-49.
- Ogula P.A. (1998). *A Handbook on Educational Research*. Nairobi: New Kemit Publishers.
- Paraskevas, A., Buhalis, D. (2002), “*Outsourcing IT for small hotels- the opportunities and challenges of using application service providers*”, *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 43, No. 2, pp. 27-39.
- Prahalad, C. K.,and Hamel, G. (1990). *The Core Competence of the Corporation*. *Harvard Business Review*, May-June, pp 79-91
- Pranicev, G., Alfrevic, N., & Stumberger, I., (2011). Information systems & the Hospitality enterprise performance: *Economics & Business Review*, 13(4), 227-249. Retrieved from <http://www.ebrjournals.net/ojs>.

- Pearce, J.A., & Robinson, R.B. (2011). *Strategic management: Formulation implementation & control*, 12th edition, McGraw-Hill
- Pires, G.D., & Aisbett, J. (2001). *Adual Marketing & Information Perspective to E-Commerce Adoption*. The New Castle University Research Publication.USA
- Porter, Michael, E. (1985). *Competitive Advanatge*. Free Press. ISBN 0 – 684-84146-0
- Porter, M. (2001), “Strategy & the internet”, *Harvard Business Review*. Vol.29 No.3, pp 66-7
- Pokharel, S., (2005). Perception on Information and Communication Technology Perspectives in logistics. *Journal of European Information Management*, 18:136-149
- Pyrczak, F.(2006). *Making Sense of Statistics; A Conceptual Overview*, 4th Edition: California State University, Los Angeles: Pyrczak Publishing.
- Rahman, Z., (2003), “Internet-based supply chain management: using the Internet to revolutionise your business”, *International Journal of Information Management*, 23,493-505
- Reid, R. & Sandler, M. (2004). The use of technology to improve service quality. *Cornell Hotel and Restaurant Quarterly*, *International Journal of Hospitality Information Technology*, Vol. 33 No. 3, pp. 68-73.
- Reynolds,W,Savage, W & William,A,(1994).Your own Business. A Practical Guide to Success. *Journal of Business Management*, 43: 118-119
- Rice, M.F. (2005). *Information and Communication Technologies and the Global Digital Divide Technology Transfer, Development, and Least Developing Countries Comparative Technology Transfer and Society*. Thomson’s Corporation. USA
- Rowe, M. (1999). Building a better guestroom. Lodging Hospitality, *International Journal of Contemporary Hospitality Management* Vol. 55 No. 11
- Sanchez, J., Satir, A, (2005), “Hotel yield management using different reservation modes”, *International Journal of Contemporary Hospitality Management*, Vol.17 No. 2, pp.136-46
- Sahadev,S, Islam, N. (2005), “Why hotels adopt ICTs: a study on the ICT adoption propensity of hotels in Thailand”, *International Journal of Contemporary Hospitality Management*, Vol. 17 No. pp. 391-401.

- Schmelz, D., Kennedy, K. (2004), "Buyer-seller relationship and information sources in an e-commerce world," *Journal of business & Industrial Marketing*, Vol. 19 No 3, pp.188-96
- Schware, R.,(2003). Information & Information technology (ICT) agencies: Functions, structures and best operational practices. *Journal of information system*, 5:3-7.
- Sigala, M. (2002). *The Information and Communication technologies Productivity Impacts in the UK hotels sector*. Glasgow, UK
- Siguaw, J.A., Enz, C.A. & Namasivayam, K. (2000). Adoption of Information Technology in US hotels: Strategically driven objectives. *Journal of Travel Research*, Vol. 39, pp 171-181.
- Sharma M.K. & Bhagwat R. (2006). Practises of Information systems, an evidence from select Indian SMEs. *Journal of manufacturing technology*, 17: 199-223.
- Snell, B & Bohlander. (2007). Human Resource Management. *International Journal of Human Resource*, Vol. 2, pgs 350-365.
- Statistical Abstracts (2010), *Kenya National Bureau of Statistics pp.240*, Nairobi, Kenya.
- Stewart, K. L., Barr, J. (2005), "Promotional methods used by hospitality- related firms in close proximity to Pennsylvania-trails", *Journal of Hospitaity & Leisure Marketing*, Vol. 13 No. 2, pp55-65.
- Stuart S. et al (2014). Validity. www.thefreedictionary.com. Accessed 21/2/2014
- Taylor, M. & Murphy, A., (2008). SMEs & E-business. *Journal of Small Business Enterprise Development*, Vol 11: 260-389
- Taylor, N. & Francis, M. (1998). *Information Technology & Organization Change*. New York, Wiley Publishers
- Tesone D.V (2006). *Hospitality Information Systems and E-Commerce*, (1st Edition). New Jersey. John Wiley and Sons.
- Torrington D. Hall L. Tailor S. (2005). *Human Resource Management*, 6th Edition. New Jersey Pearson's Educational Foundation.
- Turban. E, Lee J. Kink d, and Chung H.M,(1999) *Electronic Commerce: A managerial Perspective*, Prentice Hall .
- Thuy, N. & Asambadze, L. (2010). *Rapid and safe international expansion: Is it possible? The case of Rezidor Hotel Group*. Mälardalen University

Wadongo, B., Odhuno, E., Kambona, O., & Odhuno, L. (2010). Key Performance indicators in Kenya Hospitality industry: A perspective, Benchmarking; An International Journal, 17(6), 858-875646 Retrieved from [http://dx.doi.org/10:1108/00012531111135](http://dx.doi.org/10.1108/00012531111135).

www.emeraldsights.com. journals

Walsham, G. (2001). *Globalization and ICTs: Working Across Cultures*, University of Cambridge.

Wilkin, P. (2001). *The political economy of global communication*. London: Pluto Press.

Yeung, M.A; Shim, J.P., & Lai, A.Y.K. (2003). Factors Affecting E-Commerce Adoption; An Empirical Evidence, Communication of ACM 46 (9). *Journal of Business Management*

The Kenya Gazette, (13th June, 2003). *The Classification of Hotels & Restaurants*. Vol. CV-No. 62. Gazette notice No. 3976, Regulation 1988. Published by Government of Kenya.

Vanucci, C. L., & Kerstetter, D. L. (2001), "Meeting planners' use of the Internet to plan group Meetings," *Journal of Convention & Exhibition Management*, 2(4), pp. 23-36.

Vidgen, R et al (2004). Web business transformation: collaborative Commerce opportunities in SMEs, *Journal of Enterprise of Enterprise Information Management*, Vol. 17. No. 5. Pp 372-381

Veal, A, J. (2006). *Research Methods for Leisure and Tourism; A Practical Guide:* 3rd

Edition: Sidney. Prentice Hall Publisher

APPENDICES**Appendix I: Letter of Introduction:**

I am a student at Kenyatta University undertaking a Masters programme in Hotel and Restaurant Management. Currently I am doing a research on “Impacts of Information And Communication Technology on Competitive Advantages in 3-5 Star Hotels in Nairobi.”

I'd like to request for your participation in this study to enable me to complete my thesis. Any information given will be treated with utmost confidentiality and anonymity. I'd wish to thank you in advance.

Yours faithfully

ESTHER ODAWA

Appendix II: General Questionnaire for all Members of staff:

Dear Respondents,

Attached is a questionnaire that seeks your opinion on issues related to the adoption and use of ICT in your hotel. I would be grateful if you would take some time and complete the questionnaire as best and honestly as you can. Any information provided will be treated with utmost confidentiality and no single response will be reported on its own, but as a summation of all responses.

Section 1: Demographic Information:

1. Gender:

Male Female

2. Age

20 – 30 years 41 – 50 years

31 – 40 years 51 years and above

3. Working experience

2 years and below 6 years and above

3 – 5 years

2. What is the level of your education?

- i. KSCE
- ii. Diploma level
- iii. University Graduate
- iv. Masters
- v. Doctorate

3. Which of the following departments do you belong?

- i. Sales & Marketing
- ii. Front Office
- iii. Accounts
- iv. Housekeeping

1. How long have you been in the organization

- i) 0 - 6 months
- ii) 1 - 3 yrs
- iii) 2 - 4yrs
- iv) Over 5 yrs

Section II: Application of ICT in hotel operations

2. a) Is your hotel's reservation system integrated with any of the following ICT-based PMS?

- i. Fidelio system
- ii. Opera system
- iii. Other, specify or explain _____

b) To what extent do you agree or disagree with the following facts about ICT applications?

1-Strongly Agree

2- Agree

3-Undecided

4- Disagree

5-Strongly Disagree

ICT application	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Has enabled numerous and better transactions in booking systems.					
Has enabled hotels to manage their inventory					
Has enabled wide distribution of networks					
Has enabled hotels to quickly and flexibly respond to the market and client needs					
Has contributed to the firms' and consequently the country's economic Growth					

3. Which of the following guest room facilities does this hotel use? (Tick where applicable)

- | | |
|--------------------|--------------------------|
| i. Internet | iv. E-mails |
| ii. Voice mail | v. Electronic door locks |
| iii. Wake-up calls | |

Section 111: ICT in Empowering Employees

6. To what extent do you think training of employees in ICT applications has enhanced their ability to increase competitive advantage in the organization?

- | | | | |
|---------------------------|-----|-------------------|-----|
| i) To a very great extent | [] | iv) To no extent | [] |
| ii) To a greater extent | [] | v) Neutral extent | [] |

iii) To small extent []

7. The following are some statements on the effect of the use of ICT in improving employees' work and enhancing their ability to use PMS. Please indicate your agreement in regard to each of the following statements in relation to your establishment?

	True	Not true	Not sure
ICT use in my organization has enabled the employees to be more flexible and enhanced their ability to meet customers, needs more efficiently.			
Use of ICT has led to effective management of PMS by the employees.			

Section IV: ICT and Marketing in the Hotel industry:

11. The following are some uses of ICT in Marketing in the hotel industry. Please indicate the extent to which each of the practices has been adopted in your organization.

1-Very large extent

2-large extent

3-Neutral extent

4-Small extent

5-No extent at all

USE OF ICT	1	2	3	4	5
Use of websites to for marketing the services offered					
Use of face book/Twitter/Yu tube for marketing organization services					
Use of emails					
Use of TVs and Radio					

12. To what extent do you think use of ICT has facilitated marketing in your organization?

i) To a very large extent [] ii) Large extent []

iii) Neutral extent [] iv) Small extent [] v) No extent at all []

13. The following are some advantages of the use of websites as marketing tools in the hotel industry. Please indicate the extent to which each of the benefits is realized by your organization.

1-Very large extent 2-large extent 3-Neutral extent

4-Small extent 5-No extent at all

USE OF WEBSITES HAS THE FOLLOWING ADVANTAGES TO THE HOTELS:	1	2	3	4	5
Communicating and promoting the E-business image					
Communicating labels and products/services					
Providing company information to customers and stakeholders					
Effectively communicating the firm physical or virtual promotional activities					
Sales leads and customer/market data					
Allowing customers to communicate and interact with the company as well as creating online content					
Allowing direct sales and facilitating online payments (transactional sites).					
Enhanced the customers to be able to link with the hotels' front desks' reservation systems					
Enhanced customer service hence retaining customer loyalty.					

Thank you for cooperating

Appendix III: Interview Guide for the Management

I am a student at the Kenyatta University taking a study in Hospitality & Tourism mgt.

You have been selected to participate in this interview based on your position in the hotel. The information you are about to give in is solely meant for research purpose and thus will be treated with utmost confidentiality. Thank you for accepting this invitation to be interviewed

1. Which of the following defines your position in this organization

- | | |
|----------------------------|-------------------------------|
| i. The General Manager | iv. Sales & Marketing Manager |
| ii. Front Office Manager | v. Senior Accountant |
| iii. Executive Housekeeper | |

2. Working experience in the organization

- a) 2 years and below b) 3-5 years c) 6 years and above

3a. How do you apply ICT in your organization

b. Have you installed the Property Management System within the organization. If so, what

are the benefits ?

4. Do you use use ICT as a marketing tool in your organization Yes []

No []

If yes briefly explain how it is used in marketing

5. What benefits have you experienced when using ICT in your department
6. Does your company have well trained staff with enough experience to handle ICT application in your hotel. Please explain
7. Has the use of ICT brought about enhanced Competitive Advantage in the hotel industry in terms of quality and nature of services offered in customer care relationship ? Kindly explain
8. What would you recommend to be done to improve the use of ICT in gaining Competitive Advantage in the hotel industry in future ?

Thank for your cooperation

Appendix 111: LIST OF HOTELS:

1. SAROVA PANAFRIC HOTEL
2. SAFARI PARK HOTEL
3. SERENA HOTEL
4. SIXEIGHTY HOTEL
5. HOTEL INTERCONTINENTAL
6. SIVERSPRINGS HOTEL
7. UTALII HOTEL
8. NORFOLK HOTEL
9. FIGTREE HOTEL
10. SPORTSVIEW HOTEL
11. MARBLE ARH HOTEL
12. HILTON HOTEL
13. AMBASSANDEUR HOTEL
14. FAIRVIEW HOTEL
15. LANDMARK (JACARANDA)
16. THE BOUNTY HOTEL
17. MLIMANI HOTEL
18. KWALITY HOTEL
19. BOUNTY HOTEL
20. COUNTY HOTEL

21. HOTEL SOUTHERN BLUE

22. BLUE HUT HOTEL

23. HOTEL BOULEVARD

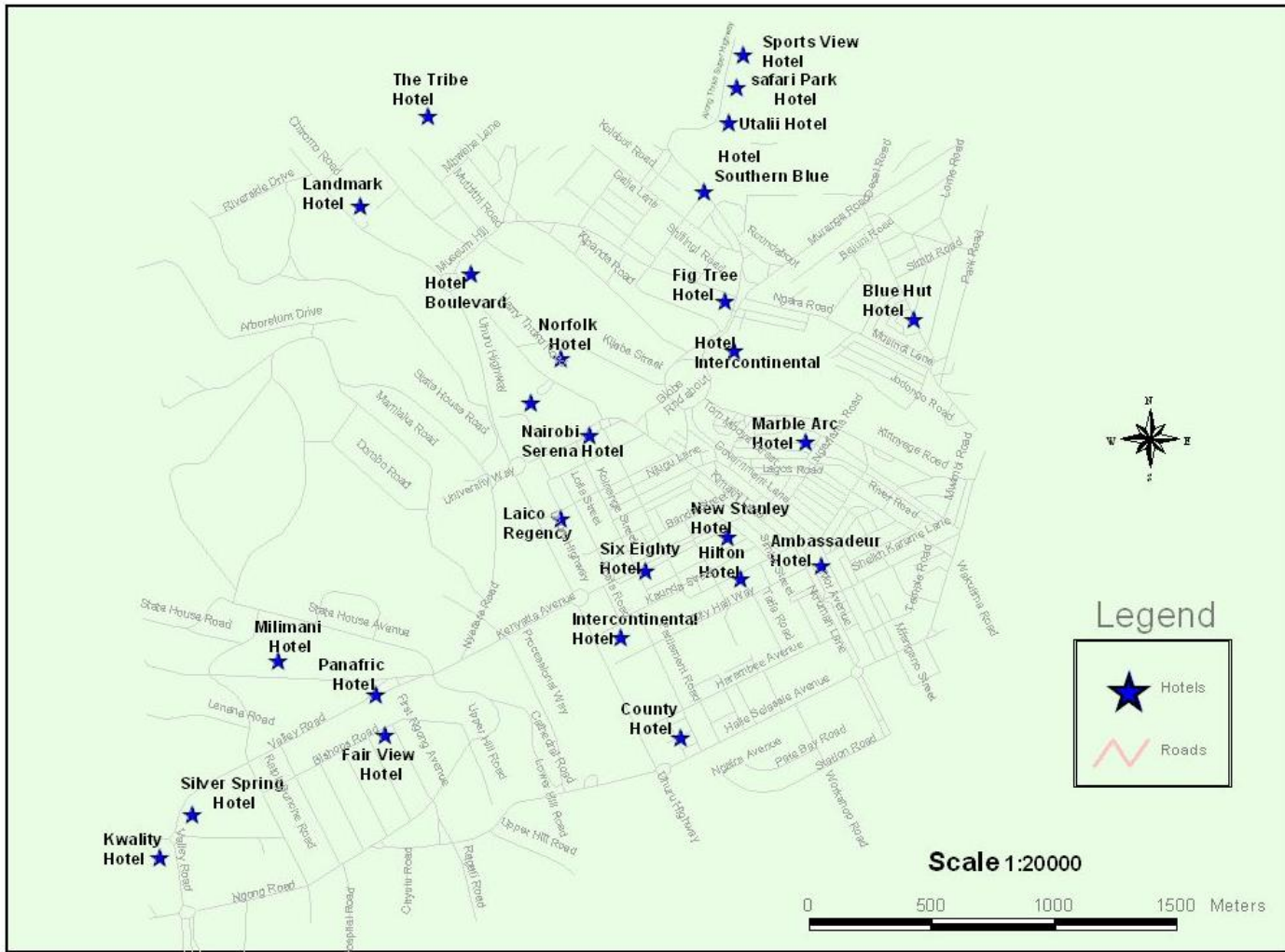
24. KARIBU HOTEL

Appendix 1V: Table of Determining Sample Size

Required Sample Size [†]								
Population Size	Confidence = 95%				Confidence = 99%			
	Margin of Error				Margin of Error			
	5.0%	3.5%	2.5%	1.0%	5.0%	3.5%	2.5%	1.0%
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
50	44	47	48	50	47	48	49	50
75	63	69	72	74	67	71	73	75
100	80	89	94	99	87	93	96	99
150	108	126	137	148	122	135	142	149
200	132	160	177	196	154	174	186	198
250	152	190	215	244	182	211	229	246
300	169	217	251	291	207	246	270	295
400	196	265	318	384	250	309	348	391
500	217	306	377	475	285	365	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	672
800	260	396	526	739	363	503	615	763
1 000	278	440	606	906	399	575	727	943
1 200	291	474	674	1067	427	636	827	1119
1 500	306	515	759	1297	460	712	959	1376
2 000	322	563	869	1655	498	808	1141	1785
2 500	333	597	952	1984	524	879	1288	2173
3 500	346	641	1068	2565	558	977	1510	2890
5 000	357	678	1176	3288	586	1066	1734	3842
7 500	365	710	1275	4211	610	1147	1960	5165
10 000	370	727	1332	4899	622	1193	2098	6239
25 000	378	760	1448	6939	646	1285	2399	9972
50 000	381	772	1491	8056	655	1318	2520	12455
75 000	382	776	1506	8514	658	1330	2563	13583
100 000	383	778	1513	8762	659	1336	2585	14227
250 000	384	782	1527	9248	662	1347	2626	15555
500 000	384	783	1532	9423	663	1350	2640	16055

Source: Krecie and Morgan (1970)

APPENDIX V: MAP OF 3-5 STAR HOTELS IN NAIROBI:



APPENDIX VI – RESEARCH PERMIT



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P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Efficacy of Information and Communication Technology in creating competitive advantage in 3-5 star hotels in Nairobi,*" I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for a period ending **31st July, 2015.**

You are advised to report to **the Managers of selected Hotels, the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.


DR. S. K. LANGAT, OGW
FOR: DIRECTOR GENERAL/CEO

Copy to:

The Managers
Selected Hotels.

The County Commissioner
Nairobi County.