EFFECT OF PROPERTY MANAGEMENT SYSTEM COMPONENTS ON PERCEIVED QUALITY SERVICE DELIVERY IN THE ROOMS DIVISION OF SELECTED HOTELS IN NAIROBI CITY COUNTY, KENYA

BY

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DECLARATION

Declaration by Candidate

This is to declare that this thesis is my original work and has not been submitted for examination in any university. No part of this thesis may be reproduced without prior or express written consent of the author and/or Moi University.

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DEDICATION

I dedicate this work to my daughters, Neema and Naghea for their firm support in encouraging and reminding me of the value of time for the period I was undertaking my studies. Their positive advice and commitment ensured my accomplishing this work.

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ABSTRACT

In the modern era of business management environment, Information Communication Technology (ICT) has become part and parcel of service delivery. The application of ICT in the service industry has become an enabling tool for quality service delivery. The application of ICT, in particular, Property Management System (PMS) which aims to improve service delivery in the rooms division has been on the rise in hotels globally. However, empirical evidence on the effect of PMS components on perceived quality service delivery in Kenya is limited. This study therefore examined the effect of PMS components on perceived quality service delivery in the rooms' division of selected hotels in Nairobi County, Kenya. The study objectives were to investigate the application, information aspects, integration and staff usability of PMS on quality service delivery in the rooms' division of selected hotels in Nairobi County, Kenya. The System Theory and Information Systems Success Model guided the study. Descriptive and explanatory research designs were adopted in the study. The study targeted star rated (1-5) hotels with over two years of PMS use in Nairobi County. Targeted hotels were stratified according to the star-rated categories and one hotel was identified from each stratum using simple random sampling techniques. The study targeted five hotel managers and 154 operations staff. Simple random sampling was employed to select 5 hotels one from each category of the star rated classification. Census sampling technique was used to select one hotel manager from each stratum. Yamane formula was employed to determine the sample size of 111 respondents from the target population of 154 operations staff. Proportionate sampling was used to select hotel operations staff. Questionnaires were used to collect data from the operations staff while an interview schedule was used to collect data from the managers. Qualitative data was analysed using the content analysis method, while quantitative data was analysed using descriptive and inferential statistics. Cross-tabulation was used to test the relationship between the study variables. Multiple regression analysis indicated that PMS components explained 35.9 % (R^2 =0.359) of the variance on perceived quality service delivery. The study also indicated that information aspects of PMS (β=0.174, *p*= 0.001), integration of PMS (β=0.686, p= 0.001) and staff usability of PMS (β=-0.312, p=0.001) affected quality service delivery. Chi-square Pearson test (p=0.001) indicated that there is significant effect of PMS components on quality service delivery. The study found that 28.9% of the hotel operations staff were trained on PMS in colleges. The study concludes that the overall effect of PMS information aspects, integration and usability on perceived quality service delivery in rooms' division is slightly significant (35.9%). The study therefore recommends a further analysis of the other components that account to 64.1% of service quality. Results from the interviews indicated limited integration in the hotel PMS and a lack of mobile phone applications. The study therefore recommends integration of PMS with other services to improve service delivery.

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ABBREVIATIONS AND ACRONYMS

BI	:	Behaviour Intention
CRS	:	Central Reservation Systems
CYMS	:	Computerized Yield Management System
CYMS	:	Computerized Yield Management System
DOS	:	Disk Operation system
GDS	:	Global Distribution Systems
GoK	:	Government of Kenya
ICT	:	Information Communication Technology
IS	:	Information Systems
ISCA	:	Information Systems for Competitive Advantages
ISSM	:	Information Systems Success Model
IT	:	Information Technology
NACOSTI	:	National Commission of Science, Technology and Innovation
PMS	:	Property Management System
SD	:	Standard Deviation
SPSS	:	Statistical Package for Social Sciences
TRA	:	Tourism Regulatory Authority
USA	:	United States of America

OPERATIONAL DEFINITION OF TERMS

The terms are defined based on their use in this study.

Back office: The back office deals with administration and support personnel who do not interact directly with guests and mainly handles guest accounts, settlements, clearances, record maintenance, regulatory compliance and IT services. (Huyton & Baker, 2001).

Department/Section: An administrative division in a hotel, offering different services to the guests (Horstman, 2016).

Hotel: Hotel means an outlet or establishment that provides meals, accommodation and recreational facilities and related services to guests like travellers and tourists (Rajput, 2015).

Information Aspects: This refers to the ability of PMS to handle information relating to guests and hotel establishments including how information is posted, accessed, disseminated and maintained (Sengupta & Bansal, 2012).

Information Communication Technology (ICT): This refers to the digital processing and use of information using computer/electronic platforms and includes information storage, retrieval, analysis and transformation of information (Apulu & Latham, 2011).

Integration of PMS: Integration of PMS in this study refers to the incorporation of PMS use in the day-to-day operations of hotel including provision of services from all hotel sections from guest booking to billing (Benckendorff *et al.,* 2014).

Operations staff: Any employee who is not in the management level of hotel operations (Horstman, 2016).

Perceived quality: A customer's judgment about a service's overall excellence or superiority (Ribeiro, 2019)

PMS Component: Part of a system or sub-system in PMS (Chaucca, 2020).

Property Management System: A specialized software programme meant to manage hotel operations and is networked in the hotel through intranet (Jonilonis, 2016).

Quality Service Delivery: Provision of effective hotel services to the satisfaction of customers (Mok , Sparks, & Kadampully, 2013).

Room services: Any service offered to the guest who is accommodated or who is seeking information on rooms or rooms' reservations (Hussain, 2012).

Rooms division: Comprises of housekeeping and front office departments (Hussain, 2012).

Service quality: Service quality (SQ) is a measure of customer satisfaction by comparison of expectations (E) with perception (P) (SQ=P-E) (Mok, Sparks, & Kadampully, 2013).

Staff Usability: Staff usability in this study refers to the ability of the staff to use PMS in their work and includes recording guest information, billing, room status and production of reports (Benckendorff, Sheldon &Fesenmaier, 2014).

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter presents background of the study, statement of the problem, study objectives, research hypothesis, justification, significance, scope, assumption and finally limitations of the study.

1.1 Background of the Study

Information Communication Technology (ICT) has been identified as a driver of all forms of development, socio-economic and technological advancement (Apulu & Latham, 2011). In Kenya, several policy documents have been formulated to guide on the use of ICT. Such documents include the Kenya ICT Policy and the Kenya Vision 2030 (GoK, 2007). The Kenya Vision 2030 development plan is a long-term development blue print, which has underscored the role of Information Communication Technology (ICT) in spurring development in Kenya (GoK, 2007). In the last two decades, ICT applications such as Property Management System (PMS) have been rapidly changing from time to time and many hotels invest a lot of money to ensure they have the latest technology (DiPietro, 2010). The main role of ICT applications like PMS in the hotel industry is to ensure smooth operations in an effort to realise successful hotel operations (Ham, Woo & Jeong, 2005).

The PMS is a comprehensive software application used to manage an establishment by coordinating operational functions of front office, sales, maintenance, planning and other sections in the hotel industry (Pucciani & Murphy, 2011). According to Bardi, Hoboken, and Wiley, (2003), hotel PMS is a network of various hardware and software applications used to manage or automate the operations of a hotel. The services that are managed by PMS include sales and marketing, night audit,

accounting, human resources management, electronic mail, security, reservation, front desk, call accounting, housekeeping, maintenance and food and beverage processing. PMS is a generic term for application of computer hardware and software used to manage a hotel (Bardi *et al*., 2003).

A variety of innovations are used in hotels to manage operations. Some hotels use off-the-counter software like Microsoft Word and Microsoft Excel among others, which are not tailor made to perform specific roles (Yousaf, 2011). Software developers have also developed innovations that address specific hotel operations like accounting, monitoring of maintenance, front office operations, and food and beverage management. Such specialised software include Property Management Systems (PMS), Central Reservation Systems (CRS), and Global Distribution Systems (GDS). A quality service delivery involves development, deployment and operation within an organisation for delivering quality and consistent services to the user or customers (Adesina & Chinonso, 2015). The hospitality industry relies on provision of quality services to its customers in order to maintain competitive advantage over its competitors. Hotels provide the following services to customers: room service, food service and communication. The quality of these services determines the competitiveness of a hotel. The quality of service provided in the hotel industry depends on the physical and human resource put in place (Gilmore, 2003).

According to Goss and Campbell (2008), the concept of professional property management started in the United States of America (USA) to help in management of real estates after the great economic depression of 1929 and 1930's. As a result of this development, many hotels in developed countries such as the Britain, USA, Japan, and Europe have embraced the use of Information Communication Technology

applications such as PMS in the management of their operations, particularly in the front office (Pucciani & Murphy, 2011).

There are a variety of PMSs used in hotels bearing different trademarks. Examples include Fidelio system and Opera System, which are available off the counter. Fidelio system is Disk Operating System (DOS) based, is one of the first generation of PMS and is widely used globally. The use of Fidelio system can be traced to 1988 when Microsoft developed and considered it as a complete hotel system (Osama, 2011). Opera System is oracle based and is the preferred PMS by leading hotels worldwide (Casamento, 2012). Opera property management is designed to meet various requirements of any hotel size or chain (MICROS Systems, Inc, 2006).

PMS assists in managing hotel front office and back office activities such as revenue management, reservation management, room and rate assignment, check-in and check-out management, guest accounting, folio management, account settlement and room status management (Kasavana & Cahill, 2011). PMS has been recognised as a key technology for efficient management of hotels (Inn Road, 2014). The perceived efficiency is because PMS is the central data infrastructure of the hotel. In addition, PMS also handles administration of all of the guests, their profiles and bookings, their stay and revenues generated. A standard PMS must be able to provide six basic applications (MICROS Systems, 2006). These applications include; guests' reservations, guests to check-in and check-out, maintain guest facilities, accounting guests' financial transactions, track guests' activities for use in future sales efforts and be able to interface with other systems. The above standard PMS applications ensure that the management of hotels have unlimited access to large information that enables them make decisions at the comfort of their offices (MICROS Systems, 2006). In the market, several PMS software's are available where some are bought from the

software developers who are universal while others are developed with the customer's specifications (Ian, 2011).

A study conducted in the European countries targeting five categories of hotels found that almost all hotels have a PMS in place for managing the business in order to maintain capital invested, enhance its value and sustain reasonable returns (Pucciani & Murphy, 2011). Hotels are big organizations in the market place. Using a manual system may therefore create more errors, whereas the use of computerized system is more efficient especially in this information age (Osama, 2011).

In New Zealand, hotels have seen the accommodation sector having considerable uptake of new ICT in areas such as bookings, property management and back-office functions, which has led to improved customer satisfaction (Milne *et al.*, 2004). The integration of rooms division has been accomplished by incorporating PMS in the management of services rendered at front office affecting the rooms division. According to Yousaf (2011), most hotels in USA, Europe and some countries in Asia such as Hong Kong, use ICT mainly in the wider hotel operations while PMS is widely used in the management of room services.

In a survey conducted in Nigeria on the use of PMS in hotels, it was found that maintenance management predominates in the industry and concentrated mainly on physical parts of the hotel building and there was need to incorporate features that would satisfy guests (Durodola & Oloyede, 2011). This indicates that the use of PMS in room services and others is not widely used in hotels in Nigeria. Studies on the use of PMS in management of the hotel industry in Kenya and regionally are limited. However, there is evidence of studies on application of PMS in hotels. Such studies have generally focused on the use of ICT on online bookings ending up at the front office. In a study conducted on the state of affairs in ICT usage in Zanzibar's hotel

industry and tourist hotel operations, it was found that there is a high level of awareness and usage of ICT applications (Salim, Shayo, Abaho, & Sheikh, 2013). Salim, *et al.*, (2013) also found that despite high level of awareness and usage of ICT, the utilization in e-booking and e-reservation is still low. The study also showed that the hotels were using different types of innovations with limited capacity to qualify as PMS.

A study on the relationship between technology integration and operational performance of hotels in Kenya established that there is a wide application of ICT on management of hotels (Omanyo, 2014). The study findings emphasize the benefits accrued from the use of ICT in operation of hotels in Kenya. The benefits included; online booking, online reservation, online marketing and online payment technologies, which significantly affected cost reduction, flexibility of operations and improvement of quality of goods and services. Although the study focused on general ICT, the services identified implied that some hotels were using some form of PMS, which allowed integration of departments or sections within the hotels and outside.

1.2 Statement of the Problem

The use of ICT and in particular PMS in general has been on the rise in the Tourism and Hospitality industry since the late eighties and mostly in the developed economies (Aberdeen Group, 2010). Hotels that have implemented PMS have realised greater financial returns due to improved efficiency in service delivery (Hampshire County Council, 2011). Information Systems Success Model postulates that system quality, information quality, use, user satisfaction, individual impact and organizational impact can be used to measure the success of an information system like PMS in an organization (Delone & Mclean, 2003).

A number of studies have been conducted in this regard. For example, Pucciani *et al.,* (2011) found out that PMS is central to everything that goes on in hotel operations with multiple mission-critical operational processes. McDonald (2007) reported that PMS has the advantage of integrating and automating virtually all the previous manually performed tasks. Chuan (2010) studied technologies in the hospitality industry in Singapore and reported that the use of self-service applications maximizes hotel service offerings. In Kenya and the rest of Africa, PMS in the hotel industry is gradually taking root and little research has been done to establish its effects especially for the rooms division (Omanyo, 2014).

Previous studies used different methodology from the one in this study and had a different context, as most did not cover PMS but use of Information Technology in general. Empirical evidence on the effects of PMS components on quality service delivery in the rooms division is limited, necessitating the need to conduct this study.

1.3 Research Objectives

1.3.1 General Objective

The main objective of this study was to examine the effect of PMS components on perceived quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya.

1.3.2 Specific Objectives

i) To investigate the application of PMS on quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya

ii) To determine the effects of information aspects of PMS on quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya

iii) To explore the effects of integration of PMS on quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya

iv) To determine effects of staff usability of PMS on quality service delivery in the Rooms Division of selected hotels in Nairobi County, Kenya.

1.4 Research Questions

i) What are the applications of PMS on quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya?

1.5 Research Hypotheses

HO_1 There is no significant effect of information aspects of PMS components on quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya.

HO_2 There is no significant effect of PMS integration on quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya.

HO_3 Staff usability of PMS does not significantly affect quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya.

1.6 Significance of the Study

The study findings may help hotel management develop PMS that will ensure efficient service delivery and effective management of the rooms division thus improving quality. The study may also aid the management to identify challenges of the use of PMS among staff and in so doing, provide corrective actions.

The study findings can provide direction for policy makers especially in hotels in their bid to improve service delivery through application of appropriate innovative technologies like PMS in management of their establishments. Lastly, to the researchers and scholars the findings may generate questions for further studies in the field of Tourism and Hospitality.

1.7 Scope of the Study

The study focused on selected hotels in Nairobi County that have had a PMS in place in the last two years and used it to manage room operations. Hotel operation staff with at least three months' experience and above who were using PMS or had access to the operations of PMS were enrolled. The study was conducted between January and August 2016 and only solicited information on the effects of PMS components in management of the rooms division.

CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

This chapter presents the literature reviewed on the effects of PMS components on quality service delivery in the rooms division. The chapter reviews related literature under sub-headings derived from the study's specific objectives. It also discusses theoretical and conceptual framework, summary of literature reviewed and research gaps.

2.1 Defining Quality Service Delivery

Quality service delivery also refers to the execution of hospitality services in an efficient manner without defects to the satisfaction of the customer (Mmutle & Shonhe, 2017). According to Jinlin (2018), quality service delivery is critical in determining growth of a hospitality establishment. The demand for quality service equivalent to the value of customers spending is a major concern of customers and therefore managers of hotels need to come up with strategies for attracting and maintaining customers in the competitive business environment (Khadka & Maharjan, 2017). The growth of hospitality industry is dependent on effective quality service delivery mechanisms adopted. The mechanism of quality service delivery involves monitoring service process by application of ICT. The use of specific ICT programmes such as PMS provide a platform of recording, documentation and retrieval of daily transactions. PMS has the ability to provide quality service delivery within and without the hotel establishment since it provides varied services. This means that service quality delivery primarily focuses on meeting customers' needs. The ultimate goal of using PMS is to ensure a high standard of service delivery that meets customers' expectations (Zeithaml, 2010).

Quality service delivery is critical in attracting and retaining clients, which eventually provides a hospitality facility a strong reputation, which is crucial in growing revenues. (Mmutle & Shonhe, 2017). Hospitality establishments have recognized the importance of delivering quality service to achieve customer satisfaction. A facility that is unable to compete effectively in a competitive environment stands no chance of succeeding. According to Khadka and Maharjan (2017), providing quality service delivery builds consumer confidence, ensuring a facility's long-term competitive advantage in a highly competitive business environment. Hospitality outlets such as hotels therefore need to focus on hospitality service operations that promote quality service delivery. The application of tailor made ICT programs such as PMS and other digital technologies, as well as continuous improvement, product innovation, and customer service relations, ensures quality service delivery (Barrett *et al.*, 2015). The ultimate goal of effective quality service delivery is to attract and retain customers for business profitability. The provision of quality service is seen as a panacea for ensuring profitability of businesses.

Several studies have been conducted in relation to quality service delivery. Adesina and Chinonso (2015) conducted a study on effect of service delivery and customer satisfaction. They found that quality service delivery led to customer satisfaction. A Study in Enugu, Nigeria by Ogba (2018) involving hotels established that effective staff training, prompt response to guest feedback, and room management strategies had a significant impact on quality service delivery.

2.1.1 Concept of Perceived Service Quality Delivery

Perceived quality of service is a type of attitude resulting from comparison of expectations with a perception of performance (Mmutle & Shonhe, 2017).

2.1.2 Importance of Quality Service Delivery in the rooms division

In a highly competitive marketplace, quality service is one of the most important factors in achieving a sustainable competitive edge and gaining consumers' trust, and so quality service provides the hotel industry with a great opportunity to develop competitive differentiation for organizations. As a result, it is a significant core concept and a key aspect in the hotel industry. A good hotel provides its customers with high-quality service, thus quality service is regarded as the hotel's lifeline (Zeithaml, 2010). A business can profit from quality service in a variety of ways, including increased customer satisfaction, improved business image, increased customer loyalty, and a competitive advantage.

2.2 Information aspects of PMS on Quality Service Delivery

2.2.1 Overview of PMS Inter-Faces

PMS has a number of inter-faces as illustrated in Figure 1.1. These inter-faces form the basis of discussing information aspects of PMS on Quality Service Delivery.

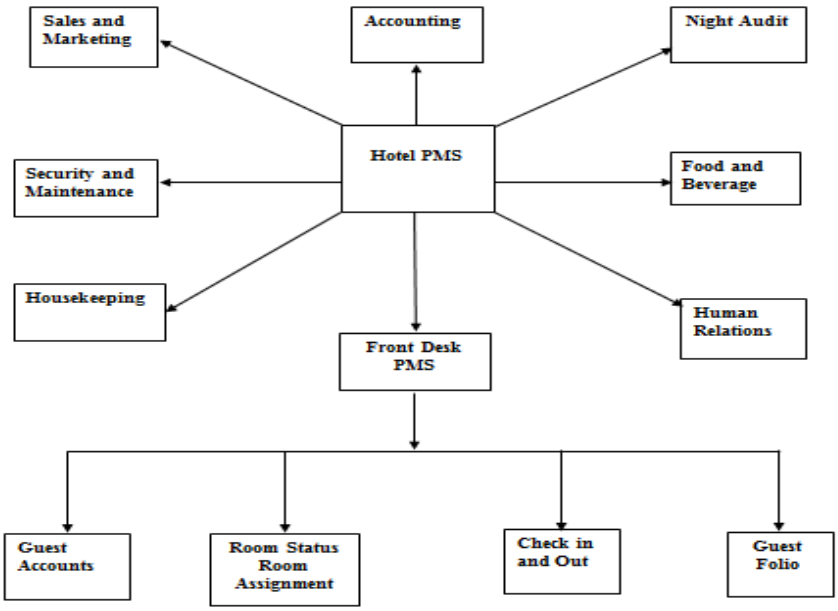

Figure 2.1: Typical Hotel PMS
Source: Kasavana and Cahill (2003, pp.86)

2.2.2 Effects of PMS Components on Perceived Quality Service Delivery

The hospitality sector, like any other business sector, is undergoing a significant shift away from traditional methods of day-to-day operations and services and toward the incorporation of PMS applications and infrastructures into its services and operations for improved customer service, efficiency, and cost reduction.

2.2.3 Applications of PMS on Quality Service Delivery in the Rooms Division

There are various PMS components used in hotels that bear different trademarks. Fidelio and Opera systems are examples. The Fidelio system, which is based on the Disk Operating System (DOS) format, was one of the first PMSs and is still widely used today. The Fidelio system was first used in 1988, when Microsoft developed it and marketed it as a complete hotel system (Osama, 2011). The Fidelio system is a completely integrated system that has been packaged and designed to maximize the efficiency of a hotel. This system can protect its software against all types of viruses. In the event that a virus infects the system, it is automatically transferred from a data base file to a non-usable file, making it one of the safest and most stable PMS components.

The Opera System is oracle based and is the preferred PMS by leading hotels worldwide (Casamento, 2012). Opera property management is designed to meet the various requirements of any hotel size or chain (MICROS Systems, Inc, 2006). It provides hotel staff with the resources and tools they need to do their day-to-day tasks, such as handling reservations, checking guests in and out, assigning rooms and managing room inventory, accommodating in-house guests' needs, and handling accounting and billing. The advantage of the Opera system over the Fidelio system is that its software is configurable to each property's specific needs and can operate in a single property or multi-property mode, allowing them to share a single database. The

ability to configure in multi-property mode is especially useful for large hotel chains. Moreover, Opera PMS has additional features that can allow one to create detailed commission payments from travel agents.

Many organizations in the hotel industry have progressively invested in PMS to boost the efficiency of their businesses (Apulu & Latham, 2011). This is so because PMS is critical in supporting management decision-making to enhance productivity. According to Ham *et al.*, 2005 and Lam *et al.*, 2007, the use of PMS results in remarkable return as it addresses competition in the hotel industry. Byrd and Turner (2001) argue that there is positive connection between investment in Information Technology, organization productivity and performance.

According to Regmi and Thapa (2010), the application of PMS is classified into basic and specialised ones. The major applications of PMS include reservation module, check-in, check-out, guest accounting, guest history and rooms management among others (Kasavana & Cahill, 2011). A study on hospitality technology survey conducted in Singapore established that hotels are maximizing their investment by offering a broader array of self-service applications (Chuan, 2010). These applications include check-in, room key encoding, airline check-in/boarding pass printing, and maps/directions among others, which are facilitated by the use of PMS.

Buhalis (2003) argues that hotels introduced systems to manage their inventory in the past few decades. He further observed that the systems focused on in-house management and operated to manage day-to-day customer service applications along with electronic distribution channels such as Central Reservations System (CRS) and Global Distribution System (GDS). These systems can be collectively referred to as PMS and are dedicated to overall operations of a hotel from reservation to pay-roll management. PMS is the central computer system, which handles core functions of

the properties and its information processing in hotels, motels, guesthouses and campsites among others. The application of PMS includes reservation, front-back office operations and managerial functions. Additionally, PMS acts as a central hub for all the other systems used in hotels for other services provided (Sheldon, 1997).

According to Buhalis (2003), PMS in the rooms division is used to improve management capacity along with operations efficiency. This application is accomplished by facilitating central room inventory control, providing room availability information and offering yield management capability. It also provides reliable database access for management purposes like marketing, sales and operational reports, providing travel agency tracking, commission payment and tracking frequent guests among others. Rooms division encompasses front office, reservations, housekeeping, concierge, guest services, security and communications sections in hotels (Walker, 2007). These sections require to be connected to ensure that the room's division services are coordinated under one roof. This is done by developing a network of hardware and software, which give the front office manager control of what transpires in the rooms division. The rooms division also plays an important role in a hotel's work process. It is the first point of interaction with guests by hotel staff, and it significantly contributes to the hotel's profit and sales. The application of PMS in quality service delivery is not only reserved for traditional central reservation system, payment gateway, revenue management system, sales and catering system but has also incorporated Wi-Fi, Mobile Check-in and Check-out program and door locking services among others.

2.2.3.1 Reservation and Registration Applications of PMS and Perceived Quality Service Delivery in the Rooms Division

The reservation features work in coordination with other modules to create a cohesive and robust system. The reservation module, for example, is connected to the profiles module, which stores information about guests, business accounts, travel agent contacts, and other demographics. When making a reservation, getting profile information on hand speeds up the process and ensures accuracy. Reservation works in conjunction with the cashiering module to make posting charges, as well as handling deposits and cancellation fees, much easier.

Room management is also another significant feature of PMS. This module of PMS contains information regarding room type, its number, guests' amenities, room rates, location, and the status of each room. The status can be vacant, occupied, dirty, clean, inspected or uninspected. This module also provides updates regarding the status of the room and increases occupancy rate. The room status is updated periodically by housekeeping staff on the PMS software to ensure up to date rooms' division database.

Electronic door-lock management system is easily integrated and interfaced with PMS, creating holistic property operating managing solutions for security purposes. Electronic door locks are essential systems that are based on networks and are designed to help in facilities access management (OConnor, 2004). Electronic door locks allow individuals to manage and control user access rights in hotel facilities and other properties. The locks have varied components, including computers holding the core software, encoders for reading plus encoding door opening or closing cards, cards that are used as setting or key cards and locks. The locks are battery or wireless operated.

2.2.3.2 Guest Data / History Applications of PMS and Perceived Quality Service Delivery in the Rooms Division

This application is important as it facilitates creation of history databases after the guest checks out can be used as a powerful marketing tool. According to Benckendorff *et al.,* 2014, databases can be used for research and marketing purposes. Guest history helps in understanding the nature and manner of guests on the usage of property services thus providing a background for improvement. These databases provide vital guest information such as credit card number, demographic characteristics and other data entry for future follow-up.

2.2.4 Effects of Information Aspects of PMS on Quality Service Delivery in the Rooms Division

Technology is gradually becoming a vital source of long-term competitive advantage in the hospitality industry, particularly in the areas of product delivery.

2.2.4.1 Post, Provision, Access and Dissemination of Information aspects of PMS and Perceived Quality Service in the Rooms Division

The main objective of PMS is to improve quality service delivery by reducing manual system through incorporation of technology. In a study conducted in India on the use of ICT in front office operation as a tool to improve service quality and increase revenue generation, it was found that the use of specialized PMS software had various benefits (Sengupta & Bansal, 2012). Some of the benefits of using a PMS include the ability to maintain a guest database, provide information on sales and marketing, provide guests with bill status, and provide information on room status and history, among other things (Kasavana & Cahill, 2011). These benefits include the integration of various departments into a single network, the connection of remotely located points of revenue generation to a single location, a reduction in total time for

operations such as reservation, registration, and account settlement, better revenue management, and increased bed occupancy, which has resulted in higher revenue generation. PMS also has improved guest database management, which could be used to improve hotel products.

According to Haley (2005), using a PMS for the entire hotel / corporation has the advantage of centralizing guest history and folio information. These facts assist management in carrying out proactive customer communications and making use of observed guest preferences and behaviour. This portfolio of PMS techniques enables management to interact with guests on their terms and convert them from customers of a single hotel to customers of the company or a group of hotels.

In a paper presented in the annual Pacific-Rim Real Estate Society Conference in Christchurch New Zealand, Halvitigala and Gordon (2014) opined that computerised property management systems have freed up much of property managers' time and thus they are able to spend more time on 'hands-on' management rather than paperwork and administration. PMS has the advantage of integrating and automating virtually all the previous manually performed tasks (McDonald, 2007).

Rajput (2015) observed that small, medium, and large hotels all rely on property management systems to provide real-time quality service to guests. Pucciani *et al*., (2011) affirms that PMS is central to everything that goes on in hotel operations with multiple mission-critical operational processes. Pucciani *et al.,* (2011) further noted that PMS has evolved from a single task of check-in, reservation, and check-out to multi-task software that integrates revenue management, links to loyalty programs, and manages online distribution channels.

2.3 Effects of Integration of PMS on Quality Service Delivery in the Rooms Division

PMS, a form of ICT, is meant to support all departments in a hotel in order to provide smooth quality service delivery to guests. Some scholars investigated the level of integration of PMS in the delivery of quality services in hotel room division. For example, Nwakanma *et al.,* (2014) found that the use of ICT has a positive effect on the speed with which information flows in a hotel and the resolution of problems inside the hotel, particularly in room division. Much of the research focuses on the integration of ICT on quality service delivery. ICT integration refers to use of technology in communication, data processing and data storage for the benefit of the entire organisation. The advantages of ICT integration include the sharing of information from a central location, the sharing of resources, and improved decision-making (Nwakanma *et al.,* 2014). They also noted that the success of any ICT technology depends on integration with sections or departments in an establishment.

According to Prideaux *et al.*, (2006), information technology facilitates information sharing between different units and departments, as well as between different levels of staff. They went on to say that, the range of internal activities within hotels is heavily influenced by the degree of integration of PMS in the firms. They also established that the higher the application of PMS integration, the higher the delivery of efficient service that ensures customer satisfaction.

2.3.1 Provision of Services by the use of PMS and Perceived Quality Service Delivery

The effect of integration of PMS within the hotel departments and outside the hotels is dependent upon several factors. According to Nwakanma *et al.,* 2011, these factors are; the percentage of consumers who visit hotels, location from high internet

penetration countries, the overall market size of the hotel's location and the level of competition between hotels in the locality. They also found that the extent of PMS integration in a hotel is dependent on the hotel factors. These hotel related factors include; the size in terms of number of rooms, the scope of activities in terms of activities engaged in, grade and age. The effect of PMS integration in a hotel is dependent on size of the establishment, the higher the integration especially in departments that directly affect the customer services.

The type of PMS adopted by a hotel also dictates the extent of integration. Some PMSs have the ability to integrate all services in the hotel like housekeeping, billing, food and beverage among others, while some are specific for particular services (Pucciani & Murphy, 2011). A report by Aberdeen Group (2010) on the integration of PMS in several hotels in USA indicated that about 33% of hotels and resorts have complete integration of property-based applications with their property management systems. These disclosures are indicators of low usage of PMS to manage various services in hotels.

2.3.2 Devolution of Services by the Use of PMS and Perceived Quality Service Delivery

Hotels have since migrated some of their PMS application customers in order to ensure safety and efficiency by linking PMS local server remotely through the internet (Kelbley, Sterling & Stewart, 2011). There are varied cloud servers that can be accessed by each specific client, allowing the dedication of computing resources to the specific cloud as necessary. Hotels and other facilities that use cloud-based PMS are often concerned about cloud computing security. Cloud computing security not only addresses logistical security concerns but also physical security concerns across varied infrastructure, platform, and software service models (Alani, 2016). Those

using cloud based PMS can ensure that they have the requisite cloud computing security by employing various controls: deterrent controls, preventive controls, detective controls, and corrective controls. There are mobile applications that are designed for use in property management by displaying property data in the viewfinder of one's cell phone. The data may include the number of vacant rooms, rooms that require overdue maintenance, and the use of resources such as water in specific rooms.

2.3.3 Effects of Staff Usability of PMS on Quality Service Delivery in the Rooms Division

The ability to use a PMS may be directly related to quality service delivery (Haley, 2005). Lack of ability to use a PMS could result in poor service delivery hence low productivity (Andoh, 2012). A staff member is expected to be able to open the PMS and address queries under his or her docket. A staff member is also expected to post any appropriate interventions based on what is stated in the PMS. PMS innovation, like any other ICT, requires the user to be able to use it in order for the intended benefits to be realized. A study conducted in Thailand to investigate the influence of information and communication technology (ICT) adoption on hotel performance found that there is a positive relationship between ICT adoption and hotel performance (Sirirak, Islam, & Khang, 2011). According to Andoh (2012), the success of implementation and adoption of any technology innovation depends on the ability of the beneficiaries to adopt and use it.

For a staff to offer quality services using PMS innovation, he or she must be competent on its use. Khadka and Maharjan (2017) assert that a staff’s right attitude and ability to work without support plays a critical role in selling services. In an exploration study on the digital divide issues affecting hotel front liners conducted in

Penang, Malaysia targeting different hotel grades, it was found that competitive advantage of the organization does not really depend on organization size, but on the innovativeness of its ICT (Kasim, Dzakiria & Scarlat, 2013). The study also established that for this ICT innovation to succeed, it must be supported by highly competent human resource i.e. those willing to adopt and take advantage on the needed technology. The study also established that the intensity of ICT usage has a significant, positive relationship with both operational productivity and customer satisfaction.

The intensity with which any ICT technology is used might be proof of the users' competency and the accompanying benefits that are received. Likewise, ICT availability and integration only have a significant positive link with operational productivity. (Kasim *et al.,* 2013). According to Kong and Baum (2006), employees working in the front office undertake an important task in building up a hotel's image and reputation. The front office's main functions include processing guest reservations and room assignments, handling guests and house mail, and providing information to guests. These tasks are made possible by the ability of front office, housekeeping and other hotel staff to use the PMS in place.

In a study in Nigeria on the factors affecting adoption of ICT in hotels, it was found that the use of Computerized Yield Management System (CYMS), a form of PMS faced certain implementation challenges (Nwakanma *et al.,* 2014). These challenges are; lack of organisation policy of who is responsible or answerable to the use of PMS, lack of formal training on how to use it and more so the front office staff lacking knowledge on the relationship between PMS and overall profitability of the hotels. These observations imply that implementation and success of any PMS software must be backed by a favourable organisation policy, which should succinctly

address administrative responsibilities. The policy should spell the training component necessary for the staff to use the PMS software.

2.4 Theoretical Framework

System Theory and Information Systems Success Model as discussed below guided the study.

2.4.1 System Theory

System Theory was developed as a theoretical science for studying systems and their characteristics (Ludwig von Bertalanffy, 1972). He defined a system as being a "set of dynamic elements maintaining integrity via mutual interactions". Systems theory suggests that a system is created and determined by interactions among its elements (Nevo &Wade, 2010) and focuses on relations between the parts. Rather than reducing an entity such as the human body into its parts or elements (e.g. organs or cells), systems theory focuses on the arrangement and relations between the parts and how they work together as a whole. The way the parts are organized and how they interact with each other determines the properties of that system. This implies that the value of ICT is attributed to the interrelationship between complex integration of ICT components in a programmed computing system. PMS by nature is a system that is composed of components that are integrated with a purpose of providing a service thus making system theory applicable in this study.

2.4.2 Information Systems Success Model

Information Systems Success Model (Figure 2.2) which was developed by Delone and McLean in 1992 and modified in 2003 (Delone & Mclean, 2003) guided this research.

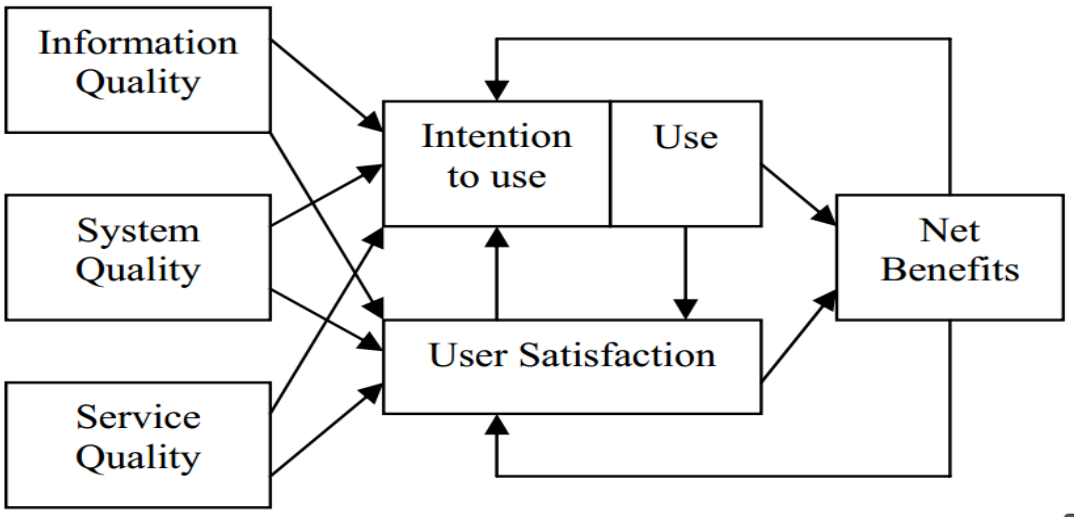

Figure 2.2: Information Systems Success Model
Source: Delone & Mclean (2003, pp.12)

Information Systems (IS) theory seeks to provide a thorough understanding by identifying, describing, and explaining the relationships of six dimensions of measuring success. These six dimensions are system quality, information quality, use, user satisfaction, individual impact and organizational impact, which are used to measure the effects and success of an information system in an organisation (Figure 2.1). Information Systems Success Model has been used in measuring e-Excise Tax success factors in Thailand (Khayun & Ractham, 2011), applied in web usage and customers' satisfaction (Bharati & Chaudhury, 2006), in user-developed applications and information systems success in organisations (McGill, Hobbs, & Klobas, 2003) among other studies which are meant to determine the effects of ICT in quality service delivery. The purpose of this study was to examine the effect of PMS components on perceived quality service delivery of the rooms division of selected hotels in Nairobi. PMS's are ICT based programmes that are used by hotels to computerize the services rendered to improve quality service delivery. Information Systems Success Model helped in understanding how; PMS influenced information aspects of PMS components on quality service delivery, integration of PMS on

quality service delivery and staff usability of PMS; are integrated into the larger system of hotel establishments. This model was also used to guide the study in identifying the variables to be investigated.

2.5 Conceptual Framework

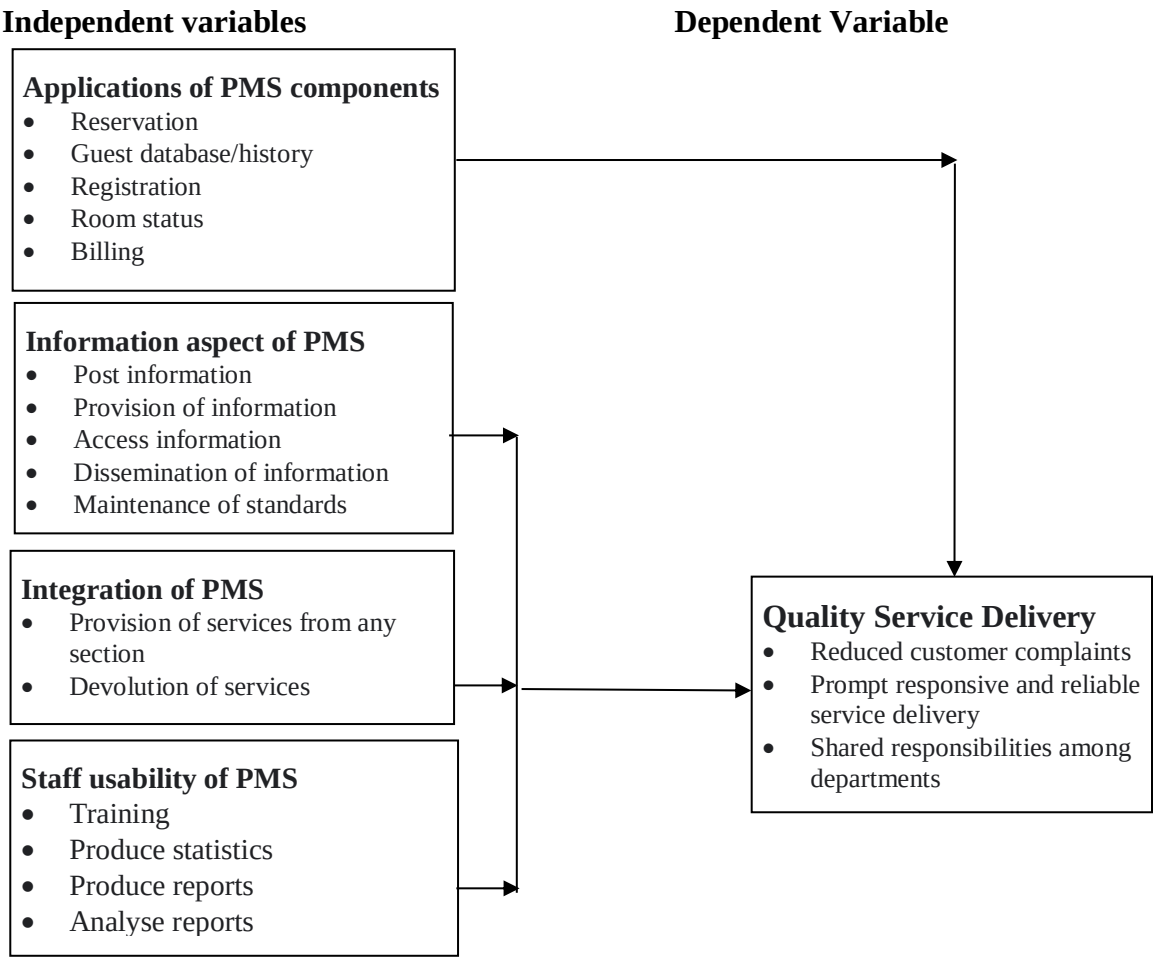

Figure 2.3: Conceptual Framework
Adapted & modified: (Delone and Mclean, 2003)

The conceptual framework was based on the themes of specific objectives as expounded by the reviewed literature. This conceptual framework was designed with reference to the models by Delone and Mclean (2003). The conceptual framework identified variables that when put together explained broad ideas on the relationship between independent variables and dependent variables (outcomes). The independent variables were grouped under applications of PMS components, effects of information

aspects of PMS on quality service delivery, effects of integration of PMS and effects of staff usability of PMS. The effect of PMS components on quality service delivery in hotels depended on the independent variables explored.

2.6 Summary

Over the last decade, many hotels have adopted at least one form of ICT innovation to manage hotels. These ICT innovations are of different forms, some with characteristics of PMS, which are specifically meant for online management. Other hotels especially the small ones have adopted a non-tailor made ICT innovation like Microsoft Excel. All these forms of ICT applications are meant to raise the level of satisfaction among customers by offering quick and efficient services. The reviewed literature established that the use of PMS is mainly in hotels that are facing stiff competitions and are in need of providing high quality services.

Pucciani *et al*., (2011) investigated data management and property management systems and found out that PMS is central to everything that goes on in hotel operations with multiple mission-critical operational processes. However, this study was conducted outside Kenya where the context was different from the Kenyan perspective. Chuan (2010) studied technologies in the hospitality industry and reported that the use of self-service applications maximizes hotel service offerings. However, this study only focused on self-service technology unlike the current study that sought to investigate PMS. McDonald (2007) reported that PMS had the advantage of integrating and automating virtually all the previous manually performed tasks. This study nonetheless focused on how software enhanced property management. Omanyo (2014) studied ICT use and performance of hotels in Kenya. This study found out that there is some positive relationship between integrating ICT applications and operational performance of hotels, a study that however focused on

effects of ICT use on hotels' operational performance unlike the current study that sought to investigate PMS and service delivery.

The reviewed literature identified several gaps, which inform the need to conduct this study. The first of these gaps is that the usage of PMS in hotels is usually met with adoption issues due to a lack of understanding of the critical role it plays in guaranteeing quality services to customers. Secondly, staff lack competency in the use of PMS due to a lack of organizational policies, particularly about who is in charge of PMS, as well as a lack of a continual training policy on the use of PMS. Thirdly, the lack of elaborate PMS integration in all sections of the hotel may pose a problem of sharing services throughout the hotel. Finally, the studies conducted in Kenya mainly focused on general applications of ICT with no PMS specific on hotel operations. These gaps informed the need of conducting a study on the effect of PMS components on perceived quality service delivery in the rooms division.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter describes the research design, study area, target population, sample size and sampling procedure, data collection and data collection instruments, validity and reliability of the study instruments, data collection procedures and data analysis techniques. It also sheds light on the ethical considerations of this study.

3.2 Research Design

Research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. Research design is the conceptual structure within which research is conducted. It constitutes the blueprint for the collection, measurement and analysis of data (Kothari, 2004). This study adopted descriptive research and explanatory research designs. These research designs allowed both descriptive and inferential quantitative data analysis. The advantage of descriptive research design method is that it enables the study to describe situation or phenomenon and collection of both quantitative and qualitative data while recording numerical variables to be analysed with descriptive statistical procedures (Creswell, 2013).

Descriptive research design was appropriate for this study as it helped in describing the characteristics of the sampled population and appropriately generalised findings of the entire population (Mugenda & Mugenda, 2013). Both designs also allowed the researcher to use inferential statistics to establish significant relationships between the dependent and the independent variables in presentation of the results of this study through description of data results.

3.3 Study Area

The study was undertaken in Nairobi County, the capital and largest city in Kenya. Nairobi covers an area of 692km^2 at about 1,661m above sea level. It has a population of approximately 4,397,073 (Kenya National Census, 2019). Nairobi City is one of the most preferred destinations in Africa due to the availability of wide variety of accommodation facilities (TRA, 2015). These facilities range from star rated hotels, budget hotels and other hotels, which are not classified. The competition among the accommodation establishments has led many of them to incorporate PMS to improve on quality service delivery.

3.4 Target Population

This refers to a group of individuals, persons, objectives or items with common characteristics from which a sample is taken for measurements (Kothari, 2006). The target population were hotel operations staff that operated or had access to the PMS and worked in departments of front office, housekeeping, finance, maintenance and information and communication technology. Census sampling was used to select one manager in each hotel because managers have the overall mandate of supervising all the staff and at the same time have the responsibility of overseeing all operations in the entire hotel. In addition, the study targeted selected hotels, which had a PMS in Nairobi County two years preceding collection of data at the study site. This inclusion criterion was informed by the need of ensuring that the hotels enrolled in the study had fully rolled out the system and staff would have had enough time using it. Table 3.1 identifies the categories of hotels and staff targeted by this study.

Table 3.1: Target Population for Hotel Staff

Category of Hotel	Managers	Operations Staff
Hotel "A" One star	1	20
Hotel "B" Two star	1	23
Hotel "C" Three star	1	25
Hotel "D" Four star	1	36
Hotel "E" Five star	1	50
Total	**5**	**154**

Source: Tourism Regulatory Authority (2015); Respective hotels human resource databases (2016)

3.5 Sample Size and Sampling Procedure

a) Hotel Sample Size

According to the Tourism Regulatory Authority (TRA), 59 hotels in Nairobi County have been rated from one to five stars (TRA, 2015). Utilizing the TRA list of categorised hotels as a sampling frame, simple random sampling using the lottery method was used to select five (5) hotels, one in each category.

b) Managers Sample Size

The study enrolled five hotel managers. Census sampling was used to select five (5) managers (one from each hotel). The departments selected included: front office, housekeeping, finance, maintenance and information communication technology. The manager responsible for PMS in each of the identified hotels was included in this study.

c) Hotel Operations Staff Sample Size

To determine the sample size of the hotel operations staff, the study used Yamane (1969) formula.

$$n = \frac{N}{1 + N(e)^2}$$

(where ***"n"*** is the desired sample size, ***"N"*** is the population size, and ***"e"*** is the margin of error). In this study, 0.05 was used as the margin of error. According to Ryan (2013), Yamane formula (1967) is suitable in determining a study sample size when the population size to be studied is known. Table 3.1 presents the total population of hotel operations staff in the five target hotels.

Sample size of the hotel operations staff was determined from the total target population of 154 individuals using Yamane formula as follows: formula $\boldsymbol{n = \frac{154}{1+154(0.05)^2}}$ = 111. The computation gave a sample size of 111 hotel operations staff respondents. Stratified sampling was used to stratify the hotels into star-rating (1-5). Simple random sampling was then used to obtain one (1) hotel from each stratum. The sample size of hotel operations staff for each hotel was proportionately determined to ensure a balanced representation. Table 3.2 presents sample sizes of the target populations.

Table 3.2: Sample size

Category of Hotel	Target Population	Target Population%	Proportionate sample size for Hotel operations staff
Hotel "A" One star	20	13.0	14
Hotel "B" Two star	23	14.9	17
Hotel "C" Three star	25	16.2	18
Hotel "D" Four star	36	23.4	26
Hotel "E" Five star	50	32.5	36
Total	**154**	**100.00**	**111**

Source: Research Data (2016)

A list of hotel operations staff using PMS for each hotel was used as a sampling frame to select the subjects to be enrolled in the study. The personal employment number of the targeted operations staff in each hotel was written on a separate paper, folded and

placed in one basket. Simple random sampling technique using lottery method was used to select subjects from each sampled hotel.

3.6 Data Collection

Primary data was collected from the respondents through administered questionnaires. Secondary data was obtained from sources such as the Tourism Regulatory Authority.

3.6.1 Data Collection Instruments

The study used questionnaires and interview schedule to collect primary data. These instruments are as discussed below.

A) Questionnaires

This study used questionnaires to collect primary data from hotel operations staff. Kombo and Tromp (2006) assert that questionnaire techniques of data collection are preferred because questionnaires enable a researcher collect a lot of information within a short period of time and offers confidentiality. This research instrument consisted of close-ended questions. The close-ended questions comprised of options where the respondents selected from (Appendix II). The questionnaires were administered using “drop and pick method” and collected by research assistants or by the researcher. The questionnaires had two sections, section one collected respondent’s background information such as demographics while section two collected data relating to the study’s specific objectives.

B) Interview Schedule

A key interview schedule collected primary data from the hotel managers through oral interviews. The choice of this instrument was necessitated by the fact that an interview would provide room for asking probing questions and seeking clarification on responses. This instrument had the benefit of allowing in-depth probing for more

information unlike the questionnaires. It also provided an avenue of a follow-up in case of insufficient data. The interview schedule was structured to guide the interviewer and the interviewee (Appendix III). The interview schedule included questions like staff establishments, duration of employment, services offered by PMS, opinions regarding hotel information aspects of PMS components and integration of PMS, effects of PMS on success of quality service delivery and ability of staff to use PMS.

3.7 Validity and Reliability

3.7.1 Validity

According to Mugenda and Mugenda (2013), validity is the degree to which results obtained from the analysis of the data collected in a study actually represent the phenomenon under study. In addition, Veal and Darcy (2012) are of the opinion that validity is the extent to which information collected by the researcher truly reflects the phenomenon being studied. To ensure content validity, researcher engaged supervisors to verify if the content of questions in the questionnaire collected were valid. To ensure validity of the instruments, simple language was adopted to avoid ambiguity in an effort to promote accurate responses of respondents.

3.7.2 Reliability

Reliability of instruments is critical in ensuring that data collected is authentic. According to Joppe (2012), reliability is the extent to which results are consistent over time using the same measuring instruments and can be reproduced under a similar methodology. The reliability of the research instrument for this study was achieved by subjecting questionnaires to pre-testing.

3.8 Pre-testing

Hotels in Nairobi County that were not included in this study but had PMS in place were chosen at random and used for pre-testing the research instruments to ensure their reliability. Five hotels (one in each star rating), were involved in the pre-testing of research instruments. 5% of staff in the selected hotels were included for pre testing. Mugenda and Mugenda (2013) observed that 1-10% of the target population is adequate for pilot testing. The study selected 8 staff (5% of the targeted population of 154) to pre-test the questionnaires. The pre-test study results were subjected to Cronbach's alpha coefficient test (Table 3.3).

3.8.1 Test of Internal Consistency

This test was conducted in order to determine the reliability of factor items in the dependent variable (quality service delivery) and independent variables (information aspect of PMS, integration of PMS, staff usability of PMS). This was done by subjecting the pre-tested instruments to Cronbach's alpha coefficient test. A Cronbach's alpha score was generated to determine internal consistency of the instruments. Cronbach's alpha coefficient is interpreted as follows: $\alpha \geq 0.9$ Excellent (High-Stakes testing) $0.7 \leq \alpha < 0.9$ Good (Low-Stakes testing), $0.6 \leq \alpha < 0.7$ Acceptable, $0.5 \leq \alpha < 0.6$ Poor $\alpha < 0.5$ Unacceptable (George & Mallery, 2003).

According to Gliem and Gliem (2003), the closer the Cronbach's alpha coefficient is to 1.0, the greater the internal consistency of the items piloted. If a Cronbach's alpha coefficient value is equal or greater than 0.6, it indicates that the instruments are reliable. On the other hand, if Cronbach's alpha coefficient value is less than 0.6, it indicates that the instruments are not reliable. The Cronbach's alpha coefficient value results are presented in Table 3.3.

Table 3.3: Reliability Test Results

	No. of items	Cronbach's Alpha	Standardized Cronbach's Alpha
Information aspect of PMS	10	0.781	0.825
PMS integration	6	0.806	0.813
Staff usability	6	0.669	0.867
Quality service	4	0.733	0.839

Source: Research Data (2016)

The study results indicated that information aspect of PMS, PMS integration, staff usability of PMS and quality service delivery in the rooms division had reliability coefficient scores of 0.825, 0.813, 0.867 and 0.839 respectively. These results indicated that the questionnaires had a high internal consistency. Overall, the results show a Cronbach's alpha score of 0.781 and therefore concluded that the items met the reliability criteria thus there was high internal consistency among items used to measure quality service delivery as a result of PMS use.

3.9 Data Collection Procedures

The researcher sought permission from the hotel management to conduct data collection in their premises. The respondents were briefed on the study and consent sought from them for inclusion in the study prior to data collection. Trained research assistants administered the questionnaires. The process of conducting data collection involved research assistants introducing themselves and elaborating the study objectives, then taking the respondents through the questionnaire to have them understand it before filling in the data. Measures were observed to ensure that the data collection did not tamper with the principle duties of respondents. The filled questionnaires were collected and serialized in preparation for data analysis.

3.10 Data Analysis

Before processing the responses, the completed questionnaires were edited for completeness and consistency across respondents and to locate omissions. Using Statistical Package for Social Sciences (SPSS), the data was entered into the computer and cleaned, then analysed using descriptive techniques such as mean and standard deviation. This was then presented in tables, figures, charts and graphs.

Qualitative primary data was analysed using content analysis and data discussion involved the compilation of the reduced data into an organized and compressed logical context. Finally, data discussion provided an interpretation of data and logical explanations on the relationship of the findings. Qualitative findings from interview schedule were used to triangulate the quantitative findings (Gatignon, 2020). Qualitative research findings were presented as phrases or key voice quotation as per the interview responses.

Primary data was subjected to inferential statistics to test relationships between independent and dependent variables for the purpose of making generalized inferences. Chi-square test of independence was used to test the hypothesis in order to determine the relationship between the variables whereas multiple linear regression was used to determine the relationship between independent and dependent variables. The model was set as:

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + e$$

Where;

Y = Dependent variable (Quality service delivery)

β_0= constant

β_i= coefficients to be estimated

Xi =Independent variables that influence quality service delivery

Where X_1– Information aspects of PMS

X_2– Integration of PMS

X_3– Staff usability of PMS

e =The error term describes the characteristics of the differences between independent and dependent variables.

The regression outputs; R-Squared and beta were used to interpret the effect of independent variables on quality service delivery. The presented data findings were subjected to interpretation with support of other documented research findings. The analysed quantitative data was presented in tables and charts. A summary and conclusion of the findings was offered for each specific objective.

3.11 Ethical Considerations

Mugenda and Mugenda (2013) stipulate that ethics is a branch of philosophy that guides the researcher to adhere to moral values before, during and after data collection. The behaviour of the researcher throughout the research process determined the authenticity, validity and acceptability of the findings (Creswell, 2013). To ensure adherence to research ethics, permission was sought from National Commission of Science, Technology and Innovation (NACOSTI), Moi University and the sampled hotels before embarking on data collection. To ensure confidentiality of the respondents, no names or employment numbers were recorded on the questionnaire and identities of the sampled hotels were not shown but were identified using codes.

CHAPTER FOUR

DATA ANALYSIS PRESENTATION & INTERPRETATION

4.1 Overview

The main objective of this study was to examine the effect of PMS components on perceived quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya. This chapter presents the study findings from data collected using questionnaires from the hotel operations staff. It also presents findings collected using key informant interviews. The findings are presented and discussed under the following sections: response rate, background information, information aspects of PMS, effect of information aspects of PMS, integration of PMS, staff usability of PMS and inferential analysis.

4.2 Response Rate

A total of 111 questionnaires were administered to hotel operations staff. Out of the 111 administered questionnaires, 111 (100%) were returned and found valid for analysis (Table 4.1).

Table 4.1: Response rate for hotel operations staff

Category of Hotel	Questionnaires Issued	Questionnaires Returned	%
Hotel "A" One star	14	14	100
Hotel "B" Two star	17	17	100
Hotel "C" Three star	18	15	100
Hotel "D" Four star	26	26	100
Hotel "E" Five star	36	36	100
Total	**111**	**111**	**100**

Source: *Data Analysis (2016)*

The overall response rate for hotel operations staff was 111(100%).This response rate was made factual after the researcher took the initiative of reminding the respondents to fill the questionnaires and return them. To increase the response rate, the researcher

also took the initiative of calling them, doing reminder mails and visits. The respondents having worked in the hotel for two years prior to the study, helped to increase response rates since they were conversant and confident with PMS operations. The fact that respondents were literate and understood the questions also led to high response rates among the operations staff. The study orally interviewed one manager from each category of the sampled hotels. All the targeted managers were also available and were interviewed in their offices, which represented a 100% response rate. According to Mugenda and Mugenda (2013) a 50% response rate is adequate, 60% good while above 70% is very well rate. Based on this assertion, the response rate for this study was 100%. This was a very good response rate, which made the analysed data valid.

4.3 Socio - Demographic Data

The study found it important to establish the background information of the operation staff. The background information sought comprised of demographic information. This was important in order to have an understanding of the respondents' profile. The results were analysed using descriptive statistics capturing frequencies and presented in tables and charts.

The study findings are as discussed in the sections below.

4.3.1 Respondents' Demographic Information

The respondents were asked to indicate their demographics. The findings are presented in Table 4.2.

Table 4.2: Respondents' Demographic Information

		Frequency	Percentage
Gender	Female	50	45.0
	Male	61	55.0
Age	18-22 years	3	2.7
	23-25 years	16	14.4
	26-30 years	39	35.1
	31-35 years	28	25.2
	36-45 years	18	16.2
	Above 45 years	7	6.3
Education Level	Primary School	5	4.5
	Secondary School	7	6.3
	Diploma or Certificate	56	50.5
	Bachelor's Degree	43	38.7

Source: *Data Analysis (2016)*

As presented in Table 4.2, on pooled data from the five hotels, majority 61(55%) of respondents were males and 50(45%) females. Most 39(35.1%) of the hotel operations staff were 26-30 years old. Those above 45 years were relatively fewer 7(6.3%). The age distribution is consistent with Krishnas (2010) assertion that employees are more settled at their workstations when they are between the ages of 30 to 40 years. This group of staff are mature and experienced and best placed for quality service delivery, enhancing the potential for greater customer satisfaction.

Majority 56 (50.5%) of the respondents had a diploma or certificate level of education. Only 5 (4.5%) had primary school education as their highest achievement. Educated staff possess knowledge and skills necessary for professional service to guests consequently improving customer perceptions and satisfaction.

4.3.2 Respondents' Experience in the Hotel Industry

To assess staff experiences and abilities in their occupation, the study sought to find out how long the respondents had been working in the hotel industry and in the

present establishment. Figure 4.1 documents the duration of work in the present establishment.

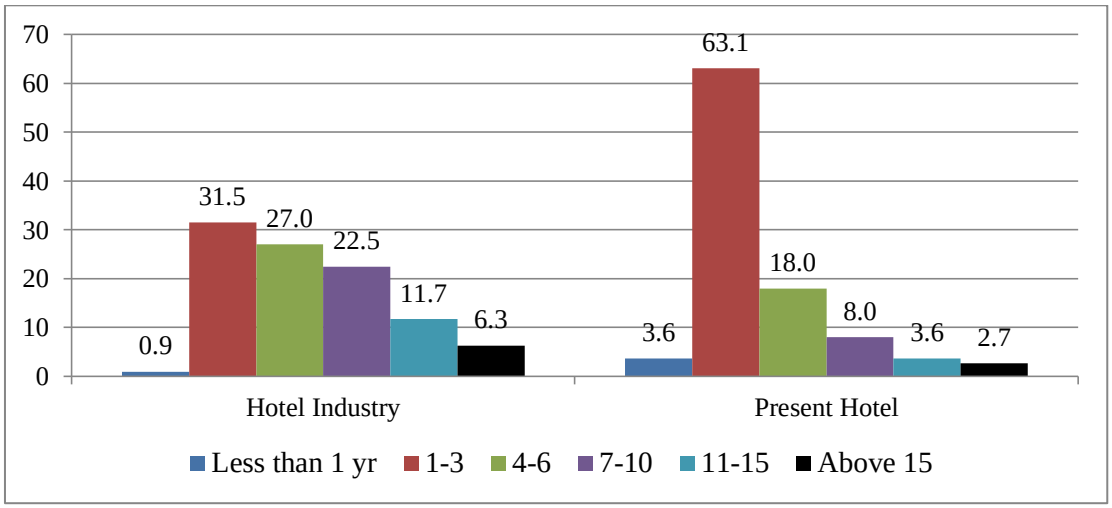

Figure 4.1: Respondents Experience in the Hotel Industry
Source: ***Data Analysis (2016)***

Thirty-five (31.5%) of the staff had experience of 1-3 years in the hotel industry. Sixty staff comprising a majority (63.1%) of the staff had experience of 1-3 years in the present hotel. More than 4 years working experience in the hotel industry was accounted for by 27% of the respondents. We can infer that majority of respondents have adequate knowledge in the hotel industry. The results are in agreement with findings by Schultze and Avital (2011) who argued that experienced respondents are reliable in providing credible information on a phenomenon as compared to inexperienced ones. It can be argued that due to favourable working experience exhibited by the hotel operations staff, the information collected by this study regarding the subject matter was reliable and valid.

4.3.3 Respondents Occupation

The respondents were asked to indicate their occupation. This was necessary in order to determine the various cadres of employment positions of hotel operations staff in the study. Involvement of various cadres of employment positions of hotel operations

staff was deemed important because of the purpose of collecting varied information regarding the use of PMS in different departments (Figure 4.2).

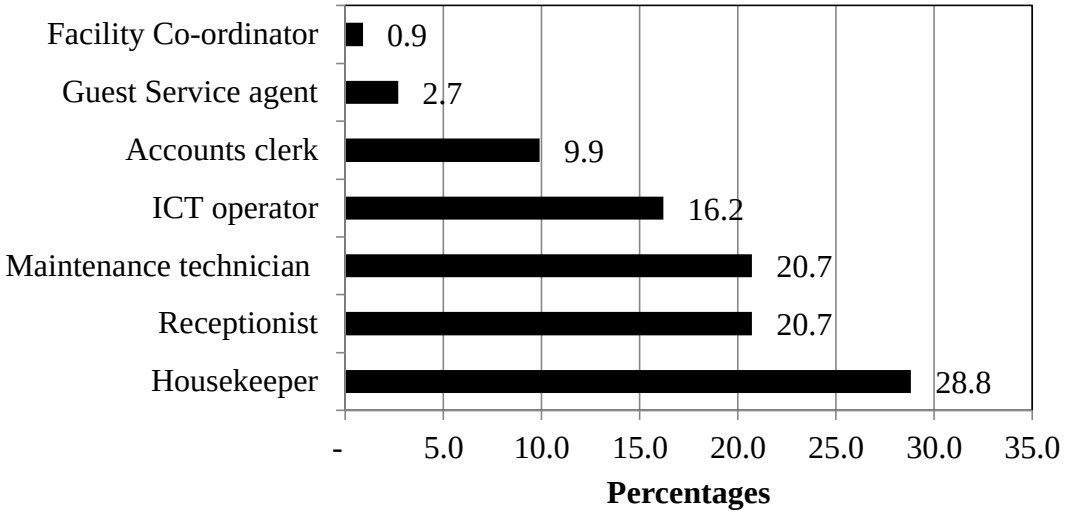

Figure 4.2: Respondents Occupation
Source: *Data Analysis (2016)*

Diverse departments contributed to interviewees (Figure 4.2). Housekeepers accounted for 32 (28.8%) followed by 23 receptionists (20.7%) and an equal number of maintenance technicians (20.7%). The diversity of occupations ensured relevant balanced important information regarding the effects of PMS components to quality service delivery in the rooms division of selected hotels was obtained. Responses from diverse staff departments allowed the study to make appropriate inferences on the findings and enriched validity and reliability of the data.

4.3.4 Respondents Designation

The respondents were asked to indicate their designation. This was necessary in order to determine the specific designations held by hotel operations staff relevant to this study (Table 4.3).

Table 4.3: Respondents' Designation

Designation	Frequency	Percent
Supervisor	32	28.8
Maintenance Technician	14	12.6
Information Communication Technology Operator	12	10.8
Receptionist	6	5.4
Housekeeping supervisor	6	5.4
Maintenance technician	5	4.5
Information Technology supervisor	5	4.5
Room Steward	5	4.5
Finance clerk	5	4.5
Housekeeping supervisor	5	4.5
Front Office supervisor	5	4.5
Account Assistant	4	3.6
Laundry Attendant	3	2.7
Public Area Supervisor	2	1.8
Head Concierge	1	0.9
Accountant	1	0.9
Total	**111**	**100.0**

Source*: Data Analysis (2016)*

The hotel operations staff designation in Table 4.3 represented all the departments earmarked by this study. These findings are an indicator that data collected was representative of the views of the hotel operations staff in the sampled hotels.

4.3.5 Duration of Existence of PMS in Hotels

Respondents were asked to indicate the duration PMS has been in place in the selected hotels. This was necessary to determine whether the PMS was implemented long enough to have any effect on quality service delivery in the Rooms Division (Table 4.4).

Table 4.4: Duration of Existence of PMS in Hotels

N (43)	Minimum	Maximum	Mode	Mean
Experience (Years)	2	20	2	5.59

Source*: Data Analysis (2016)*

The study established that most of the hotels had PMS in place for at least two years. The mean existence of PMS was 5.59 years. PMS for two years in a hotel represents adequate time to assess its effect to quality service delivery in the rooms division.

4.4 Application of PMS in the Rooms Division

The first objective of the study was to investigate the application of PMS on quality service delivery in the rooms division. According to Regmi and Thapa (2010), the applications of PMS are classified into basic and specialised ones. The major application of PMS includes reservation module, check-in, check-out, guest accounting, guest history, rooms management among others (Kasavana & Cahill, 2011). This study sought to establish the application of PMS components in the selected hotels. The findings are discussed in subsequent sections.

4.4.1 Most Commonly used PMS components in the Rooms Division

The study sought to establish the types of PMS components used in rooms division. This was necessary in order to establish the widely used PMS (Table 4.5).

Table 4.5: Widely used PMS Components in the Rooms Division

	Types of PMS							Total
	Opera	**Fidelio**	**EZee**	**Qems**	**Navision**	**ISCA**	**Hotel plus**	
One Star	2(1.8%)	0(0.0%)	1(0.9%)	0(0.0%)	0(0.0%)	0(0.0%)	8(7.2%)	11(9.9%)
Two Star	9(8.1%)	3(2.7%)	3(2.7%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	15(13.5%)
Three Star	11(9.9%)	2(1.8%)	1(0.9%)	0(0.0%)	1(0.9%)	0(0.0%)	0(0.0%)	15(13.5%)
Four Star	17(15.3%)	3(2.7%)	10(9.0%)	1(0.9%)	0(0.0%)	0(0.0%)	0(0.0%)	31(27.9%)
Five Star	16(14.4%)	3(2.7%)	11(9.9%)	1(0.9%)	0(0.0%)	8(7.2%)	0(0.0%)	39(35.1%)
Total	**55(49.5%)**	**11(9.9%)**	**26(23.4%)**	**2(1.8%)**	**1(0.9%)**	**8(7.2%)**	**8(7.2%)**	**111(100.0%)**

Source*: Data Analysis (2016)*

Most 55(49.5%) of the hotel operations staff were of the opinion that Opera system was the most commonly used, followed by eZee at 26(23.4%) and the least used was ISCA and Hotel plus PMS both at 8 (7.2%) (Table 4.5). The predominance of Opera

over Fidelio can be due to its ability to support numerous applications such as guest history and guest accounts, as well as its ability to configure in multi-property mode and have integration capability. It can also be attributed to the upgrading of Opera PMS to make it user friendly.

4.4.2 General Application of PMS

The main purpose of a PMS is to aid in the decision-making process for various management applications. In a hotel, managers of different departments are expected to make informed decisions on matters affecting their areas and the entire establishment. A reliable PMS needs to have multiple applications in order to adequately assist management of various functions. With this in mind, the study found it prudent to assess the general applications of PMS used (Table 4.6).

Table 4.6: General Applications of Property Management System

General Applications of PMS components	Count (n=111)	Percent within cases
Room reservation	104	93.7
Room status	100	90.1
Check in and out	97	87.4
Rooms Billing/Accounting	99	89.2
Night auditing	89	80.2
Customer details	85	76.6
Managers/Supervisors on duty	76	68.5
Menu details	70	63.1
Channel management (Marketing and Sales)	12	10.8
Event booking	3	2.7
Requisition of the material	3	2.7

Source: *Data Analysis (2016)*

NB: Data was analysed from multiple responses

PMS has a variety of general applications in the hotel industry (Table 4.6). The room reservation and room status application individually contributed more than 90% among others. The findings above show that PMS is mainly used in the management

of rooms. This is so because over 80% of the PMS applications are dedicated to room services. An interview with one of the managers in department of ICT had this to say regarding the application of PMS;

> *"…. The PMS, which is part of the ICT system in the hotel, plays an important role in integrating operations of the entire facility. It is used to automate all the services to ensure smooth and efficient flow of information for proper decision-making. In summary the PMS is vital in managing quality service delivery in the entire hotel and not only the rooms division …". [OI-2].*

The above sentiments explain why PMS is important in managing hotel operations across all departments.

4.4.3 Room Status Application of PMS in the Rooms Division

Respondents were asked to indicate specific applications of PMS in the rooms division. This was important in determining if the specific applications were relevant in management of the rooms division (Table 4.7).

Table 4.7: Room Status application of PMS in the Rooms Division

	Count (n=111)	**Percent within cases**
Out of order rooms	103	92.8
Occupied rooms	102	91.9
Vacant rooms	95	85.6
Due in and out rooms	93	83.8
Guest supplies in the rooms	67	60.4
Room Amenities	61	55.0

Source: *Data Analysis, (2016)*

NB: Data was analysed from multiple response

Out of order rooms (92.8%), occupied rooms (91.9%), vacant rooms (85.6%) and due in and out rooms at 83.8% were identified as the major specific applications of PMS in the rooms division (Table 4.7). These specific applications of PMS have a high likelihood of affecting the room status directly as opposed to management of guest supplies and room amenities.

These findings were confirmed by a rooms' division manager who confided that:

> "……*we use PMS mainly to check on the room status at any time. We mainly monitor the condition of the rooms that require repairs and cannot be sold, sold out rooms, and rooms due to be vacated among others as per the Standard Operating Procedures (SOPs). Though PMS can provide other information like the guest history, accounts and others, we rarely use it to monitor guest room supplies and amenities….."(OI-3)*

The sentiments expressed above confirm that the main specific applications of PMS are more concentrated in the management of room status.

4.5 Information Aspects of PMS

The second objective of the study sought to determine the effect of information aspects of PMS on quality service delivery in the rooms division of selected hotels. The overall aim was to determine the effect of information aspects of PMS components on quality service delivery in the rooms division. Statements about the impact of PMS were posed, and respondents were asked to express their opinions. According to Boone and Boone (2012), descriptive statistics such as Mean and Standard Deviation (SD) are appropriate for analysing Likert scale data. This study settled on Mean and SD statistics to analyse collected data. The mean and standard deviation statistics were chosen for this study to analyse the collected data. The Mean statistics findings were used as the primary focal point for discussing the Likert scale key results below (Table 4.8).

Table 4.8: Information Aspects of PMS

Statement	Mean	SD
PMS provides all information regarding the status of the rooms	1.40	0.075
PMS is used to bill customers	1.44	0.074
Information can be posted regarding the room status into the PMS from an office station	1.68	0.104
PMS allows guests to make room reservations from outside the hotel	2.50	0.154
PMS allows guests to request for room services while in their rooms in the hotel	4.02	0.127
PMS provides the maintenance personnel with access to maintenance information about the guest rooms	2.31	0.136
PMS provides details of the guests' history	1.87	0.091
Information can be posted regarding the room status into the PMS using ones mobile phone	4.05	0.146
PMS allows the staff to communicate with guests in their rooms by wakeup calls, TV, bills etc.	4.11	0.122
PMS information is used to make analysis to forecast on the transactions regarding room services	1.83	0.100

Source*: Data Analysis (2016)*

The respondents strongly agreed (mean=1.40) that PMS provides all information regarding the status of the rooms. On use of PMS to bill the customer, the results showed that the respondents strongly agreed (mean=1.44) that it influences quality service delivery in the rooms division. Majority of the respondents strongly agreed (mean=1.68) that information can be posted regarding the room status into the PMS from the office station (Table 4.8).

Regarding PMS allowing guests to make room reservations from outside the hotel, the respondents agreed (mean=2.50) that it influences quality service delivery in the rooms division. PMS (mean=4.02) does not allow guests to request for room services while in their rooms. Further, respondents agreed (mean=2.31) that PMS provides the maintenance personnel with access to room maintenance information and respondents

strongly agreed (mean= 1.87) that the PMS provides details of the guests' history (Table 4.8).

On whether information can be posted regarding the room status into the PMS using a mobile phone, the results (mean=4.05) showed that majority reported unavailability. PMS does not allow staff to communicate with guests in their rooms (mean=4.11). Lastly, the results indicated that the respondents strongly agreed (mean=1.83) that PMS information is used to produce statistics, analysis and forecasts on the transactions regarding room services.

An interview with one of the managers in the reservations section noted the following regarding room status applications of PMS components to service delivery in the rooms division:

> *"…. I have worked in the hotel industry in the reservations for more than 15 years. In the initial years the operations were done manually which was time consuming and tedious. With the computerization of the hotel's operation using Opera PMS, the flow of information across all the departments has been quick which has helped staff make decisions without much delays. The PMS has greatly influenced the quality service delivery in the rooms division in a great way. For example, during reservations one can tell the condition of the room from their station and make a decision to reserve or not. At the same time the maintenance technician-in - charge can assess the housekeeping reports on which rooms require attention. The PMS networking helps the General Manager to have a clear picture of the entire hotel from the comfort of his office. In conclusion the PMS has led to the improvement of service delivery in the rooms division …" [OI-4].*

The sentiments expressed above imply that the PMS is an important tool in managing the rooms division.

4.6 Integration of PMS components in the Rooms Division

The third objective was to establish the effect of integration of PMS on quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya. The success of a PMS can be measured by determining the effect of integration with other

departments in an establishment. Integration provides an opportunity of making collective decisions due to participation of different heads of departments.

4.6.1 Departments Connected with PMS

Respondents were asked to identify the hotel departments that are linked to PMS. This was critical in determining the effects of integrating PMS components in the hotel (Table 4.9).

Table 4.9: Hotel Departments Connected with PMS

Hotel Departments Connected	Count (n=111)	Percent within cases
Reservations	106	96.0
Housekeeping	103	92.8
Front Office	103	92.8
Food and Beverage	87	78.0
Sales and Marketing	75	67.6
Maintenance / Engineering	75	67.6
Transport	71	64.0
Security	59	53.0
Accounts	36	32.0
Laundry	7	6.0
Banqueting	3	2.7
Purchasing/Store/Account Control	3	2.7

Source: *Data Analysis (2016)*

NB: Data was analysed from multiple response

Majority of the respondents considered the following departments to be connected with PMS (Table 4.9): reservations (96%), housekeeping (92.8%), front office (92.8%), food and beverage (78.0%), sales and marketing (67.8%), maintenance (67.8%), transport (64.0%) and security (53.0%). The results established that departments that do not provide direct services to the rooms division were not highly integrated in the PMS. These departments comprised of accounts, laundry, banqueting and procurement.

4.6.2 Effect of PMS Integration

Respondents were asked to rate the effect of PMS integration in hotels using Likert scale statements. Mean and standard deviation (SD) were used to analyse the Likert scale response findings. Mean statistics findings were used as the primary focal point for discussing the results based on the Likert scale key below (Table 4.10).

Table 4.10: Effect of Integration of PMS in Room Division

Effect of Integration of PMS	Mean	SD
All section/departments are integrated allowing sharing of information	1.81	0.106
Information can be posted into the PMS from the departments' Stations	1.63	0.096
There are adequate computers in all departments to facilitate operation of PMS	2.08	0.119
Information can be posted into the PMS using mobile phones	4.01	0.143
Our PMS is integrated to the hotel websites, Global Distribution Systems or Central Reservation Systems	2.37	0.146
Our PMS is integrated to telephone, fax systems websites and email systems	2.50	0.138

Source: *Data Analysis (2016)*

The study established that respondents strongly agreed (mean=1.81) that all hotel departments were integrated, allowing for information sharing, and strongly agreed (mean=1.63) that information could be posted into the PMS from the departments' stations. Majority of the respondents agreed (mean=2.0) that there were adequate computers in all departments to facilitate operation of PMS.

Respondents moderately agreed (mean=4.01) that information could be posted into the PMS using mobile phones and agreed (mean=2.37) that the hotels' PMS was integrated to the website, Global distribution system and Central Reservation Systems. Lastly, the respondents agreed (mean=2.50) to the statement that the hotels' PMS is integrated to telephone, fax systems websites and email systems.

4.6.3 Overall Effect of Integration of PMS in the Rooms Division

Respondents were asked to rate the overall effect of integration of PMS in the rooms division (Figure 4.3).

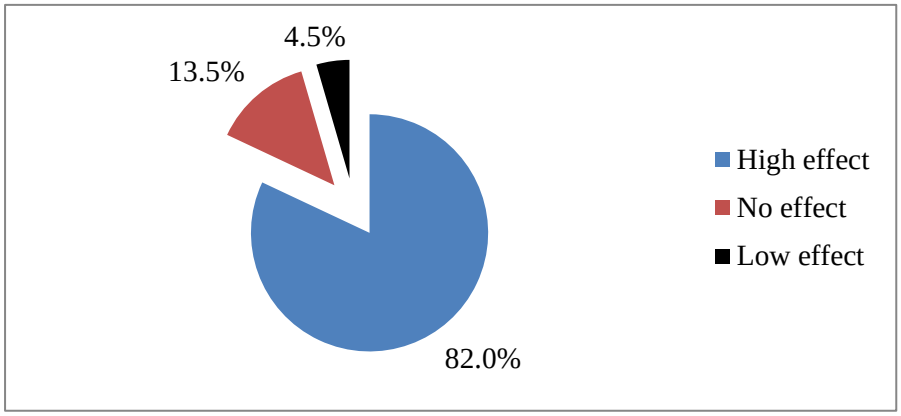

Figure 4.3: Overall Effect of Integration of PMS in the Rooms Division
Source*: Data Analysis (2016)*

Majority of the respondents (82%) considered the integration of PMS in rooms division as high integration with 13.5% considering it to be low integration (Figure 4.3). However, 4.5% of the respondents considered PMS integration as no effect. This result indicates that the PMS integration is considered to be highly integrated in the sampled hotels.

4.7 Effect of Staff Usability of PMS in the Rooms Division

The fourth objective was to determine the effect of staff usability of PMS in the rooms division of selected hotels in Nairobi County, Kenya. Effect of staff usability of PMS is critical in ensuring efficient service delivery in the rooms division. Study findings explained that it was necessary to determine the effect of staff usability of PMS as one way of measuring the quality service delivery in the rooms division.

4.7.1 Training of staff on Usability of PMS

Respondents were asked on how they got their training on the use of PMS to establish staff ability to use PMS (Figure 4.4).

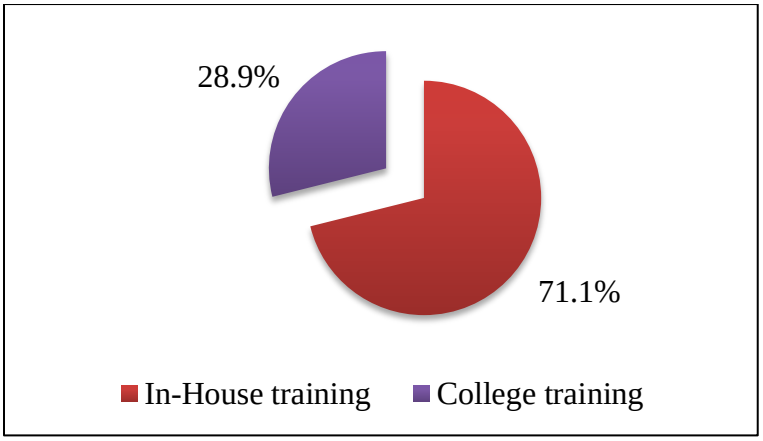

Figure 4.4: Training on the use of PMS in the Rooms Division
Source: *Data Analysis, (2016)*

Majority (71.1%) of the respondents received in-house training on the use of PMS (Figure 4.4) with the remaining 28.9% receiving training from colleges indicating that majority of the respondents were trained on PMS use internally. This could be attributed to lack of inclusion of PMS training in the hospitality-training curriculum.

4.7.2 Staff Usability of PMS

The success of PMS in ensuring quality service delivery is highly dependent on the ability of the staff to use it. Respondents were given statements to assist them to gauge their ability to use PMS in the hotel. Likert scale statements were used to collect responses. The Mean statistics findings were used as the primary focal point for discussing the results based on the Likert scale key below (Table 4.11).

Table 4.11: Staff Usability of PMS in the Rooms Division

	Mean	SD
I can post information on the PMS without assistance	1.42	0.826
Staff have the ability to retrieve information regarding the rooms from PMS	1.43	0.959
Staff have ability to print reports from PMS regarding rooms	1.39	0.844
I have adequate skills to train other staff on the use of PMS in rooms	1.39	0.753
I am capable of using PMS information to make analysis and forecast on the transactions regarding room services	4.45	1.134
I have ability to make room confirmation, cancellation, deposits, room blocking, waiting lists among others	1.78	1.310

Source: *Data Analysis, (2016)*

NB: Data was analysed from multiple response

The study established that the respondents strongly agreed (mean=1.42) that hotel operations staff could post information on PMS without assistance. They also strongly agreed (mean=1.43) that hotel operations staff had the ability to retrieve information regarding the rooms from the PMS and that they had the ability to print reports from the PMS regarding rooms (mean=1.39). Regarding adequate skills to train other staff on the operation of PMS in rooms division, respondents strongly agreed (mean =1.78). Majority of the respondents disagreed (mean=4.45) that they were capable of using PMS information to make analysis and forecast on transactions regarding room services. Lastly, the respondents strongly agreed (mean=1.78) that they had the ability to make room confirmation, cancellation, deposits, room booking and waiting lists through PMS. These results indicated on overall that the respondents had the ability to use PMS.

4.7.3 Overall Usability of PMS in the Rooms Division

The study sought to establish the overall ability of staff to use PMS in the rooms division (Figure 4.5).

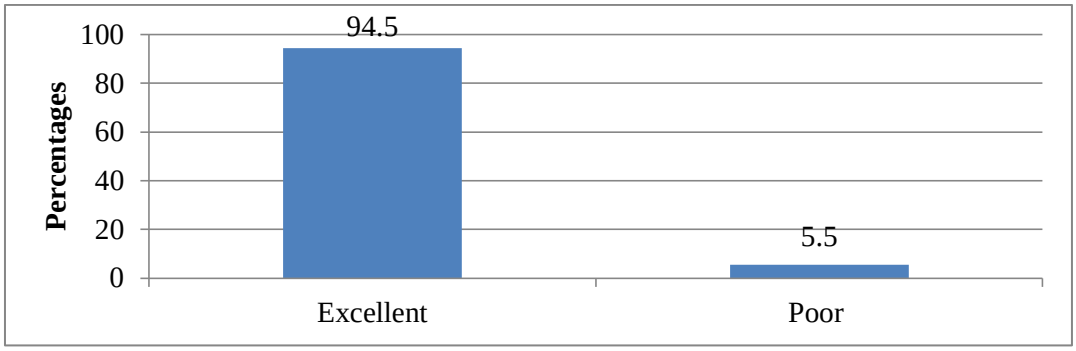

Figure 4.5: Overall Staff usability of PMS in the Rooms Division
Source*: Data Analysis (2016)*

Majority (94.5%) of the respondents considered their ability to use PMS as excellent (Figure 4.5). This implies that majority of the operations staff have competencies of operating PMS despite lack of exposure to college training. Hotels have realised that PMS is critical in service delivery and have ensured that staff are trained.

4.7.4 Challenges on the Application of PMS in the Rooms Division

The study sought to identify the staff and institutional challenges of application of PMS. Findings for staff and institutional challenges are presented in Tables 4.12 and 4.13 respectively.

Table 4.12: Staff challenges on the application of PMS in the Rooms Division

Individual Challenges	Count (n=111)	Percent within case
Limited capability of utilising many PMS functional modules	34	35.4
Lack of skills of analysing information posted in PMS	32	33.3
Upgrading of PMS with no corresponding training to cope with changes	21	21.9
Lack of continuous training of new and old staff	18	18.8

Source: *Data Analysis, (2016)*
NB: Data was analysed from multiple response

The results established that majority of the respondents (35.4%) identified limited capability of utilising many PMS functional modules as one of the challenges facing staff. Others were: lack of skills of analysing information posted in PMS (33.3%), challenges posed by upgrading of PMS with no corresponding training to cope with changes (21.9%) and lack of continuous training of new and old staff on the use of PMS (18.8%).

Table 4.13: Institutional Challenges on the application of PMS in the Rooms Division

Organisational Challenges	Frequency	Percent
Lack of structured training programmes and inadequate computers	15	24.6
Lack of water tight security on the PMS	12	19.7
System and network breakdown	7	11.5
Loss of data due to inadequate data backup	6	9.8
Cost of maintaining PMS especially upgrading	5	8.2
Lack of mobile phone application and integration with PMS	4	6.6
Lack of wide integration with all department	4	6.5
Some staff not willing to adopt PMS (Technology phobia)	3	4.9
Lack of Policies and Procedures of using PMS	3	4.9
Lack offline mode in cases of network failure	2	3.3
Total	**61**	**100.0**

Source: Data Analysis (2016)

NB: Data analysed from only 61 respondents who answered the question

A number of challenges facing PMS application were identified (Table 4.13). Most 15(24.6%) of the respondents identified lack of structured training programmes and inadequate computers as one of the institutional based challenges facing staff. Other challenges included lack of watertight security (19.7%), system and network failure (11.5%), and loss of data due to inadequate backup 9.8%. It was also established during oral interview with managers that PMS faces a number of challenges. These challenges are mostly institutionally based like network failure and lack of continuous

training of old and new staff on the use of PMS especially when the system is upgraded.

4.7.5 Quality Service Delivery in the Rooms Division

The respondents were asked to indicate the effect of PMS on quality service delivery in the rooms division. Primary data was collected using a Likert scale and was analysed descriptively. For discussion, "strongly agreed", "agreed" and "moderately agreed" responses were aggregated to mean "agreed" while "disagreed" and "strongly disagreed" were aggregated to mean "disagreed". The aggregation was done to (Table 4.14).

Table 4.14: Quality Service Delivery of PMS in the Rooms Division

Specific Service Delivery in the	**SA**		**A**		**MA**		**D**		**SD**	
Rooms Division	F	%	F	%	f	%	f	%	F	%
PMS has reduced time of room service	43	38.7	42	37.8	8	7.2	11	9.9	7	0.114
PMS has reduced customer complaints	47	42.3	42	37.8	4	3.6	15	13.5	3	0.106
Prompt address to customer complaints	39	35.1	46	41.4	7	6.3	15	13.5	4	0.107
Shared responsibility among departments	62	55.9	44	39.6	5	4.5	-	-	-	0.056

Source*: Data Analysis (2016)*

Majority (83.7%) of the respondents agreed to the statement that PMS had reduced time of room service and 83.7% of the respondents agreed that the PMS had reduced customer complaints (Table 4.14). The study results established that over 82.8% of the respondents agreed to the statement that customer complaints are addressed promptly as a result of using PMS. All the respondents agreed that there is a shared responsibility among departments due to effects of PMS to specific service delivery in the rooms division.

4.7.6 Efficiency of PMS in the Rooms Division

The respondents were asked to rate overall efficiency of PMS in the rooms division.

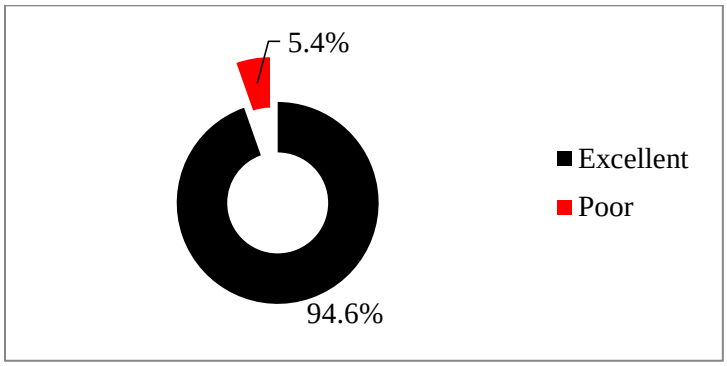

Figure 4.6: Efficiency of PMS in the Rooms Division
Source*: Data Analysis (2016)*

As shown in figure 4.6, majority (94.6%) of the respondents rated overall efficiency of PMS to service delivery in the rooms division as excellent while 5.4% rated it as poor. These results imply that efficiency of PMS in the rooms division has a high likelihood of providing quality service delivery. This assertion was supported by one operations manager, who confided that;

> *"…. I have worked for 10 years in a hotel establishment that had not integrated PMS in its entire hotel. There were numerous challenges of knowing what is going on in the entire hotel since one relied on a verbal briefing from the head of department. This made decision making difficult leading to customer complaints. When I joined the current hotel, which has a fully integrated PMS with all the departments, I am now able to see what is going on in the entire hotel at the comfort of my office. I am able to issue instructions and make prompt decisions at the shortest time possible, thanks to the PMS efficiency. PMS is so efficient in terms of providing up-to-date and accurate information since there is control and checks from all staff that have access to the system. In case of errors, it's noted and corrected on time. I have no doubt to say that PMS has largely been efficient to about 90% with minimal staff and institutions challenges. …". [OI-5].*

4.8 Inferential Statistics

The purpose of inferential statistics is to draw conclusions about a whole population based on collected information from the sample population (Rachad, 2003). The

analysed inferential statistics are used to generalize from a sample to a larger population and to test hypotheses. The purpose of using inferential statistics in this study was to test relationships between independent and dependent variables for making generalisations of the larger population. Chi-square test was used to test hypothesis on the relationship between independent variables (effects of information aspects of PMS, effects of integration of PMS, effects of staff usability of PMS) and dependent variable (quality service delivery). Multiple linear regression was used to predict the effect of independent variables on quality service delivery.

4.8.1 Multiple Linear Regression

The Multiple Linear Regression was used to determine the effects to which changes in the dependent variable (quality service delivery) is explained by changes in the independent variables (effect of informational aspects, effects of integration of PMS and staff usability of PMS) in the rooms division (Table 4.15).

Table 4.15: Multiple Linear Regression

Model Summary										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.613[a]	.376	.359	.69310	.376	21.516	3	107	.000	1.867
a. Predictors: (Constant), Staff Usability of PMS, Information Aspects, Integration of PMS										
b. Dependent Variable: Quality Service Delivery										

Source: Data Analysis (2016)

The regression model (adjusted R squared) and regression coefficients results were used to explain the effect of independent variables on quality service delivery in the rooms division. The results (Table 4.15) indicated that independent variables influenced by 35.9% (R=0.359) change in the dependent variable. These findings show that independent variables influenced quality service delivery by 35.9% in the

rooms division. However, other factors that were not explored by this study contributed to quality service delivery by 64.1%.

4.8.2 Multiple Regression Coefficients

The multiple regression coefficient analysis was conducted to determine the effect of contribution of each independent variable explored on quality service delivery (Table 4.16).

Table 4.16: Multiple Regression Coefficients

Coefficients[a]													
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.669	.184		3.629	.000	.303	1.034					
	Informational Aspects	.153	.084	.174	1.814	.072	-.014	.320	.394	.173	.139	.631	1.584
	Integration of PMS	.623	.102	.686	6.116	.000	.421	.825	.568	.509	.467	.463	2.160
	Usability of PMS	-.319	.113	-.312	-2.833	.006	-.543	-.096	.262	-.264	-.216	.479	2.087
a. Dependent Variable: Quality Service Delivery													

Source: *Data Analysis, (2016)*

The regression coefficients results (Table 4.16) show that PMS integration (Beta=0.686) contributed the most on quality service delivery. It was followed by usability (Beta=-0.312) and information aspects to use of PMS (Beta=0.174) respectively. The regression equation used; Y=0.669+0.623-0.319+0.153. This regression model shows that integration of PMS and information aspects of PMS have a positive coefficient, which is prediction that they have a direct proportional effect on the quality service delivery. From these findings, an increase in PMS integration and information aspects will improve quality service delivery change by 0.623 and 0.153 units respectively.

Usability of PMS has a negative coefficient, which is prediction that it has an inverse effect on the quality service delivery. An increase of a unit of usability changes

quality service delivery by -0.319 units. In conclusion, inferential analysis indicated that quality service delivery in hotels in Nairobi County was explained by independent variables; effects of information aspects of PMS, effects of integration of PMS and staff effect of the usability of PMS in rooms division of selected hotels.

4.8.3 Hypothesis Testing on Effect of PMS Information Aspects on Quality Service Delivery in the Rooms Division

HO_1 There is no significant effect of PMS information aspects on quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya

Chi-square test of independence was used to test this hypothesis to determine the relationship between the variables in the study using 0.05 significant level. If the p-value (0.05) is less than the significance level, null hypothesis will be rejected and the alternative accepted (Table 4.17).

Table 4.17: Pearson Chi-Square Test Results

	Value	df	P – Value
Pearson Chi-Square	530.222[a]	111	<0.001
Likelihood Ratio	241.864	111	0.065

Source: Data Analysis (2016)

The Chi-Square hypothesis testing (p=0.001) was less than the significance level (P<0.05). The study therefore rejected the null hypothesis suggesting that there is a significant effect of PMS information aspects on quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya.

4.8.4 The Effect of PMS Integration on Quality Service Delivery in the Rooms Division

HO_2 There is no significant effect of PMS integration on quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya.

Chi-square test of independence was used to test the relationship between variables in the study. The level of significance used was 0.05. If the p-value is less than the significance level, the null hypothesis is rejected.

Table 4.18: Pearson Chi-Square Test Results

	Value	df	P – Value
Pearson Chi-Square	562.937[a]	111	<0.001
Likelihood Ratio	245.559	111	0.047

Source: *Data Analysis (2016)*

The chi-square hypothesis testing alpha value (p=0.001) was less than the significance level (P<0.05) thus rejecting the null hypothesis, indicating that there is enough evidence to suggest that there is a significant effect of PMS integration on quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya.

4.8.5 Hypothesis Testing on Staff Effect of the Usability of PMS

HO_3 Staff usability of PMS does not significantly affect quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya.

Chi-square test of independence was used to determine the relationship between variables in the study using 0.05 level of significance. If the p-value is less than the significance level, null hypothesis will be rejected, an indicator that there is a relationship between the variables tested.

Table 4.19: Pearson Hypothesis testing

	Value	Df	P- Value
Pearson Chi-Square	396.464[a]	111	<.001
Likelihood Ratio	171.212	111	.084

Source: *Data Analysis, (2016)*

The Chi-Square hypothesis testing results (X^2= 396.4, df=111, p<0.001). This alpha value (p=0.001) was less than the significance level (P<0.05). The study therefore rejected the null hypothesis and concludes that there is enough evidence to suggest that staff usability of PMS has affected quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya.

CHAPTER FIVE

SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Overview

The main objective of this study was to examine the effect of PMS components on quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya. This chapter therefore presents findings, conclusions, recommendations and suggestions for further research.

5.2 Summary of Findings

This section presents the findings based on the research objectives. The study findings are discussed as per the sub-headings: application of PMS components in the rooms division, effect of information aspects of PMS on quality service delivery in the rooms division, effect of integration of PMS in the rooms division and effect of staff usability of PMS in the rooms division.

5.2.1 Application of PMS in the Rooms Division

The first objective sought to investigate the application of PMS components on quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya. This was important in investigating the application of PMS components in the rooms division. The types of PMS, general and specific applications of components used in rooms division of the sampled hotels were explored. It emerged from the study findings that most of the sampled hotels used Opera System PMS followed by eZee. Opera System is one of the oldest PMS used in majority of high-class hotels globally. Opera system has been acclaimed to be a very versatile computer software (Opera, 2017) since it has a large capacity to handle enormous database unlike other PMS's. Opera System uses Oracle relational database management system, has

remarkable speed of data retrieval, reliability, has a wide functionality, and is user friendly. It is also flexible in adapting to different connectivity options and functionality specific to each electronic distribution channel internally, locally and globally.

These findings agree with (Casamento, 2012) who observed that Opera, an oracle based system is the most commonly used PMS component by leading hotels worldwide. It is considered as the first choice of PMS component due to its ability to provide day-to-day tasks like, reservations, guests in and out, assigning rooms and managing room inventory among others. The preference of Opera, as the first choice PMS is also attributed to its user friendliness. A manager confided that operations staff who had no prior training on Opera operations would find it easy to use within a week.

PMS performs a number of general applications, which include provision of information on room status, room accounts, guest details, menu details and information of the staff duties. The general applications related to rooms division accounted for majority of the tasks performed by PMS in the hotels. However, other general applications such as channel management, event booking and material requisitions were minimal. These findings indicated that the hotels mainly used PMS components to provide delivery of services in the rooms division. Six (6) out of eleven (11) general applications of PMS components identified were all directed to service of the rooms division. Kasavana and Cahill, (2003) in their studies noted that PMS components have application of integrating hotel front office and back office activities. Revenue management, reservation management, room and rate assignment, check-in and out management, guest accounting, folio management, account settlement and room status management are clear examples.

On the specific applications of PMS components in the rooms division, the study established that it was largely dedicated to indicating status of guest rooms. PMS components are utilized to inform the hotels' management on the physical condition and occupancy of the guest rooms. Guest supplies, room bar and room amenities are also discerned. From the study, we note that the hotels use PMS components to inform the management on specific applications, which are largely inclined to room division services and specifically the guest rooms. It can be argued that PMS components play a major role in the provision of guest services in the rooms. Its efficiency in managing the room services depends on the staff usability.

5.2.2 Effect of Information Aspects of PMS Components on Quality Service Delivery

The second objective sought to determine the effect of information aspects of PMS components on quality service delivery in the rooms division of selected hotels in Nairobi County, Kenya. The study explored a number of possible PMS effect on quality service delivery. It emerged from the study that PMS components have influenced quality service delivery in the rooms division in different ways as discussed below.

The study found that PMS plays a big role in the provision of information regarding room status. PMS primarily provides updated information regarding room status, guest information, guest accounts and others any time required. The management has the responsibility of ensuring all data regarding room status is continuously posted in the system to ensure real time reporting. This can only be achieved if the housekeeping staff have access and are able to use PMS effectively, and could be made possible by integrating housekeeping and front office sections with PMS. Continuous update of PMS components is vital to avoid inadequate and misleading

information on rooms division resulting in poor services and loss of revenue. PMS has a major role of providing all information regarding the room status. A PMS that cannot provide all critical information regarding the room status cannot positively influence quality service delivery in the rooms division. The study findings are in agreement with Rajput (2015) and Pucciani *et al.,* (2011) who observed that PMS components play a critical role of providing real time information regarding the status of guest rooms. They also claimed that today's small, medium, and large hotels all rely on PMS components to give real-time quality service to their guests.

It also emerged that PMS components have an application of billing customers. Respondents strongly agreed that it had a positive attribute. Managers of hotels have a key role of ensuring increased revenues by selling rooms. It is also the responsibility of the management to ensure that there is no loss of revenue due to acts of fraud among staff and failure to sell rooms due to inaccurate information on the bills. PMS is critical when it comes to billing guests since it gives accurate information regarding the guest staying in the hotel. According to the interview findings with managers, PMS has the potential of detecting frauds committed by staff during billing as it provides guests' history from the time of reservation and room allocation to the time a guests' checks out. Pucciani *et al.*, (2011) explained that PMS has progressed beyond the single function of check-in, reservation, and checkout to multiple-function software that integrates revenue management.

The study also showed that PMS allows staff to post information into the system from their office station due to the integration capacity occasioned by networking of PMS within the hotel. Other positive influences of PMS include the ability of guests to make room reservations from outside the hotel and ability of maintenance staff to access room information. McDonald (2007) argued that PMS has an advantage of

integrating and automating virtually all the previously scattered manually performed tasks.

PMS provides a platform of accessing details of guests including historical transactions, which is critical as an audit trail as clearly seen in this study. Data available from PMS helps the management to make certain decisions like giving discounts for guests who have stayed for long periods or repeat guests. According to Haley (2005), the use of PMS for the entire hotel company has the benefit of providing guest history and folio details in one place. The details help the management effect proactive customer communications utilizing observed guest preferences and behaviour.

The study established that PMS plays a major role in making analysis of data captured in the system thus aiding in forecasting room transactions. Forecasting of sales is critical in ensuring a hotel remains competitive in the business world. PMS is a comprehensive software application used to manage an establishment by coordinating operational functions of front office, sales, maintenance, planning and other sections in the hotel industry. It is also used to advise management on how to use the captured data to make certain decisions. The data mining or analysis of captured data provides rich information that is used to make decisions like forecasting the guest flows which in turn helps to predict revenues.

Interview findings with managers established that finance and marketing departments utilise data captured in the PMS to develop marketing and revenue generation plans. During an interview with a manager of a leading five-star hotel, it was found that they had engaged financial data analysis from the PMS in place on a daily basis for the purpose of forecasting revenue. It can therefore be argued that PMS is an important tool of managing revenue generation in the competitive hotel industry businesses.

The respondents' agreed that PMS provides the maintenance personnel with access to maintenance information about the rooms. It is advisable that the guest rooms always be in proper condition. The maintenance personnel do not have continuous access to the guest rooms, which ordinarily is a preserve of the housekeeping staff. The lack of access to the guest rooms by maintenance staff means that information regarding maintenance requirements emanates from housekeeping staff. The speed and flow of information on maintenance requirements of guest rooms will determine the quality of service in the rooms division. PMS provides a platform for posting information on guestroom maintenance requirements. This in turn helps the maintenance personnel to promptly act on the anomalies.

PMS was found to have limited influence in allowing guests to make requests when they are in their rooms. At the same time, the study established that the PMS did not allow staff to communicate with guests in their rooms. According to information confided by the managers during an interview, guests do not have access to PMS since it is a preserve for authorised staff. Guests can only communicate to the management through telephone calls, emails and other channels not connected to PMS. However, when the PMS is connected to the internet, guests can make requests like reservation but not specific guest enquiries and complaints.

The study also established that the use of mobile phones to post information into PMS was not widely used. From the interview findings with the hotel management, only one hotel had a mobile phone application capable of posting room status by housekeeping staff. On specific service delivery in the rooms division, the study established that PMS had a positive influence on reducing the time required to provide room services. The application of PMS has also contributed to prompt attention to customer complaints thus reducing customer grievances. In addition, the

use of PMS has contributed to sharing of responsibilities among staff in different departments. The findings confirm that PMS has contributed to quality service delivery in the rooms division of sampled hotels. Yousaf (2011) in his study on the role of ICT on service delivery found that technology plays a critical role in quality service delivery in hotels.

The study generally found that the application of PMS has contributed greatly to the quality service delivery in the room division because respondents rated it highly. Chi-Square hypothesis testing established that information aspects of PMS has influenced quality service delivery in the rooms division. The statistical level of significance in this study is an indicator that PMS has positively influenced quality service delivery in the rooms division.

5.2.3 Integration of PMS in Rooms Division

The third objective sought to establish the effect of integration of PMS in rooms division of selected hotels in Nairobi County, Kenya. It arose from the study that PMS was highly integrated in 12 departments in different hotels. The high integration of PMS was in the departments of reservations, housekeeping and front office, which are directly responsible for room services. The high integration of PMS and more so in the rooms division reflects the likelihood of provision of high quality service delivery. Managers confided that PMS had greatly helped achieve quality service at both the front office and room services. Staff having access to rooms' information posted on PMS are able to make informed decisions without making direct enquiries to the managers in charge.

The integration has reduced the number of human interactions required to inquire about issues such as the condition of the rooms, resulting in a shorter time required to access information about the entire establishment. Hotel departments that do not

provide direct services to rooms division were not highly integrated in PMS. These departments comprised accounts, laundry, banqueting and procurement. The study found that there was a low integration of PMS with mobile technology applications. The study found only one hotel with integrated mobile technology applications installed in its PMS. This indicates that hotels have not embraced the use of mobile applications to post information into PMS. The study established that the hotels have largely integrated PMS with the rooms division leading to improved quality service delivery. PMS integration has influenced quality service delivery in the rooms division.

5.2.4 Effect of Staff Usability of PMS in the Rooms Division

The fourth objective sought to determine effect of staff usability of PMS in the rooms division in selected hotels in Nairobi County, Kenya. Majority of the respondents were trained in-house through organised programmes on PMS operations. Staff to staff on the job training was also used by hotels. However, operations staff who were trained in colleges were few, an indicator of a gap in uptake of accredited programmes despite the importance of PMS in the hotel operations. The low number of staff trained in colleges on PMS operations must be addressed.

Staff used PMS evidenced by their ability to post, retrieve and print information into and from the PMS. The critical ability to make room confirmation, cancellation, deposits, room blocking, and waiting list among others is vital for ensuring efficiency and quality room service delivery. It emerged from the study that majority of the staff had no capability of using PMS information to make analysis and forecast the transactions regarding room services. Training addressing forecasting on transactions of room services, which is key in decision making, is evidently needed. It can be argued that the ability of staff to use PMS contributed to quality service delivery in

the rooms division enabling prompt information posting. Managers indicated that operations staff followed strictly the Standard Operations Procedures (SOPs) of posting key information regarding the rooms.

5.3 Conclusions

The study documents that the availability of PMS components in hotels is performing a critical role in ensuring quality service delivery in the rooms division. PMS components have a positive influence on quality service delivery in rooms division. Installed PMS in hotels have positively influenced quality service delivery in the rooms division.

The study showed that there is adequate integration of PMS components among departments and mostly in the housekeeping department. Finally, the study established that hotel operations staff have the ability to use PMS and carry out critical functions like booking guests, allocating rooms, checking out guests and billing customers among others. Staff ability to use PMS has in turn resulted to improved quality service delivery in hotels.

5.4 Recommendations

Based on the findings of this study, the researcher makes the following recommendations, which could guide planners, policy makers and managers of hotels in providing quality service delivery.

i) A large percentage of hotel staff was not trained on the operations of PMS prior to employment. The study recommends that the government through the Ministry of Education and Department of Tourism, Catering Development Trust Levy and stakeholders responsible in tourism training

enact policy guidelines that make it mandatory for hospitality colleges to train students on operations of PMS.

ii) The study found out that there is a low application of mobile phone technology managing rooms division. Hotels that have not utilized mobile application to bench mark with those that have integrated PMS to manage services in the rooms division.

iii) The study established that only a few hotel operations staff had the ability to analyse information on PMS database to forecast room occupancy and revenue. In this regard, management of the hotels need to build capacity on staff skills of analysing information on PMS database to assist them forecast room occupancy.

iv) The study indicated that staff faced challenges of utilizing numerous PMS modules thus limiting quality service delivery. Based on these findings, the study recommends training on the use of PMS to cover all modules and not concentrating on reservations only.

v) The study found that there are many institutional challenges like lack of policies of using PMS in hotels, and lack of backup for PMS database among others. The study therefore recommends that hotels should carry out comprehensive audits of the PMS and develop policies and actions of addressing the institutional challenges.

5.5 Suggestions for Further Research

i. Carry out a study to establish the reasons why most staff are not trained on the use of PMS when they are already employed by hotels.

ii. Conduct a study to assess the capability of hotel staff to make management decisions based on information available in the PMS.

iii. Conduct a study to establish factors contributing to low usage of mobile phone applications and integration with PMS in the management of rooms division.

iv. A study with a larger sample size that covers all hotel categories should be carried out to investigate the use of PMS by hotel establishments.

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APPENDICES

Appendix I: Introduction Letter

Pauline Habade Jilo
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Moi University
P.O. BOX 3900 - 30100
ELDORET.

20th July 2016

TO WHOM IT MAY CONCERN

I am Pauline Habade Jilo, a Masters student at Moi University. I have completed my course work and I am carrying out a research on the *Effect of Property Management System Components on Perceived Quality Service Delivery in the Rooms Division of Selected Hotels in Nairobi City County, Kenya*. You have been selected to take part in the study by filling a questionnaire or being interviewed. You are requested to answer all the questions as objectively as possible. Be assured that all the information will be given the confidentiality it deserves and anonymity is guaranteed.

This study is important because it is expected to assist government policymakers and other community tourism stakeholders in evaluating tourism's contribution to the community in question and planning to maximize benefits while minimizing expenses. I sincerely appreciate your anticipated cooperation in devoting your full attention and time away from your busy schedule to this exercise.

Yours faithfully,

Pauline Habade Jilo

Appendix II: Questionnaire for Hotel Operations Staff

My name is **Jilo Pauline Habade** Master of Hospitality Management student at Moi University. As part of the course, I am undertaking a study on ***Effect of Property Management System Components on Perceived Quality Service Delivery in the Rooms Division of Selected Hotels in Nairobi City County, Kenya***

This exercise is purely for academic pursuit and the views expressed will be treated as confidential.

Kindly note, **Property Management System (PMS)** referred to in this study is specific tailor made computer software and hardware to manage service delivery in the rooms division.

INSTRUCTIONS

i) **Respond by Ticking [√] or circling** your answer choice from options provided.

ii) Where **applicable explain or make your suggestions** on the spaces provided.

SECTION A: DEMOGRAPHIC INFORMATION

1. By use of a **tick [√] or circling** please indicate the following **(Tick one option only)**

   a) Kindly select your gender [1] Female [2] Male

   b) Please indicate your age

   [ ] 18 - 22 years
   [ ] 23 - 25 years
   [ ] 26 - 30 years
   [ ] 31 - 35 years
   [ ] 36 - 45 years
   [ ] Above 45 years

   c) Please identify your occupation [1] Receptionist [2] Housekeeper [ ] Maintenance officer [ ] Any other, please indicate _____

   d) Kindly indicate your designation [1] Attendant/Clerk [2] Supervisor [3] Any other, please indicate _____

   e) Highest education attained **(Tick one option)**

   [ ] No education
   [ ] Primary school certificate
   [ ] Secondary school certificate
   [ ] Diploma or Certificate
   [ ] Others qualification (specify) _____

f) How long have you worked in the **hotel industry?**

[ ] Less than 1 year
[ ] 1 – 3 years
[ ] 4 – 6 years
[ ] 7 – 10 years
[ ] 11 – 15 years
[ ] Above 15 years

g) How long have you worked in the **present hotel?**

[ ] Less than 1 year
[ ] 1 – 3 years
[ ] 4 – 6 years
[ ] 7 – 10 years
[ ] 11 – 15 years
[ ] Above 15 years

SECTION B: APPLICATIONS OFFERED BY PROPERTY MANAGEMENT SYSTEM COMPONENTS IN THE ROOMS DIVISION

2. In your opinion kindly indicate the widely used PMS in hotels

[ ] Opera
[ ] Fidelio
[ ] eZee

Others please specify_____

3. Please identify the general applications rendered through PMS components in place. (**Select from the list given below and indicate Yes/No. Multiple responses are allowed)**

[ ] Room reservation
[ ] Room status
[ ] Check in and out
[ ] Billing
[ ] Customer details
[ ] Menu details
[ ] Night audit
[ ] Managers/supervisors on duty

Others please specify_____

4. What are the specific room status applications of PMS components in the rooms division? (**Select from the list given below and indicate Yes/No. Multiple responses are allowed)**

[ ] Vacant rooms information
[ ] Out of Order rooms
[ ] Occupied rooms
[ ] Guest supplies in the rooms
[ ] Room amenities
[ ] Due in and out rooms

Others please specify_____

SECTION C: INFORMATION ASPECTS OF PMS

5. Using a Likert scale measurement of 1- 5 (Strongly Agree – **SA** [1], Agree - **A** [2], Moderately Agree – **MA** [3], Disagree - **DA** [4] and Strongly Disagree - **SD**[5]) indicate your opinion on the effect of Information aspects of PMS

		SA - 1	**A – 2**	**MA - 3**	**DA – 4**	**SD – 5**
a.	PMS provides all information regarding the status of the rooms					
b.	PMS bills the customer					
c.	Information regarding the room status can be posted into the PMS from my office station					
d.	PMS allows guests to make room reservations from outside the hotel					
e.	PMS allows guests to request for room service while in their rooms in the hotel					
f.	PMS provides the maintenance personnel to access maintenance information about the rooms					
g.	PMS provides details of the guests' history					
h.	Information regarding the room status can be posted into the PMS using mobile phone					
i.	PMS allows the staff to communicate with guests in their rooms i.e. wakeup calls, requests extra towels					
j.	PMS information is used to make analysis and forecast on the transactions regarding room services					

SECTION D: INTEGRATION OF PMS

6. Which sections are connected to the PMS in your hotel?

[ ] Front office [ ] Transport
[ ] Reservation [ ] Maintenance
[ ] Housekeeping [ ] Security
[ ] Sales and marketing [ ] Food and beverage
[ ] Others please specify_____ _____

7. One of the important applications of PMS is to provide an integration platform for the purpose of sharing information with the departments/sections of a hotel. Using a Likert scale measurement of 1- 5 (Strongly Agree – **SA** [1], Agree - **A**

[2], Moderately Agree – **MA** [3], Disagree - **DA** [4] and Strongly Disagree - **SD** [5]) indicate your opinion on the extent of integration of PMS

		SA - 1	**A – 2**	**MA - 3**	**DA - 4**	**SD – 5**
a.	All the sections/departments are interfaced allowing sharing of data					
b.	Information can be posted in the PMS from the departments' workstations.					
c.	There are adequate computers in all departments to facilitate operation of PMS					
d.	PMS is linked to hotel mobile phones					
e.	PMS is linked to the hotel websites and external systems e.g. Global Distribution Systems or Central Reservation Systems					
f.	PMS is linked to telephone, fax systems and e-mail systems					

8. Overall how do you rate the effect of integration of PMS in the rooms division in this hotel?

   [ ] High effect
   [ ] No effect
   [ ] Low effect

SECTION E: STAFF USABILITY OF PMS IN ROOMS DIVISION

9. For how long has the PMS been in place in this hotel? **(Indicate in full years).**

   _____

10. Where were you trained on the use of PMS

    [ ] In college
    [ ] In-house training
    Any others please specify_____

11. Using a Likert scale measurement of 1- 5 (Strongly Agree – **SA** [1], Agree - **A** [2], Moderately Agree – **MA** [3], Disagree - **DA** [4] and Strongly Disagree - **SD** [5]) indicate your ability to use PMS.

		SA - 1	**A – 2**	**MA - 3**	**DA - 4**	**SD – 5**
a.	I can post information on the use PMS without assistance					
b.	Staff have the ability to retrieve information from the PMS					
c.	Staff have ability to print reports from PMS regarding rooms					
d.	I have adequate skills to train other staff on the use of PMS in rooms division					
e.	I understand PMS information on the transactions regarding rooms					
f.	I have ability to perform tasks related to rooms e.g. confirmation, cancellations, deposits, room blocking, wait-listing etc.					

12. What individual challenges do you face with the PMS application?

_____
_____
_____
_____

13. What are the organisation challenges experienced on the application of PMS?

_____
_____
_____

14. How do you rate your overall competence on the use of PMS in the rooms division?

[ ] Excellent
[ ] Poor

SECTION F: QUALITY SERVICE DELIVERY OF PMS IN ROOMS DIVISION

15. Using a Likert scale measurement of 1- 5 (Strongly Agree – **SA** [1], Agree - **A** [2], Moderately Agree– **MA** [3], Disagree - **DA** [4] and Strongly Disagree - **SD** [5]) indicate your opinion on how the PMS has achieved the following towards service delivery in the rooms division.

		SA - 1	**A - 2**	**MA - 3**	**DA - 4**	**SD - 5**
a.	PMS has reduced time of room service					
b.	PMS has reduced customer complaints.					
c.	Prompt address to customer complaints or request					
d.	Shared responsibility among departments.					

16. Overall, how do you rate the efficiency of PMS on quality service delivery in the rooms division in this hotel?

[ ] Excellent
[ ] Poor

END- THANK YOU

Appendix III: Interview Schedule for Managers

1. Briefly, explain the staff establishment of your hotel? (Probe on composition in terms of gender, qualification, professional development etc.).
2. How long have you worked in the hospitality industry and the current establishment?
3. What are the applications offered by PMS components? (Probe on all applications and particularly the rooms division from the front office to the housekeeping among others)
4. What is your opinion about hotel information aspects of PMS components on quality service delivery?
5. How effective is the PMS on quality service delivery on rooms division? (Probe on efficiency in terms of reservations, bookings, data compilation etc.)
6. How conversant are staff on the use of PMS? (Probe on the training, continuous training, ability to use without assistance, challenges etc.)
7. How extensive is the PMS integration in the entire hotel and outside hotel (probe on the connection in all departments/sections, connection with tour operators, connection with websites, integration with staff mobile phones etc.)
8. Comment on the effect of PMS on the success of quality service delivery in the rooms division and overall management of the hotel services.

Appendix IV: Managers Interview

Interviewee	Code	Date of Interview	Designation
1	OI-1	13th December,2016	ICT Manager
2	OI-2	8th December,2016	Rooms Division Manager
3	OI-3	13th December,2016	Reservation Manager
4	OI-4	13th December,2016	Operations Manager
5	OI-5	13th December,2016	Operations Manager

Appendix V: Moi University Data Collection Recommendation Letter

MOI UNIVERSITY
ISO 9001:2008 Certified Institution
SCHOOL OF TOURISM, HOSPITALITY & EVENTS MANAGEMENT

Telephone: 0771-296270/0790850990
Fax: (053) 43047
E-mail: deansthe@mu.ac.ke

Box 3900
ELDORET
Kenya

Ref: MU/STHE/SGS/23

2nd November, 2016

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: RECOMMENDATION LETTER FOR – JILO PAULINE HABADE - SBE/PGH/017/12

The above named is a bonafide student of Moi University, School of Tourism, Hospitality and Events Management. She is pursuing a Master of Hospitality Management degree in the Department of Hotel & Hospitality Management.

She has successfully completed her course work and has defended her proposal titled **"Contribution of Property Management Systems on Service Delivery in the Rooms Division in Selected Hotels in Nairobi County, Kenya"**. Ms. Jilo has been allowed to proceed to the field for data collection.

Any assistance accorded to her will be appreciated.

Yours faithfully,

DEAN
SCHOOL OF TOURISM, HOSPITALITY
& EVENTS MANAGEMENT
MOI UNIVERSITY

PROF. DAMIANNAH KIETI
DEAN, SCHOOL OF TOURISM, HOSPITALITY & EVENTS MANAGEMENT

Appendix VI: NACOSTI Research Authorization Permit

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: 020 400 7000,
0713 788787,0735404245
Fax: +254-20-318245,318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/18/11153/14678** Date: **28th February, 2018**

Pauline Habade Jilo
University of Nairobi
P.O Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Contribution of property management systems on service delivery in the rooms division in selected hotels in Nairobi County, Kenya"*** I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **28th February, 2019.**

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

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

GP Kalerwa

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

The County Director of Education
Nairobi County.

THIS IS TO CERTIFY THAT:
MS. PAULINE HABADE JILO
of MOI UNIVERSITY, 0-600 NAIROBI,has been permitted to conduct research in *Nairobi County*

on the topic: *CONTRIBUTION OF PROPERTY MANAGEMENT SYSTEMS ON SERVICE DELIVERY IN THE ROOMS DIVISION IN SELECTED HOTELS IN NAIROBI COUNTY, KENYA*

for the period ending:
28th February,2019

.....
Applicant's Signature

Permit No : NACOSTI/P/18/11153/14678
Date Of Issue : 28th February,2018
Fee Recieved :Ksh 1000

.....
Director General
National Commission for Science, Technology & Innovation