

**EFFECT OF ELECTRONIC POINT OF SALE SYSTEM ON OPERATIONAL
EFFICIENCY OF HOTELS IN NAKURU COUNTY**

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**A Research Project Submitted to the Institute of Postgraduate Studies of Kabarak
University in Partial Fulfillment of the Requirements for the Award of Masters of
Business Administration Degree in Operations Management**

KABARAK UNIVERSITY

NOVEMBER, 2019

DECLARATION

This research project is my original work and to the best of my knowledge it has not been presented for the award of a degree in any other university or college.

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RECOMMENDATION

To the Institute of Postgraduate Studies:

The research project entitled “**Effect of Electronic Point of Sale System on the Operational Efficiency of Hotels in Nakuru County**” and written by **Lawi Chirchir** is presented to the Institute of Postgraduate Studies of Kabarak University. We have reviewed the research project and recommend it be accepted in partial fulfillment of the requirement for award of the degree of Master of Business Administration in Operations Management.

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DEDICATION

I dedicate this work to my wife, Leah J. Kimengich, a pillar of strength and support.

ABSTRACT

The main aim of this study was to determine the effect of Electronic Point of Sale System on operational efficiency of Hotels within Nakuru County. Specifically, the study determined the effect of electronic Point of Sale System (EPOS) data processing, transactional tracking, transactional security and reporting systems on operational efficiency of hotels in Nakuru County. Descriptive research design was adopted. The target population of the study was 36 Hotels in Nakuru County with one respondent from each hotel who was the Operation Manager. A census survey was used to conduct the study targeting the entire first to fifth Star hotels in Nakuru County. Correlation results showed that a strong positive significant relationship existed between EPoS data processing speed and operational efficiency of Hotels in Nakuru County. Correlation analysis done to determine effect of EPoS transaction tracking speed on operational efficiency of the hotels in Nakuru County showed a significant relationship existed between the two variables. Correlation analysis showed that there was no significant relationship existing between EPoS transaction security and control on operational efficiency of the Hotels in Nakuru County. This result suggested that EPoS transaction security and control was not a priority to the hotels in Nakuru County. Finally, correlation analysis to determine whether EPoS reporting system affects operational efficiency of the hotels in Nakuru County indicated that the relationship is, in fact, significant. The first hypothesis was tested the test results showed that there exists a statistically significant correlation between EPoS data processing speed and operational efficiency. The result leads to the rejection of the null hypothesis, hence a conclusion that there exists a significant effect of EPoS data processing speed on operational efficiency of hotels in Nakuru County. The test results showed that there exists a statistically significant correlation between EPoS transaction tracking speed and operational efficiency. The result leads to the rejection of the null hypothesis, hence a conclusion that there exists a significant effect of EPoS transaction tracking speed on operational efficiency of Hotels in Nakuru County. Test results show that there exists no correlation between EPoS transaction security and control and operational efficiency. This results in the failure to reject the null hypothesis, hence a conclusion that there is no significant effect of EPoS transaction security and control on operational efficiency of the Hotels in Nakuru County. Finally, Hypothesis test results at a significant level 0.05 showed that there exists a statistically significant correlation between EPoS reporting system on operational efficiency. The result leads to the rejection of the null hypothesis, hence a conclusion that there exists a significant effect of EPoS reporting system on operational efficiency of Hotels in Nakuru County. It can therefore be concluded that the hotels have improved storage and processing of their customer data. Moreover, through EPoS storage of their room data have been enhanced. A recommendation can be made that the hotels should maintain improved storage and processing of their customer data. Further research on electronic Point of Sale System on operational efficiency should be carried out to identify other elements that appear to be critical to the success of operational efficiency.

Key Words: *Electronic Point of Sales Systems, Computer Application, Operation Management, Operational Efficiency*

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LIST OF ABBREVIATIONS AND ACRONYMS

EPOS	–	Electronic Point of Sale
GDP	-	Domestic Product
ICT	-	Information Communication Technology
ISO	-	International Standard Organization
OECD	-	Organisation for Economic Co-operation and Development
OM	-	Operation Management
PC	-	Personal Computer
PEU	-	Perceived Ease of Use
POS	-	Point of Sale
SPSS	–	Statistical Package for Social Sciences
TAM	-	Technology Acceptance Model
UNDP	-	United Nations Development Programme

OPERATIONAL DEFINITION OF TERMS

Data Processing – This is computerized process that turns hotel related data into information for management decision making (Merriam-Webster's Collegiate Dictionary, 2005).

Operational Efficiency -This is the capability of a hotel to deliver services to its customers in the most cost-effective manner (Merriam-Webster's Collegiate Dictionary, 2005).

Point of Sale - term normally used to describe cash register systems that record transactions or the area of "checkout" in a hotel. (Merriam-Webster's Collegiate Dictionary, 2005).

Reporting System – This is the art of disseminating processed hotel information to management for decision making in appropriate format (Merriam-Webster's Collegiate Dictionary, 2005).

Transaction Security and control – This IS protecting hotel information by allowing access rights to the authorized person (Merriam-Webster's Collegiate Dictionary, 2005).

Transaction Speed – this the speed at which Electronic Point of Sale System transforms hotel related data into consumable information (Merriam-Webster's Collegiate Dictionary, 2005).

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

To remain competitive in today's global economy, it is essential for companies to boost their operational efficiency where ever possible. There are several strategies firms use to enhance their operation efficiency, one of which is the use of Electronic Point of Sales systems (EPOS). The main role of operations is to ensure the efficient delivery of the goods and services without interruptions. Operational performance is defined as the firm's performance measured against standard or prescribed indicators of effectiveness, efficiency and environmental responsibility (Hsieh & Lin, 2010). This is done by reviewing and optimizing the operations of the business units, through dedicated information technology solutions. According to Porter and Tanner (2012), Operational performance of a firm is measured against standards or prescribed indicators of effectiveness, efficiency and environmental responsibility for example cycle time, productivity, waste reduction and regulatory compliance.

Operational performance management is defined as the alignment of the various business units within a company in order to ensure that the units are helping the organization achieve a global strategy and attain a set of centralized goals (Rummler & Brache, 2012). Operational performance includes guidance on achieving effectiveness and efficiency in the delivery and support of services so as to ensure value for the customer (Neely, Gregory & Platts, 1995). Key operational performance measures used to assess the success of operations in a firm are; Efficiency, degree of responsiveness, flexibility and quality. Strategic objectives are ultimately realized through service operations efficiency, therefore making IT a critical capability (Inman, Sale, Green & Whitten, 2011). Operational performance management helps maintain stability in service operations, allowing for changes in design, scale, scope and service levels (Jacobs & Swink, 2011).

Information technology supports the primary objective of operational performance that is to ensure uninterrupted business operations, delivery of agreed services, cost efficiency and operations quality efficiency (Davenport, 2013). Information technology plays a major role in tourism, travel and hospitality industry. The integration of ICT in the hospitality industry is essential for the success of tourism enterprises. IT facilitates an individual to access the products information from anywhere any time, can also reach the

targeted customers across the globe in a single click on the keypad through the use of mobile computers and web technologies (Bethapudi, 2013).

1.1.1 Hospitality Sector in Globally, Regionally and in Kenya

For the global tourism economy the hotel industry is of critical importance as it represents one of the primary infrastructural elements for tourism development (The Economist, 2013).

PwC reports indicate that an increase in both domestic and foreign traveler numbers along with an expansion in several hotel chains on the continent cement the hotel sector's potential for growth. PwC foresees hotel room revenue for some markets increasing by 7.4 percent between 2017 and 2022.

According to the government of Kenya economic survey (2017), earnings from the tourism sector increased from Ksh 84.6 billion in 2015 to Ksh 99.7 billion in 2016. Significant increases were also registered in the same period in hotel bed-night occupancy, local and international conferences. Kenya adopted tourism as a major economic sector and the need for hospitality services is rapidly increasing. The industry has grown steadily over the years and, currently, tourism is a major foreign exchange earner for the country, and it contributes over 12% to the gross domestic product (GDP). The development of hospitality industry in different parts of the world has shown that the industry presents opportunities for the economic growth (Daracha, 2013).

The development of tourism in Kenya has not been accompanied with increased need for efficiency in Operations within the hospitality sector, particularly for the full service firms. There is a short fall in use of IT to improve service delivery and as marketing tool for Kenya as a destination (Gachigi, Kukubo & Kiamba, 2011). Finally, the low levels of IT presence and utilization is also a big challenge, this is because the tourist circuit areas are not covered with essential infrastructure necessary for IT technologies to thrive, these are; mobile telephone network, the internet, radio and television networks. Hospitality organizations are turning to performance measurement and management in order to qualify for the International Organization for standardization standard certifications and company of the year Awards. General business pressures, the achievement of the coveted five-star rating and membership to international hotel associations have created the need for effective key performance indicators (Wadongo, Odhuno, Kambona, Othuon, 2010).

Wadongo et al, (2010) have pointed out that the general growth in the Kenyan economy, coupled with rising tourism earnings has not only led to expansion of current hotels facilities but also investments of new in hotels in Kenya. This study adds that the hotels in Kenya have shifted their strategy with a focus on efficiency in their operations in order to become certified by international quality certifications such as ISO (International Organization for Standardization, 2011), 'Leading Hotels of the World', 'Kenyan yearly awards for 'Top Performing Companies' among others. This has created pressure on the hotels to efficiently manage their operations. Such business pressures coupled with the achievement of the coveted five-star rating and membership to the international hotel associations has created the need for effective key performance indicators especially those that focus on the efficiency of hotels operations.

1.2 Statement of the problem

It is the concern of the firms that their operations management practices help them achieve; product and service design, process design, facility layout, inventory control, planning and control, people and job design, facilities improvements and organization for quality. Operation efficiency on the other hand contributes to performance, which is the capability of an enterprise to deliver products or services to its customers in the most cost-effective manner. Information Technology (IT) is an enhancer to efficient delivery of services to customers which is associated with the expected operation efficiency. Information Technology attempts to improve the quality of goods and services offered, through cost management, time service delivery and improve processes and procedures. According to Porter and Tanner (2012) the development of IT has had profound effects on goods and services marketing. Adeoti and Oshotimehin (2012) opined that the general increase on the rate of adoption of e-payment instruments in Nigeria notwithstanding, the rate of adoption and use of POS is low compared to the rest of the e-payment system. Hospitality sector is one of the sectors where customers pay for the value of the services offered, of which such services should be delivered in packages of high level efficiency, where Information Technology converges with operations management to achieve this goal. Some of the benefits of EPOS include real time and up-to-date monitoring of utilization of resources within in the process of providing services. EPOS System is also good in checking for any obsolescence or expired stock that needs to be disposed. One other advantage of EPOS System is its ability to help business achieve detailed real-time resource level information. In spite of the benefits of EPOS, most hotels are still facing

the challenges of reaping from the benefits because of inadequate readdress of EPOS in their operations.

PwC asserts that whereas visitor numbers to Kenya fell after the national elections in August 2017, the market saw these numbers recover in December with a 9.9-percent increase in visitor numbers. The increase, though, was not enough to boost rooms' revenue, which fell 13.5 per cent. Tourism in Kenya is expected to increase 6.9 percent to 2.06 million in 2022 from the 1.47 million recorded in 2017. These numbers and associated revenues have the potential to propel hotel investors to success. A key component of this success would be the enhancement of efficiency.

Despite hotels in the recent past adopting Electronic Point of Sales to enhance their operational efficiency, little is known how the various aspects of an EPOS system have enhanced the expected efficiency. This has necessitated the current study that will assess the effect of electronic Point of Sale System on operational efficiency of Hotels in Nakuru County.

1.3 Purpose of the study

The general objective of the study is to determine effect of electronic Point of Sale System on operational efficiency of Hotels in Nakuru County.

1.3.1 Specific objectives of the study

- i. To establish effects of EPoS data processing speed on operational efficiency of Hotels in Nakuru County
- ii. To determine effects of EPoS transaction tracking speed on operational efficiency of the Hotels in Nakuru County
- iii. To determine effects of EPoS transaction security and Control on operational efficiency of the Hotels in Nakuru County
- iv. To determine effects of EPoS reporting system on operational efficiency of the Hotels in Nakuru County

1.4 Research Hypothesis

H₀₁: EPOS data processing does not have any significant effects on operational efficiency of Hotels in Nakuru County

H₀₂: EPoS transaction tracking speed does not significantly affect operational efficiency of Hotels in Nakuru County

H₀₃: EPoS transaction security and Control does not significantly affect operational efficiency of Hotels in Nakuru County

H₀₄: EPoS reporting system does not significantly affect operational efficiency of Hotels in Nakuru County

1.5 Significance of the Study

The study will contribute to the existing body of knowledge of the effect of electronic Point of Sale System on operational efficiency of Hotels. First the finding from the study will influence operations of hospitality industry in the automation and operation on the current status of effect of electronic Point of Sale System on operational efficiency of Hotels. This will avail information whether or not the Point of Sales System improves hotel operation efficiency. Second, the finding of the study will be of important to scholars in hospitality management, computer science, information sciences, telecommunication in broadening their knowledge on effect of electronic Point of Sale System on operational efficiency of Hotels in Nakuru County. Second, the findings from the study will be of great importance to the Ministry of tourism charged with duty to design, implement and evaluated tourism promotion policies in Kenya where hotel automation and operation efficiency are expected to be key components of the policy. Third, scholars in hospitality, information technology, operations management will find the information from the study important in updating their knowledge on effect of electronic Point of Sale System on operational efficiency of Hotels. The study will be conducted in the Months of February and March 2018.

1.6 Scope of the study

This study covered the following aspects of Electronic Point of Sales System: data processing speed, transaction processing speed, transaction security and transaction reporting system. The study also covered operational efficiency in terms of reservation

efficiency, revenue efficiency and check out efficiency. The study was conducted in first to fifth star hotels in Nakuru County, hotel operations managers being the main sources of the required information. The single to five star-rated hotels were chosen because they are mainly the ones that have embraced the Electronic Point of Sales technology. Nakuru County has major tourist attractions that make most of the hotels busy compared to other counties. The study was conducted between January and March 2019.

1.7 Assumption of Study

The study assumed that the respondents understood the concept of Electronic Point of Sales Systems and operational efficiency. The study also assumed that the respondents understood the measurement of operational efficiency in a hotel setup.

1.8 Limitation and Delimitations of the Study

The study collected information from the Operations managers in the first to fifth star hotels in Nakuru Sub-County. The study only established the effect of EPoS on operational efficiency. There may however be other factors that influence the efficiency of hotels. The study was limited to 36 hotels in Nakuru; the findings of this study were generalized to the entire hotel industry. Future investigators may want to consider expanding the sample to all levels of hospitality industry. The study was based on 2 months period from year February to March 2019. A longer duration of the study would have captured the effects well compared to a short period of time. The purposive sampling procedure decreased the generalizability of findings. This study was not generalizable to all areas of hotel industry. Some respondents were not available when needed as they were engaged at work, therefore the Researcher made appointments and arrangements with respondents on the time they were free.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews relevant literature on the effect of point of sale system on operational performance of hotels in Nakuru County. This section is divided into the theories informing the study, Electronic Point of Sales System, Operation Performance, Electronic Point of Sales System and Operation Performance, literature gaps and conceptual framework.

2.2 Theoretical Framework

In order to explore the effect of electronic point of sale system on operational performance of hotels in Nakuru County, the study adopts two theories; Technology Acceptance Model, Synergy Theory and Convention Economic Efficiency Theory.

2.2.1 Technological Acceptance Theory

This study adopted the theoretical extension of Technology Acceptance Model (TAM2) introduced by Venkatesh and Davis (2000). Original TAM was developed by Davis (1986) to explain why users adopt or reject an innovative information system. It offers a powerful explanation for user acceptance and usage behaviour of information technology. TAM theorizes that an individual's behavioral intention to adopt a system is determined by two beliefs, perceived usefulness (PU) and perceived ease of use (PEOU). TAM2 extended the constructs of TAM and included additional determinants of TAM's PU and usage intention constructs. This model helps to understand how the effects of these determinants change with increasing user experience over time with the target system. TAM2 incorporates additional theoretical constructs spanning social influence processes and cognitive instrumental processes and explained that the additional constructs - social influence processes (subjective norm, voluntariness, and image) and cognitive instrumental processes (job relevance, output quality and result demonstrability) significantly influenced user acceptance. The level of Technology acceptance will influence the operational efficiency of any organization. Technology is a major driving force of organizational efficiency hence performance. The Utilization of modern ICT technologies significantly improve and organization's efficiency and effectiveness which in the long run reduces operational costs which attracts new client and hence affecting the operational efficiency.

2.2.2 The Synergy Theory

The second theory adopted by the study is the Synergy Theory by Chatterjee (1986). The Synergy Theory stipulates that the “amount of the resources held by the firm, relative to the total amount present in the economy and the availability of opportunities to utilize this resource” determine the amount of created value (Chatterjee, 1986; Krishnan et al., 2009). Therefore, “resources contribute to the advantage of one firm over another” (Krishnan et al., 2009). The literature includes different definitions of the term “resource” such as “inputs to the production process” or “stocks of available factors that are owned or controlled by the firm”. Frequently, it is described that resources can be categorized as tangible resources like capital and buildings and intangible resources like skills and competencies. It has to be considered that this resource-based view is also criticized, because it focuses on the company’s internal potential as a source of competitiveness and neglects “the need for external market orientation to achieve competitive success” (Broderick et al., 1998).

Chatterjee (1986) describes that there are three types of synergies. These are described as “cost of production related (resulting in operational synergy)”, “cost of capital related (resulting in financial synergy)”, and “price related (resulting in collusive synergy)”. This overview can also be found in more current articles like Hankir, Rauch and Ueber (2011). The first type of synergies - the operational synergies “can stem from combining operations of hitherto separate units (for example a joint sales force)” and the transfer of knowledge (Hellgren, Löwstedt, and Werr, 2011 based on Trautwein, 1990). Further, Hankir et al. (2011) describe in similar terms the possibilities for “revenue increases, resulting from cross and/ or up-selling (and) cost reductions due to efficiency gains”. Hellgren et al. (2011) explain that financial synergies result in lower costs of capital for example “by lowering the systematic risk by investing in unrelated business”, “increasing the company’s size, which may give it access to cheaper capital”, or the creation of an internal capital market that “may operate on superior information and therefore allocate capital more efficiently” (Trautwein, 1990). The utilization of the hotel’s resources has a great impact on its operational efficiency. The use of EPoS is assumed that it will lead to effective use of the available resources.

2.2.3 Convention Economic Efficiency Theory

The conventional economic efficiency theory formed the basis of the present studies on efficiency performance of hotels. According to Aly et.al, (1990), the theory stipulates that companies should achieve their output at the lowest possible cost per unit produced. Based on the theory, optimal production can be achieved by economies of scale, and a perceptible benefit is repeatedly counteracted by more costs associated with overstressing the existing systems. In the short run, the situation of maximum operational efficiency is attained at the level of output at which all accessible economies of scale are taking advantage of such efficiency. In the long run, lifting the capacity of existing systems can increase the optimal level of productive efficiency (Zerbe, 2001). The conventional economic efficiency theory is decomposed into allocative (price) efficiency criteria and the productive (technical) efficiency criteria.

Maximum allocation efficiency is reached when the business produces the optimal output of a combination of goods and services to maximize the benefit to the business as a whole (Aly *et. al*, 1990). The theory takes into account the fact that business resources are finite and can be utilized only at a time, with the result that using a quantity of material once involves an opportunity cost preventing the business from using the same material for another purpose (Said, 2012). Allocative efficiency is accomplished only when no other pattern of utilization of resources can deliver an enhanced overall outcome in terms of the welfare of all interested parties. Such outcome represents the point of highest allocative efficiency at which improvements in one type of use can only be achieved at the expense of losses elsewhere. This effect is occasionally referred to as the Pareto optimal allocation of resources (Isik & Kabir, 2002). The theory provides a basic context for understanding a variety of factors associated with existing operating costs of the business (Zerbe, 2001). The allocative efficiency criteria theory is fundamental to this study in a sense that for hotels to operate at efficient level, then all hotel products have to be optimally priced. This in turn reduces unfair competition in the market and as well, as interest rate spreads. The productive efficiency (technical efficiency) takes place when the business employs all of its resources efficiently, producing the most output from the least input (Miller et. al, 1996). The recognition of the main principles of this theory can help managers find methods to make some components of their business more efficient (Quinzi & Sujaya, 1993). Many researchers have employed the theory of conventional economic efficiency to measure efficiency in

hotel systems (Sathye, 2001; Barr, et al 2002; Saad & El Moussawi, 2009; Said, 2012). Differences in relative economic efficiency across firms of different sizes and organization can be hypothesized and tested within this framework. A firm is more technically efficient if it consistently produces more output from the same quantities of measurable inputs than some other firm does. Differences in economic efficiency among firms may be caused by differences in technical and/or price efficiency. Such differences are reflected in the values of the actual profit functions of the firms at a given output and input prices and quantities of fixed inputs, given competitive markets for inputs and outputs (Isik & Kabir, 2002). The firm with higher profits is more economically efficient but within a given range of prices (Mullineaux, 1978).

2.3 Empirical Review

2.3.1 Electronic Point of Sale System

The term Point of Sale (POS) is used to describe the technology used by a consumer to provide their payment information in exchange for a good or service. POS technology has actually been around for many years with the first cash register dating back to 1879 (Abell, 2009). However, it wasn't until the mid-70s that this technology was converted from a mechanical to an electrical form. In the 1980s, the technology was advanced again to leverage modern day personal computing (PC) technology. Over the next several years, support for barcode scanning and payment card reading was added. Today, the most familiar example of a POS system would be the check-out counter at a retail or grocery store. However, there are many more forms of point of sale systems used in many business types.

A point of sale transaction is an exchange between a buyer and seller at a specific "place." This place can be a physical location, such as a store front or vendor's cart, or a virtual location such as a call-in number or website. The means through which a business owner captures the information related to a point of sale transaction is referred to as a POS system. The term is normally used to describe systems that record financial transactions. This could be an electric cash register or an integrated computer system which records the data that comprises a business transaction for the sale of goods or services (Coffey, 2014).

POS systems are relatively easy to use and help provide valuable data for important decision makers. In order to keep up with the record-keeping needs of small and mid-

sized businesses, a good point-of-sale system is a must. Web-based point-of-sale systems are preferred over software based PoS systems because they are easily upgradeable, and feature access from multiple computers (Carter, 2012).

The pertinence of effective and efficient payment systems has been keenly monitored and promoted by monetary authorities in countries all over the world owing to the fact that development of a national economy relies on encouraging a payment system that is secure, convenient and affordable. The economies of many countries have encountered challenges as to ensure security, convenience, and affordability of the payment system. Therefore, countries have developed effective and efficient payment systems that guarantee transactions required for a sustainable economic development. Cash based transactions have some merits in that they are always valuable, provide full and final settlement of transactions, allow for anonymity once issued, and are regarded as a public good by its users (Yaqub, J. O., Bello, H. T., & Adenuga, I. A., 2013). However, cash based economy poses risks, is troublesome and does not augur well for a nation's economy.

The best thing about having a computerized POS System in your retail business is: as new stocks arrives and as it is sold, it keeps the stock levels current and updated, hence making it is easier to identify which items are selling and which items are not. A POS System is also good in checking for any obsolete or out of date stock that needs to be disposed. If you are still counting your inventory manually on the shelves or in the warehouse, you should think twice about your method, for there are many advantages in using a POS System. One advantage of a POS System is its ability to help your business achieve detailed real-time stock level information. In addition, a POS System can also give you information such as weather forecasts, public holidays and major sporting events, which can be of great help in determining the stock level of seasonal products. You can now efficiently and effectively handle your stock management accurately (Ganderton, 2010). Operational point of sale processes include physical counts of sales, management authorized purchase orders for new point of sale inventory or restricting employee access to prevent theft, fraud or abuse. Controlling the point of sale can help companies lower operating costs and improve overall efficiency (Vitez, 2000).

A working sales system comprises a point of sales system (POS) at the front end and a detailed implementation of various sales management and tracking functionalities at the

back end. This structure directly mimics the sales process in a sales environment where the sales agents are at the front end interacting directly with customers while managers handle the reports from the transactions. The POS system is the point where most of the data handled or processed by the sales management system are generated. It therefore includes a number of data input fields and data storage procedures to ensure effective tracking. The POS also includes some administrative features such as; the activation of charges and promotions and also their deactivation, Viewing and printing reports and commission administration. The functions available to a user at the POS system are determined by the user group and rights; any user at the POS can conduct sales, however only administrators can access the administrative functions available.

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

ICT is clearly considered as a key growth area in this century, specifically, in a dynamic business and highly competition environment which requires utilizing advanced ICT to improve efficiency and cost effectiveness, and to present high quality products and services to their customers (Allen and Morton, 2004). Some researchers such as (Christensen, 2000; Doganis, 2001; Werthner & Klein, 2005) have tried to combine the previous definition by considering ICT as a group of elements (hardware, software, and people) that should be working together in the process to present the benefits to the organization in the form of information, product or services and so on. Laudon and Laudon (2007) assert that ICT includes all the technology that facilitates the processing, transfer and exchange of information and communication services. It is considered as a subject of expertise that links information technology (computers and applications) and telecommunication networks (intranet and internet), that lets people and computers interrelate irrespective of physical location. Werthner and Klein (2005) conclude that the ICT term contains hardware, software, networks and people that should be integrated as

a one unit by linking each one to the other in a clear process to generate the information that helps the decision makers, producing product and services presenting, promotion, controlling and for achieving the organization's aims and goals.

Information technology generates fundamental changes in the nature and application of technology in business (Gholami et al., 2008). Information Communication Technologies can provide powerful strategic and tactical tools for Organisations, which, if properly applied and used, could bring great advantages in promoting and strengthening their competitiveness. The proliferation of the Internet, as a main stream communication media and as an infrastructure for business transactions has generated a wide range of strategic implications for businesses in general as well as for the travel and airline industries in particular (Li-Hua & Khalil, 2006). Internet technology and web based commerce have dramatically transformed the airline industry in the decade (Werthner & Klein, 2005). Information and Communication Technologies (ICT) have always played a predominant role in the airline sector (Poon, 2003) but with the advent of the Internet and open source technology their impact is becoming increasingly more crucial and evident (Buhalis, 2004; Jacobsen et al., 2008). Web distribution combined with cheaper and more flexible technologies allows new players on the market to implement effective low-cost direct distribution strategies and intensify competition in the sector (Dennis 2007; Buhalis & Law, 2008).

Many scholars have therefore undertaken the study of potential benefits of forms ICT as a driver for good performance (Andrade & Urquhart, 2009). Access to and the strategic use of information and communications technologies (ICTs) have been shown to have the potential to help bring about economic development, poverty reduction, and democratization (Qureshi, 2009). ICT enables people and enterprises to capture economic opportunities by increasing processes efficiency, promoting the participation in expanded economic and business networks, and creating employment opportunities. The strategic focus of Kenya's ICT Strategy for Economic Growth is to simultaneously target the development of the ICT sector and to use ICTs for employment creation, poverty reduction as well as a broad-based enabler for economic recovery and the achievement of national developmental goals. Due to its dynamism, ICTs promise fundamental change in all aspects of human life including knowledge dissemination to individuals and organisations, social networking, economic and business practices,

political and social engagements, education, health, leisure, and entertainment (Duncombe & Heeks 2006). ICTs are also useful either as tangible goods in their own right or as value-adding services that improve efficiency and effectiveness (Stiglitz 1989).

Empirical evidence suggests that organizational changes may improve economic performance of firms through their mutually-reinforcing relationship with ICT. OECD (2004) argues that ICT is a key to facilitating new organizational approaches, from lean production to teamwork to customer relations. ICT enable firms to introduce significant organizational changes in the areas of re-engineering, decentralization, flexible work arrangements and outsourcing. It allows firms to produce with greater flexibility and shortened product cycles to satisfy shifting consumer preferences. In fact, organizational innovation and ICT may be regarded as complementary factors. To be successful, firms typically need to adopt ICT as part of a “system” or “cluster” of mutually reinforcing organizational approaches (Milgrom & Roberts, 1990).

2.3.2 Operational Efficiency

Operations management is considered as the set of policies and practices defined and implemented by a company in order to produce and efficiently serve its markets. Product value is increased at each stage leading to a high value of the output. Russel (2007) examined that operations are more than planning and controlling; it's doing, whether its superior quality, speed to market, customization or low cost, excellence in operations is critical to a firm's success. There are many activities that are interdependent and incorporated in operations management to attain the desired levels of efficiency and effectiveness depending on how well these factors are organized. These operations management practices include product and service design, process design, facility layout, inventory control, planning and control, people and job design, facilities improvements, organization for quality among others. These practices have different influences on perceived service quality of a manufacturing company.

Marc (2004) asserts that a service as an open transformation process of converting inputs (consumers) into desired outputs (satisfied consumers) through the appropriate application of resources. More simply, services are economic activities that produce time, place, form or psychological transformation. Key activities in operations management include; understanding the needs of customers, measuring customer

satisfaction and using the information to develop new and improved goods and services. Operations management helps build quality into goods, services, processes and continually improving them to reduce errors, defects and waste (Ghobadian, 1994). According to Porter (1985), use of information about customers, goods, services, operations, suppliers and employees to make better decisions in different situations.

Operational performance try to address the following concerns; capacity of service delivery systems- types of capacity resources and efficient usage of capacity resources, service process types, role of automation technology, service facility location and service facility design (Papazoglou, 2007).Davenport (2013) describes capacity as the capability of a manufacturing or service resource such as a facility, process, workstation, equipment to accomplish its purpose over a specified time period. Capacity is a function of service desks or points, number of service personnel available, the number of equipment available to serve customers. Kirkendall (2010) indicates that a well-defined system of operations performance measures can be a powerful means of prioritizing organizational goals and achieving them. Therefore, measures inform planners of problems that require attention or monitor progress towards achieving goals.

Operations need to be efficient and the term “efficiency” is beheld in both the industrial organization and strategic management collected works as the product of firm-specific factors such as management skills, innovation, cost control and market share as determinants of current firm performance and its stability. According to Kalluru & Bhat (2009), Operational efficiency is the proficiency of a corporation to overcome the unwanted and optimize resource capabilities so as to deliver quality products and services to users. An organizational operational efficiency depends on factors like apt and competent workers, ideal technological progression, proper procurement undertaking, return to scale of the businesses, supply chain controlling among many others. Relatively, more efficient firms tend to maintain more stability levels in terms of output and operating performance compared to their other industry peers (Mills and Schumann, 1985).

Logistics management had received much attention over the past decade from practitioners and government (Tilokavichai, et al., 2012). Realizing the importance of sustainability in logistics management was critical for competitive advantage because operational performance had a positive impact on company’s financial performance

(Tilokavichai, V., Sophatsathit, P., & Chandrachai, A., 2012). Since logistics management consisted of many activities including customer service, orders processing, inventory management, transportation, storage, packaging, demand and forecasting, production planning, purchasing and procurement, facility location, and distribution that were supported by enormous information flow, every organization wanted to impress the efficiency on its formation. This could only be achieved when, logistics performance is managed in order to ensure sustainability of the firm (Tilokavichai, et al., 2012).

Realizing the importance of sustainability in logistics management is critical for competitive advantage (Buyukozkan, G., Feyzioglu, O. & Nebol, E., 2008). This is because operational performance has a positive impact on company's financial performance (Horvath et al., 2005; Liu & Lyons, 2011). In business, sustainability is defined as a capability to possess and hold continuous competitiveness (Kang, S.H., Kang, B., Shin, K., 2012). When firms practise logistics efficiency, effectiveness and flexibility in their transactions and operations, achievement of their goals became realizable at a lower cost.

Performance measurement can be defined as the process of quantifying the efficiency and effectiveness of an action and is a set of metrics used to quantify the efficiency and/or effectiveness of an action (Gunasekaran, 2007). Gunasekaran (2007) goes on to claim that performance measures and metrics are essential for effectively managing logistics operations. According to Fugate, et al (2010), performance measurement is effectiveness and efficiency in performing logistics activities; it is also defined through differentiation because the value customer receives from logistics serves as an indicator of logistics performance. The logistics information systems influence performance on suppliers, delivery performance, customer service, and inventory/logistics costs and then performance metrics are 'aligned' with customer satisfaction, basically making customer satisfaction the definition of success hence positively influencing firm performance (Laird, 2012). EPOS enables the combination of operational and information flow, which provides transparent, networks for suppliers and customer's thus creating effective logistics management, (Cheng, Xu & Lai). The overall goal is to create a model that will rate logistics management on the influence of firm performance based on multiple factors.

Operations can be defined as the business function responsible for planning, coordinating and controlling resources needed to produce a company's products and services. It refers to running of the day-to-day operations of a given business. It can differ dramatically depending on the type of business being run and the operations undertaken. Operations management activities can be performed by in-house employees or can be outsourced, depending on the circumstances or the type of organization (Gunasekaran, 2007).

The operations function is the "doing part" of the organization (Barnes 2008). No organization can hope to be successful unless its operations are well managed. The importance of operations is emphasized by Hill (2005), who points out that it is the "function responsible for 60-70 percent of costs, assets and people. Operations management (OM) is the set of activities that creates value in the form of goods and services by transforming inputs into outputs. Waters (2002) says that an operations manager makes decisions that keep the organization working effectively. Their decisions affect inputs, operations and outputs and they use feedback on performance and other relevant information to continually update their decisions.

The way in which an organization secures, deploys, and utilizes its resources will determine the extent to which it can successfully pursue specific performance objectives (Barnes 2008). Slack et al (2004) argue there are five operations performance objectives which are cost, quality, speed, reliability and flexibility. Cost involves adopting a positive strategy of minimizing costs and supplying products at the lowest possible prices. Types of operations in such a case involve large-scale production, automation, high productivity, and low overheads. Quality refers to the ability to produce in accordance with specification and without error. Customers are continually demanding higher quality, so many organizations design strategies to deliver guaranteed high-quality products. Speed is the ability to do things quickly in response to customer demands and thereby offer short lead times between when a customer orders a product or service to when they receive it. In reliability, companies deliver products and services in accordance with promises made to customers without fail. The ability to change operations and meet specific customer requirements brings in flexibility. Flexibility comprise four aspects of ability to change the volume of production, ability to change the time taken to produce, ability to change the mix of different products or services produced, the ability to innovate and introduce new products and services.

2.3.3 Electronic Point of Sale and Operational Efficiency

EPOS is an online system that involves the use of plastic cards in terminal on merchants' premises and enables customers to transfer funds instantaneously from their bank accounts to merchant accounts when making purchases. It uses a debit card to activate the transfer process (Chorafas, 1988).

Webster (2014) asserts that ICT is any technology that enables communication and the electronic capturing, processing and transmission of information. These technologies include products and services such as desktop computers, laptops, handheld devices, wired or wireless intranet, business productivity software such as text editor and spread sheet, enterprise software, data storage and security, network security and so on. Information technology in the hospitality industry has increased productivity, reduced costs, improved service quality, improved guest satisfaction and long term profitability (Cobanoglu et al, 2001). The technology is divided into three categories: efficiency and productivity, guest service delivery and revenue management (Namasivayan, Enz & Siguaw, 2000).

The literature outlines the role of IT and how it affects operational performance, how the technology is used, and the facilities in use within the hospitality Industry and finally IT in general within the industry and the evolution in terms of developments. IT offers several advantages for hotels of all sizes; one of the advantages is increased effectiveness due to cost decrease and revenue expansion. Another advantage is higher quality customer relationships due to the possibility of personal contact services and dialogue with the customer (Wang, 2008). The literature review mainly captures the relationship between IT and operations in general. For instant, customers can respond questions about their personal preferences for rooms, and with respect to this information, a customer receives services at the hotel that are adapted to his or her preferences. Given the benefits that IT offers to the hospitality industry, the wide use of technology would appear to be an expected conclusion (Siguaw, Enz & Namasivayam, 2000).

Hotel operations comprise many activities that are performed to satisfy guests' needs for accommodation, business, dining, and entertainment. These activities consume resources and provide a wide range of services from checking-in to cleaning and re-supplying rooms (Bowie & Buttle, 2013). The manner in which a hotel's operations are performed determines the competitiveness of its operations therefore its performance. An

information system is therefore essential for effective control, improvement and management of hotel operations. The competitiveness of economies will, to a great extent, depend on both the development and application of these IT technologies.

POS software helps to point out “not only daily and weekly POS performance, but also inventory levels and location, order status, in-stock percentage (in-stock in a store as a percentage of shelf capacity), and warehouse and store out-of stocks” (Shapiro, 2008). Further research shows that “a POS system streamlines the process of entering inventory into a computer upon completion of sales, thereby allowing for expedited inventory management for companies still doing this counting manually” (Casion, 2013). POS data can be utilized to create expected sales forecasts based upon previous demand. This will affect purchase orders, which “should be determined by how much end-users are likely to demand, so POS data can be used to forecast what end-users will buy” (Simon, 2008). Forecasts are an integral tool when considering how to price items and when to reorder more units because they identify the frequency at which items are traded.

The flexibility and automation that a new point of sale system provides over manual processes is a key motivator for upgrading systems. A POS system is a means to collect and aggregate sales data automatically, which can then be used to produce a variety of sales reports including: daily reports with historical data, six-week history reports, top selling categories, top margin categories, top margin customers, top margin items, customer rank by sales, top selling items, and sales by time of day (Polanz, 2011). Specifically, for the retail agriculture industry, a good system can show a manager which plants are making the most money, which ones are stagnant, and which ones maintain the highest holding costs. This knowledge is crucial when dealing with perishable goods. (Youngblood, 2013)

Electronic points of sale systems create major competitive advantages for hotels of any size. Customer concerns can be handled much more quickly because “sales staff can locate stock on hand at any outlet location right from the POS terminal, and check the status of backorders, enabling employees to efficiently fulfill customer needs and move them through checkout quickly” (Anonymous, 2008). “Without inventory counts provided by an electronic POS system, employees cannot easily provide information to customers about product availability. Physical inventory counting is expedited by using

sales data to keep track of current inventory levels; employees and managers no longer need to spend the day wandering the sales floor counting every item” (Sandstrum, 2014).

“Information obtained from POS improves marketing by helping salespersons make better judgments and ultimately practice smarter selling. Data reports highlight specific needs and eliminate guessing and bias that employees develop throughout the course of their work (Sandstrum, 2014). If need be, repositioning strategies can be applied to every item within the POS database. In particular, high turnover items, like annuals, are very difficult to price individually because each specific item is relatively similar. However, there are clear trends in customer demand based upon color, variety, and growth characteristics (upright, spreading, trailing, etc) which appear in demand planning derived from POS data. Items such as roses, which normally are highly sought after plants, could be placed in the back or the center so that customers will be exposed to other plants prior to checkout” (Polanz, 2005). A POS system with this ability will help able to monitor the sales data necessary to make better judgments on resource placement so that managers can settle for high margin items to place along the path to high turnover.

2.4 Summary of Knowledge and Research Gap

The main aim of this study is assess effect of Point of Sales System on operational performance of Hotels in Nakuru County. The review considered theoretical review on theories surrounding effect of Point of Sales System on operational performance. The study also reviewed ICT and operational performance, Electronic Point of Sales and operation efficiency. The following are the literature gap that this review established; there is no specific literature that generally contain information effect of Point of Sales System on operational performance and more especially among the first to fifth star hotels in Nakuru County creating a research gap in this area; None of the study singled out the effect of data processing speed, transaction speed, transaction security and transaction reporting systems of EPOS on reservation, revenue and checkout efficiencies treated in this study as measurable aspects of operation efficiency which is a research gap that this study hopes to fill.

Specifically, with respect to data processing speed, the areas touching on customer data, room data and service data were found to be lacking in material and information.

The ability to swiftly track customer data, invoices and payments also exhibited gaps in the literature reviewed. With respect to transaction security and control, it emerged that there was no documented knowledge on state of data security, login validation and privileges with respect to the operational efficiency of hotels. The aspects of the reporting system of an EPoS were not clearly detailed. These include detailed and summarized reports.

2.5 Conceptual Framework

This is a hypothesized model identifying the concepts or variables under the study and their relationships. It is a scheme of concepts (variables), which the researcher will operationalize in order to achieve the set objectives. The purpose of the conceptual model is to help the researcher to relate the proposed relationship.

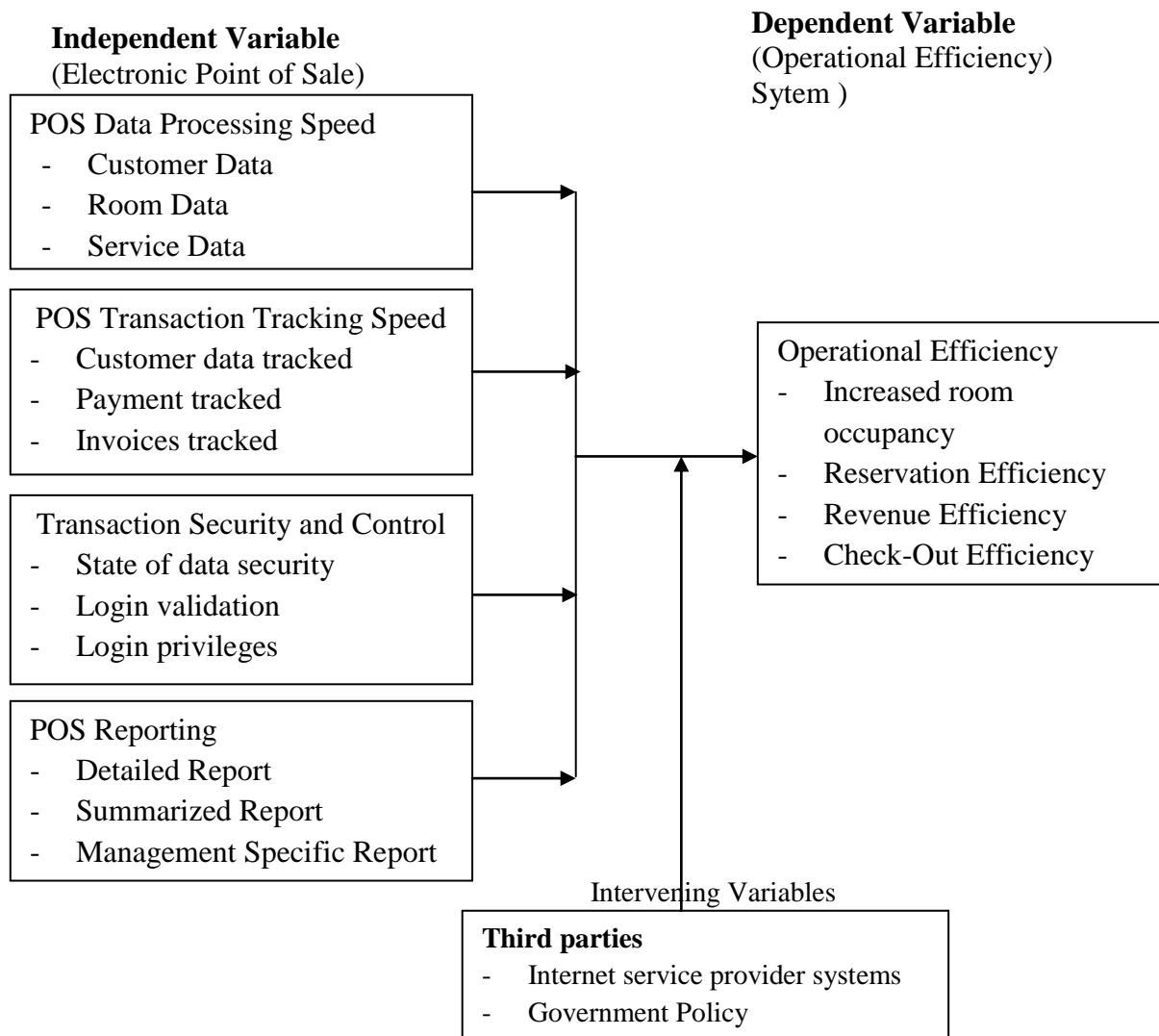


Figure 2.1: Conceptual Framework

Source: (Author, 2017)

The independent variables are POS data processing speed, POS transaction tracking speed, transaction security and control and POS reporting. The dependent variable is Operational efficiency. The extraneous variable is Third party internet service providers. When hotels have effective POS data processing speed, POS Transaction tracking speed, transaction security and control and POS reporting then the operational efficiency in terms of reservation, revenue and check-out will improve and vice versa.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the methodological procedures which were used in carrying out the study. The chapter outlines the research design, location of the study, population of the study, sampling procedure and sample size, instrumentation, data collection procedure and data analysis techniques.

3.2 Research Design

This study adopted descriptive research design. Information was collected from respondents about their experiences and opinions in order to generalize the findings to the population that the sample is intended to represent (Gall, Borg & Gall, 1996). This method is the most appropriate for obtaining factual and attitudinal information or for research questions about self-reported beliefs, opinion, characteristics and present or past behavior (David & Sutton, 2004).

3.3 Study Area

The study was conducted in first to fifth star hotels in Nakuru County. Nakuru County has many hotels by its comparative advantage of having Three National Parks (Lake Nakuru National Park, Hells Gate National Park, and Mount Longonot National Park) and several other tourist attraction sites like Hyrax Pre-Historic Site. The hotels are spread out in different locations in the County, majority of which are in Naivasha and Nakuru Sub-Counties.

3.4 Population of the Study

The target population was all the 36 hotels in Nakuru County (see appendix III). This population is appropriate because of their ability to observe the effect of EPOS on operation efficiency of the hotels. This population is relevant to the study because their involvement in hotel operation, ICT and strategic leadership.

A census survey was used to conduct the study targeting the entire first to five Star hotels in Nakuru County. Gupta, (2003) argued that when the population is small, a census is appropriate. The respondents of this study were the operations managers from the hotels in Nakuru County.

3.5 Instrumentation

Data was collected using structured questionnaires administered to the selected respondents. The first part of the questionnaire is structured in terms of managers' characteristics which include; gender, age, level of education and experience. The second part of the questionnaire deals with the use of EPOS in running hotel operation presented in terms of Likert-Scale (5- Strongly Agree to 1 – Strongly Disagree). The third part of the questionnaire deals with operation efficiency of the hotels measured in terms of reservation, revenue and check-out efficiencies. The structured questionnaires are preferred because their wordings and sequence are fixed, predetermined and identical for all the respondents (Mugenda & Mugenda, 1991). This has the advantage of eliciting standard answers to questions, making it possible for comparisons to be made between data sets. The questionnaire consists of mainly closed-ended items. The questionnaire has various items seeking different information on various aspects of EPOS and operation efficiency. All the items in the questionnaires are aimed at addressing the hypotheses of the study and majority are in the form of a Likert-Scale.

3.6 Validity and Reliability of Research Instrument

3.6.1 Validity of Research Instrument

Validity refers to the degree to which an instrument measures what it is intended to measure (Kathuli & Pals 1993). In order for an instrument to be valid, it should cover the content of the study. All aspects of validity: content validity, construct validity and logical validity was appropriately covered as they are important in a research instrument. The instruments validated by three experts in operation management. A pilot study was conducted in 5 hotels of the same star in Laikipia County. Results from the pilot study were used to improve the instrument. Laikipia County was chosen because of the significant number of rated hotels in the county. The five hotels selected represented each star rating category from first to fifth.

3.6.2 Reliability of the Instrument

Reliability is the measure of the degree to which a research yields consistent results or data after repeated trials. It is the degree of consistency that the research instruments or procedures demonstrate. Poor reliability degrades the precision of a single measurement and reduces the ability to track changes in measurement in a study (Mugenda and Mugenda 2003). A reliable instrument consistently produces the expected results when

used more than once to collect data from the same subjects randomly drawn from the population (Mugenda and Mugenda 2003). The data obtained from a pilot study was used to estimate reliability of the instrument. Cronbach`s alpha coefficient was used to estimate reliability of the questionnaires. This is because all the instruments were rated based on scales with a range of scores. The instruments should yield Cronbach reliability coefficient of at least 0.7 which were accepted as reliable.

Table 3.1: Reliability Test

Study variable	No of test items	Cronbach’s Alpha
EPOS Data Processing	6	0.786
EPOS Transactional Tracking	6	0.763
EPOS Transactional Security	6	0.836
EPOS Reporting System	6	0.734
Operational Efficiency	5	0.713

3.7 Data Collection Procedure

The researcher collected data from the selected respondents after obtaining a letter from Kabarak University Graduate School with a view to secure a research permit from National Commission of Science, Technology and Innovation (NACOSTI) whom issued the researcher, with a research permit and research authorization letter. The questionnaires were distributed to the managers to fill. The researcher then collected the questionnaires in two weeks’ time.

3.8 Data Analysis and Presentation

Data collected was processed, coded and analyzed to facilitate addressing the research objectives and answering the questions. This was done using both descriptive and inferential statistics. Data collected was processed and analyzed based on the objectives and research hypotheses using Statistical Package for Social Sciences (SPSS). This was done using both descriptive and inferential statistics. Descriptive statistics (percentages, frequencies, and chi-square analysis) presented in tables were used to organize and summarize data and to describe the characteristics of the sample. To establish the linear relationship between each objective of EPOS and operational efficiency, Pearson Correlation will be used. In establishing linear relationship between each objective of EPOS and operation efficiency, Pearson Correlation was used. All inferential statistics

was tested at $\alpha = 0.05$ significance level. To establish the effect of EPOS on Operational efficiency, a multiple regression model was used as shown below

$$y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where;

Y= Operational efficiency

α =constant

$\beta_1 \dots \dots \beta_{4d}$ = parameter estimates

X_1 = EPOS Data Processing

X_2 = EPOS Transactional Tracking

X_3 = EPOS Transactional Security

X_4 = EPOS Reporting System

ε is the error term.

Multicollinearity test was conducted to determine the correlation of the explanatory variables. Multicollinearity occurs when two or more predictors in the model are correlated and provide redundant information about the response. The diagnostics variance inflation factor (VIF) and tolerance was used to test for multicollinearity of the independent variables. However, there is no universal criterion for determining the minimum level of the tolerance value or VIF. Pallant (2007) and Hocking (2003) argue that a tolerance value less than 0.1 or VIF greater than ten (10) roughly indicates significant multicollinearity.

3.9 Ethical Issues

According to Creswell (2009) the most important issues and concerns that the researcher had to consider and fulfill are informing the participants in detail about their involvements in the research, avoiding harm and risk and allowing free choice. Moreover, it is important to ensure privacy, confidentiality and anonymity are guaranteed.

Table 3.2: Data Analysis Matrix

Hypothesis of the Study	Independent Variable	Dependent Variable	Statistical Methods
HO1:EPoS data processing speed does not significantly affect operational efficiency of Hotels in Nakuru County	Data processing	<ul style="list-style-type: none"> • Reservation efficiency • Revenue efficiency • Check-out efficiency 	-Pearson Correlation
HO2: EPoS transaction tracking speed does not significantly affect operational efficiency of Hotels in Nakuru County	Implementation	<ul style="list-style-type: none"> • Reservation efficiency • Revenue efficiency • Check-out efficiency 	-Pearson Correlation
HO3: EPoS transaction security does not significantly affect operational efficiency of Hotels in Nakuru County	Evaluation	<ul style="list-style-type: none"> • Reservation efficiency • Revenue efficiency • Check-out efficiency 	-Pearson Correlation
HO4: EPoS reporting system does not significantly affect operational efficiency of Hotels in Nakuru County	Control	<ul style="list-style-type: none"> • Reservation efficiency • Revenue efficiency • Check-out efficiency 	-Pearson Correlation
HO5: The combined effect of data processing, transactional tracking, transactional security and reporting systems on operation efficiency of hotels in Nakuru County	- Formulation - Implementation - Evaluation - Control	<ul style="list-style-type: none"> • Reservation efficiency • Revenue efficiency • Check-out efficiency 	Regression Analysis

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter provides a detailed descriptive analysis of the research data obtained the interpretation and discussion of the findings of the study. The chapter first presents the response rate, the respondents' profile and the findings of the study variables. The said findings are presented in tables and discussed in this chapter in respect of the specific study objectives.

4.2 Response Rate

According to Schwarz (2013), a response rate refers to the number of units in the net sample used in the study expressed as a percentage of the units in the gross sample. In this study, a total of 36 questionnaires were administered out of which only 31 questionnaires were returned and were used in the study representing a response rate of 86%. According to Mugenda and Mugenda (2003), response rate of 50% is good enough for analysis even though researchers should aim at high response rates as possible. Babbie (2014) also asserted that a return rate of 50% is acceptable to analyze and publish, 60% is good and 70% is very good. Based on these assertions, 86% is greater than 50% and 70% and therefore was concluded to be enough to draw conclusion.

4.3 Demographic Information

The researcher examined the respondents' profiles in terms of their gender, age, highest academic qualification, department worked and the number of years served with the Hotel.

4.3.1 Gender of Respondents

The distribution of the employees attached to the Hotels in Nakuru County was examined. The distribution is as presented in Table 4.1.

Table 4.1: Distribution of Respondents by Gender

Gender	Frequency	Percentage
Male	19	62
Female	12	38
Total	31	100

The study as shown in Table 4.1 revealed that 62% of the sampled respondents were male while 38% were female. The findings implied that although majority of employees working with the Hotels in Nakuru County were male, these Hotels were observant of the two thirds gender rule as enshrined in the Constitution of Kenya of 2010.

4.3.2 Age of the Respondents

The distribution of the sampled employees according to their age is illustrated in the Table 4.2.

Table 4.2: Distribution of Age of the Respondents

Gender	Frequency	Percentage
23– 34 Years	14	44
35 – 44 Year	10	32
45 – 54 Years	6	22
55 Years and above	1	2
Total	31	100

The study as shown in Table 4.2 revealed that a majority 44% of the respondents were between the ages of 23-43 years. The findings further revealed that a minority 2% of the respondents interviewed were in the age range of 55 years and above. On aggregate 54% of the respondents were in the age range of 34-54 years. This implied that the hotels in Nakuru County have a relatively youthful workforce.

4.3.2 Highest Academic Qualification

The distribution of the sampled employees according to their highest level of education attached to the hotels in Nakuru County as illustrated in Table 4.3.

Table 4.3: Distribution of Respondents by Highest Academic Qualifications

Highest Academic Qualifications	Frequency	Percent
Certificate	1	3
Diploma	4	13
Degree	20	65
Masters	6	19
Total	31	100

The findings indicated in Table 4.3 show that 65% of the operations managers drawn from the Hotels in Nakuru County had degrees. It was also observed that 19% and 13% others had Master’s and diploma respectively while only 3% had Certificate. The results implied that the aforementioned operations managers were adequately educated for their respective job descriptions.

4.3.3 Number of Years Served with the Hotel

The study sought to determine the number of years that the respondents have served the hotels. Table 4.4 shows the distribution of the respondents according to the number of years served with the hotel.

Table 4.4: Number of Years Served with the hotel

Years Served	Frequency	Percent
0-5 year	10	31
6-10 years	16	50
11-15 years	5	19
Total	31	100

As shown in Table 4.4, majority (50%) of the respondents had worked with the hotels in Nakuru County for a period of between 6 to 10 years. A significant number (5%) of the said operational managers had worked with the aforesaid hotels for a period of 11 to 15 years. Cumulatively, therefore, 81% of all the sampled respondents in Nakuru County had worked with Hotels for a period not exceeding 15 years. These findings implied that the hotels have in the recent past been attracting more employees as compared to the past. This could have further been attributed to the growth and expansion, hence demanding for greater workforce.

4.4 Findings of Study Variables

The study sought to determine effect of electronic Point of Sale System on operational efficiency of hotels in Nakuru County. The organizations electronic Point of Sale System studied included EPOS Data Processing, EPOS Transactional Tracking, EPOS Transactional Security and EPOS Reporting System while the dependent variable was Operational Efficiency of Hotels in Nakuru County.

4.5 Descriptive Statistics

4.5.1 Descriptive Statistics on EPoS Data Processing Speed on Operational Efficiency of Hotels in Nakuru County

This section is in line with the first study objective which sought to establish effect of EPoS data processing speed on operational efficiency of hotels in Nakuru County. Table 4.5 shows the statistical results in details.

Table 4.5: Descriptive Statistics for EPoS Data Processing Speed

Statements on Data Processing Speed	SA (%)	A (%)	N (%)	D (%)	SD (%)	χ^2	P Value
We have improved storage and processing of our customer data	43.0	32.9	16.5	7.6	0.0	13.685	0.000
Through Electronic Point of Sale we have enhanced storage of the room data	40.5	46.8	8.9	3.8	0.0	12.441	0.000
We ensure that the service data is maintained on a daily basis	36.7	25.3	24.1	11.4	2.5	13.575	0.000
We have improved storage and processing of our customer data	35.4	32.9	21.5	10.1	0.0	15.586	0.000
We are able to keep our stock records are they arrive	24.1	34.2	24.1	16.5	1.3	18.711	0.000
We are able to check for any obsolete or out of date stock that needs to be disposed on time	36.7	49.4	5.1	7.6	1.3	17.999	0.000

From table 4.5, the findings of the study established that the participants strongly agreed ($\chi^2=13.685$; P Value =0.000) that the hotels have improved storage and processing of their customer data. The findings also concurred ($\chi^2=12.441$; P Value =0.000) that through electronic point of sale they have enhanced storage of their room data. However, with regards to service data, the respondents largely agreed ($\chi^2=13.575$; P Value =0.000) that they ensure that the service data is maintained on a daily basis while a significant number of the respondents remained neutral. Besides, the study revealed that a significant majority of the respondents agreed ($\chi^2=15.586$; P Value =0.000) that they have improved storage and processing of their customer data. In addition, the respondents were in agreement ($\chi^2=18.711$; P Value =0.000) that they are able to check

for any stock as they arrive. Moreover, it was generally concurred ($\chi^2=17.999$; P Value =0.000) that they are able to check for any obsolete or out of date stock that needs to be disposed on time.

From these results, parallels can be drawn with the conclusions made by (Shapiro, 2008) that POS software helps to identify “not only daily and weekly POS performance, but also inventory levels and location, order status, in-stock percentage (in-stock in a store as a percentage of shelf capacity), and warehouse and store out-of stocks”.

4.5.2 Descriptive Statistics on EPoS Transaction Tracking Speed on Operational Efficiency of the Hotels in Nakuru County

This section is in line with the second study objective which sought to determine effects of EPoS transaction tracking speed on operational efficiency of the Hotels in Nakuru County. Table 4.6 shows the statistical results in details.

Table 4.6: Descriptive Statistics for EPoS Transaction Tracking Speed

Statements	SA (%)	A (%)	N (%)	D (%)	SD (%)	χ^2	P Value
We are able to keep track of our customer data	49.4	43.0	6.3	1.3	0.0	21.871	0.000
We are able to keep track of all our payment and receipts	46.6	50.6	2.5	0.0	0.0	17.3623	0.000
We are in a position to always track our invoices at any time when need be	36.7	39.2	20.3	3.8	0.0	19.592	0.000
We have enhanced our cost controls through the use of electronic point of sale	40.5	55.7	3.8	0.0	0.0	10.056	0.000
Our customers are able to transfer funds instantaneously from their bank accounts to our accounts when making purchases	40.5	45.6	11.4	2.5	0.0	19.364	0.000
The proliferation of the Internet, as a main stream communication media and as an infrastructure for business transactions has generated a wide range of strategic implications for our businesses	15.2	49.4	12.7	21.5	1.30	16.773	0.000

The findings of the study shown on table 4.6 indicate that the respondents strongly agreed ($\chi^2=21.871$; P Value =0.000) that the hotels are able to keep track of their

customer data and also concurred ($\chi^2=17.3623$; P Value =0.000) that the hotels are able to keep track of all their payment and receipts. In addition, the participants also alluded ($\chi^2=10.056$; P Value =0.000) that they are in a position to always track their invoices at any time when need be and also strongly agreed ($\chi^2=19.592$; P Value =0.000) that they have enhanced their cost controls through the use of electronic point of sale. It also emerged that a significant majority of the participants concurred ($\chi^2=10.056$; P Value =0.000) that their customers are able to transfer funds instantaneously from their bank accounts to the hotel's accounts when making purchases. It was generally admitted ($\chi^2=19.364$; P Value =0.000) that the proliferation of the internet, as a main stream communication media and as an infrastructure for business transactions has generated a wide range of strategic implications for their businesses.

This confirms the conclusions Anonymous (2008) where it was found that “Electronic point of sale systems creates a major competitive advantage for hotels of any size.” Customer inquiries can be handled much more quickly because “sales staff can locate stock on hand at any store location right from the POS terminal, and check the status of backorders, enabling employees to efficiently fulfill customer needs and move them through checkout quickly”

Moreover, the findings further reveal that the proliferation of the internet, as a main stream communication media and as an infrastructure for business transactions has generated a wide range of strategic implications for businesses in general as well as for the travel and airline industries in particular (Li-Hua & Khalil, 2006).

4.5.3 Descriptive Statistics on EPoS Transaction Security and Control on Operational efficiency of the Hotels in Nakuru County

This section is in line with the third study objective which sought to determine effect of EPoS transaction security and control on operational efficiency of the hotels in Nakuru County. Table 4.7 shows the statistical results in details.

Table 4. 7: Descriptive Statistics for EPoS Transaction Security and Control

Statements	SA (%)	A (%)	N (%)	D (%)	SD (%)	χ^2	P Value
Electronic Point of Sale has been instrumental in helping our firm manage the state of our data security	21.5	51.9	11.4	10.1	5.1	11.683	0.000
Through electronic point of sale, we have been able to improve on our login validation	40.5	35.4	19.0	5.1	0.00	15.575	0.000
Our firm has been able to improve its login privileges through electronic point of sale	15.2	49.4	12.7	21.5	1.30	12.575	0.000
Through POS system we have been able to streamlines the process of entering inventory into a computer upon completion of sales securely	41.8	39.2	3.8	15.2	0.0	24.477	0.000
Our point of sales system (POS) enables our firm to implement the front end sales management and tracking functionalities at the back end.	36.7	51.9	3.8	7.6	0.0	14.585	0.000
Our point of sales system enables the data handling and generation of sales management	40.5	55.7	3.8	0.0	0.0	10.564	0.001

Table 4.7 revealed by ($\chi^2=11.683$; P Value =0.000) that electronic point of sale has been instrumental in helping the hotels to manage the state of their data security. The study indicated ($\chi^2=15.575$; P Value =0.000) that through electronic point of sale, the hotels have been able to improve on their login validation. It further showed ($\chi^2=12.575$; P Value =0.000) that the hotels have been able to improve their login privileges through electronic point of sale and the respondents strongly agreed ($\chi^2=24.477$; P Value =0.000) that through POS system they have been able to streamlines the process of entering inventory into a computer upon completion of sales securely It also emerged ($\chi^2=14.585$; P Value =0.000) that their point of sales system (POS) has enabled them to implement the front end sales management and tracking functionalities at the back end. However, 7.6% of the respondents expressed contrary opinion. Besides, majority of the respondents agreed ($\chi^2=10.564$; P Value =0.001) that their point of sales system enables the data handling and generation of sales management.

These findings reaffirm the conclusions of Webster (2014) who asserted that ICT is any technology that enables communication and the electronic capturing, processing and transmission of information. These technologies include services and products such as laptops, wired or wireless intranet, handheld devices, desktop computers, business productivity software such as, enterprise software, data storage and security, text editor and spread sheet, network security and so on.

4.5.4 Descriptive Statistics on EPoS Reporting System on operational efficiency of the Hotels in Nakuru County

This section is in line with the fourth study objective which sought to determine effect of EPoS reporting system on operational efficiency of the Hotels in Nakuru County.

Table 4.8 shows the statistical results in details.

Table 4.8: Descriptive Statistics on EPoS Reporting System

Statements	SA (%)	A (%)	N (%)	D (%)	SD (%)	χ^2	P Value
Through the electronic point of sale we are able to generate detailed reports for our firm	33.5	39.9	18.4	5.1	3.1	13.655	0.000
We are able to generate summarized reports through the electronic point of sale system	35.5	40.4	15.0	9.1	0.00	21.407	0.000
Our firm is able to obtain management specific report through the electronic point of sale	25.2	39.4	22.7	11.5	1.30	12.643	0.000
We are able to View and print reports and commission administration effectively through the electronic point of sales	46.8	34.2	13.8	5.2	0.0	16.765	0.000
Our firm is able to collect and aggregates sales data automatically which is used to produce a variety of sales reports including: daily reports with historical data, six-week history reports,	41.7	46.9	7.8	3.6	0.0	17.654	0.000
Electronic point of sales data reports highlight specific needs and eliminate guessing and bias that our employees would develop throughout the course of their work	40.8	40.2	12.8	6.2	0.0	17.574	0.000

The findings of the study shown on table 4.8 indicate that the respondents strongly agreed ($\chi^2=13.655$; P Value =0.000) that through the electronic point of sale we are able to generate detailed reports for our firm and also concurred ($\chi^2=21.407$; P Value =0.000) that they are able to generate summarized reports through the electronic point of sale system. In addition, the participants also alluded ($\chi^2=12.643$; P Value =0.000) that the hotel is able to obtain management specific reports through the electronic point of sale and also strongly agreed ($\chi^2=16.765$; P Value =0.000) that they are able to view and print reports and commission administration effectively through the electronic point of sales. It also emerged that a significant majority of the participants concurred ($\chi^2=17.654$; P Value =0.000) that the firm is able to collect and aggregates sales data automatically which is used to produce a variety of sales reports including: daily reports with historical data, six-week history reports. The study observed that majority of the sampled respondents ($\chi^2=17.574$; P Value =0.000) agreed that electronic point of sales data reports highlight specific needs and eliminate guessing and bias that their employees would develop throughout the course of their work.

These findings therefore affirm the observations that “a POS system is a medium to assemble and aggregate sales information automatically, which can then be utilised to produce a variety of turnover reports including: daily reports with historical data, six-week history reports, top selling categories, top margin categories, top margin customers, top margin items, customer rank by sales, top selling items, and sales by time of day” (Polanz, 2011).

4.5.5 Descriptive Analysis on Operational Efficiency of Hotels in Nakuru County

This section entails an analysis of the dependent variable. It examined the perceptions held on operational efficiency of Hotels in Nakuru County. Table 4.9 shows the statistical results in details.

Table 4.9: Descriptive Statistics on Operational Efficiency

Statements on Operational Efficiency	SA (%)	A (%)	N (%)	D (%)	SD (%)	χ^2	P Value
Our firm has been increasing its room occupancy as a result of electronic point of sales systems	39.2	48.1	5.1	7.6	0.0	19.861	0.000
We have been able to attain reservation efficiency since the introduction of electronic point most of our products	36.7	49.4	5.1	7.6	1.3	17.642	0.000
Our revenue efficiency has been positive in the past two years	41.8	54.4	3.8	0.0	0.0	23.340	0.000
Our check out efficiency has improved over the past two years	17.7	38.0	30.4	6.3	7.6	13.521	0.000
Our revenue margins are increasing	41.8	39.2	3.8	15.2	0.0	11.704	0.000

From table 4.9, the results of the study indicate that the respondents strongly agreed ($\chi^2=19.861$; P Value =0.000) that their firm has been increasing its room occupancy as a result of electronic point of sales systems and also concurred ($\chi^2=17.642$; P Value =0.000) that they have been able to attain reservation efficiency since the introduction of electronic point for most of their services. However, with regards to the revenue efficiency, the respondents largely agreed ($\chi^2=23.340$; P Value =0.000) that the revenue efficiency has been positive in the past two years. The respondents agreed ($\chi^2=13.521$; P Value =0.000) that their check out efficiency has improved over the past two years. Further the respondents were in agreement ($\chi^2=11.704$; P Value =0.000) that their revenue margins are increasing.

These findings underscore the assertion made by Cobanoglu et al (2001) that information technology in the hospitality industry has improved guest satisfaction, increased productivity, improved service quality reduced costs, and long term profitability. Additionally, it has confirmed the position held by Namasivayan, Enz & Siguwaw (2000) that the technology is divided into three categories: “efficiency and productivity, guest service delivery and revenue management in an effort to attain operational efficiency”.

4.6 Diagnostic Tests

In order to justify the use of the regression model pre-estimation and post estimation tests were conducted. The pre-estimation tests conducted in this case were the linearity

test and multicollinearity test while the post estimation test was test for autocorrelation. This was performed to avoid spurious regression results from being obtained.

4.6.1 Tests of Linearity

Linearity test was conducted through the ANOVA test before carrying out regression analysis. It was to visually show whether there is a curvilinear relationship between two continuous variables. According to Osborne and Waters (2012), the relationship must be linear for regression models to accurately estimate the relationship between dependent and independent. Results presented in table 4.14 shows that the F statistic is significant at 0.05-significance level and therefore the study concluded that there exists a significant linear relationship between the dependent and the independent variables, and thus the data on the variables of this study were appropriate for regression analysis. The test results are shown in table 4.14.

Table 4.10: ANOVA^a Table

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8.841	4	2.2103	45.108	.000 ^b
	Residual	1.267	26	.049		
	Total	10.108	30			

a. Dependent Variable: Operational Efficiency

b. Predictors: (Constant), EPOS Data Processing, EPOS Transactional Tracking, EPOS Transactional Security and EPOS Reporting System

4.6.2 Test for Multicollinearity

A multicollinearity test was carried out to ensure that the independent variables did not have co-linearity amongst themselves. The existence of a high degree of association between independent variables is said to be a problem of multicollinearity which results into large standard errors of the coefficients of the affected. The variance inflation factors (VIF) and Tolerance were used to assess multicollinearity. According to Field (2009) VIF values above 10 are said to be an indication of the presence of multicollinearity. Tolerance values below 0.1 are an indication of the presence of multicollinearity. The VIF and Tolerance values as shown in Table 4.15 according to Field, (2009) indicated that there is no multicollinearity.

Table 4.11: Tolerance and VIF Test

Model	Collinearity Statistics	
	Tolerance	VIF
1 (Constant)		
EPOS Data Processing	.741	1.350
EPOS Transactional Tracking	.757	1.321
EPOS Transactional Security	.706	1.417
EPOS Reporting System	.724	1.301

a. Dependent Variable: Operational Efficiency

4.6.3 Test for Autocorrelation

The Durbin-Watson test for autocorrelation was conducted to determine whether there is autocorrelation (serial correlation). The decision rule is that test statistic values ranging between 1.5 and 2.5 are relatively normal. According to Field (2009), values outside this range could be cause for concern. The results in Table 4.16 indicated a value of 2.096 which falls between the range of 1.5 and 2.5 and therefore it was concluded that there was no auto correlation. The test results are shown in Table 4.16.

Table 4.12: Autocorrelation Model Summary

Mode	R	Adjusted R Square	R Std. Error of the Estimate	Durbin-Watson
1	.935 ^a	.875	.1826	2.096

a. Predictors: (Constant), EPOS Data Processing, EPOS Transactional Tracking, EPOS Transactional Security, EPOS Reporting System

b. Dependent Variable: Operational Efficiency

4.7 Correlations Analysis

The Pearson product-moment correlation coefficient was used to obtain a measure of the strength of association between two variables (Independent and Dependent).

Table 4. 13: Summary of Correlations

			EPoS Data Processing Speed	EPoS Transaction Tracking Speed	EPoS Transaction Security and Control	EPoS Reporting System	Operational Efficiency
EPoS Data Processing Speed	Pearson Correlation		1				
	Sig. (2-tailed)						
	N		31				
EPoS Transaction Tracking Speed	Pearson Correlation		.199	1			
	Sig. (2-tailed)		.069				
	N		31	31			
EPoS Transaction Security and Control	Pearson Correlation		-.001	.184	1		
	Sig. (2-tailed)		.994	.094			
	N		31	31	31		
EPoS Reporting System	Pearson Correlation		.033	.133	0.419	1	
	Sig. (2-tailed)		.763	.227	.742		
	N		31	31	31	31	
Operational Efficiency	Pearson Correlation		.528**	.218*	.096	.443**	1
	Sig. (2-tailed)		.000	.047	.386	.000	
	N		31	31	31	31	31

** . Correlation is significant at the 0.01 level (2-tailed).

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

The correlation summary shown in Table 4. indicates that the associations between the independent variables and the dependent variable were significant save for one which was insignificant at the 95% confidence level. Also, the inter-variable correlations between the independent variables were insignificant to affect the relationship with the dependent variable, hence, the effects of multicollinearity were minimized. Therefore, further analysis of the variables was carried out as follows.

The results of the analysis on the correlation between EPoS data processing speeds on operational efficiency are presented in Tab. 4.10. There is a significant positive

relationship observed between constraint EPoS data processing speed ($r = 0.528$; $p=0.000 < 0.05$) and operational efficiency. The two operations constraints that have a relationship with operational efficiency are EPoS data processing speed and EPoS reporting system. The details about the variables are as shown in Tab. 4.10.

The results of the analysis on the correlation between EPoS transactions tracking speed on operational efficiency are presented in Tab. 4.10. There is a significant positive relationship observed between constraint EPoS transaction tracking speed ($r = 0.218$, $p = 0.047 < 0.05$) and operational efficiency. However, the degree of the association of the two variables was weak but positive suggesting that EPoS transaction tracking speed was not a strong factor in operational efficiency of the Hotels in Nakuru County. The two operations constraints that have a relationship with operational efficiency are EPoS data processing speed and EPoS reporting system. The details about the variables are as shown in Tab. 4.10.

The results of the analysis on the correlation between EPoS transaction security and Control on operational efficiency are presented in Tab. 4.11. There is a significant positive relationship observed between constraint EPoS transaction security and Control ($r = 0.096$, $p = 0.386 > 0.05$) and operational efficiency. The two operations constraints that have a relationship with operational efficiency are EPoS data processing speed and EPoS reporting system. The details about the variables are as shown in Tab. 4.10.

Finally, the results of the analysis on the correlation between EPoS reporting system on operational efficiency are presented in Tab. 4.10. There is a significant positive relationship observed between constraint EPoS transaction security and Control ($r = 0.443$, $p = 0.000 < 0.05$) and operational efficiency. This result suggest that the way things were at the moment, EPoS reporting system was not a priority to the Hotels in Nakuru County. The two operations constraints that have a relationship with operational efficiency are EPoS data processing speed and EPoS reporting system. The details about the variables are as shown in Tab. 4.10.

4.8 Regression Analysis

The multiple linear regressions were undertaken for the purpose of determining the effect of electronic Point of Sale System on operational efficiency of Hotels in Nakuru County. The model summary on table 4.11 indicated a multiple linear correlation coefficient R of 0.547 which indicated that the independent variables (EPoS data processing speed, EPoS

transaction tracking speed. EPoS transaction security and Control and EPoS reporting system) had a positive correlation with the dependent variable.

Table 4. 14: Multiple Linear Regression Analysis Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.547 ^a	.300	.264	2.37043

a. Predictors: (Constant), EPoS data processing speed, EPoS transaction tracking speed. EPoS transaction security and Control and EPoS reporting system

The coefficient of determination (R Square) of 0.300 indicated that the independent variable constituted 30% of the variance in the dependent variable. These results therefore explained 54.7% while the 45.3% is explained by other variables outside the scope of this study.

Table 4.15: Summary of ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	189.856	4	47.464	2.780	.000 ^b
Residual	443.894	26	17.073		
Total	633.750	30			

a. Dependent Variable: Operational Efficiency

b. Predictors: (Constant), EPoS data processing speed, EPoS transaction tracking speed. EPoS transaction security and control and EPoS reporting system

The results of Table 4.15 indicate that there is a significant difference between means of electronic Point of Sale System on operational efficiency of the Hotels in Nakuru County ($F_o = 2.780 > F_c = 2.50$; $\alpha < 0.05$; $df = 4, 26$; $p = 0.000$). This finding confirms that the model is as predicted by Table 4.15 and shows it is indeed significant.

In order to determine which of the independent variables was more important when it came to the operational efficiency of the hotels in Nakuru County the beta value was used. The results are given in Table 4.16 provide a summary of the multiple linear regression analysis correlation coefficients.

Table 4.16: Multiple linear regression results

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.250	4.759		.473	.638
EPoS Data Processing Speed	.445	.084	.510	5.295	.000
EPoS Transaction Tracking Speed	.177	.103	.181	1.751	.001
EPoS Transaction Security and Control	.060	.108	.058	.557	.579
EPoS Reporting System	.358	.117	.256	3.494	.000

a. Dependent Variable: Operational Efficiency

It can be deduced from the findings in Table 4.16 that the most influential electronic Point of Sale System in the model predicting Operational Efficiency was EPoS Data Processing Speed ($\beta = 0.445$, $\rho = 0.000 < 0.05$). This was followed by EPoS Reporting System ($\beta = 0.358$, $\rho = 0.000 < 0.05$) and EPoS Transaction Tracking Speed ($\beta = 0.177$, $\rho = 0.001 < 0.05$) respectively. This indicates that the dependent variable, that is, the Operational Efficiency, would change by a corresponding number of standard deviations when the respective independent variables change by one standard deviation. However, the variable EPoS Transaction Security and Control was found not to contribute significantly to the model ($\beta = 0.06$, $\rho = 0.579 > 0.05$). The study therefore establishes that EPoS Data Processing Speed, EPoS Reporting System and EPoS Transaction Tracking Speed were factors affecting operational efficiency of Hotels in Nakuru County

4.9 Hypothesis Testing

The first hypothesis was tested under the null hypothesis;

H_{01} : EPoS data processing speed has no significant effect on Operational Efficiency of Hotels in Nakuru County

The results of the analysis on the correlation between EPoS data processing speed and operational efficiency are presented in Table 4.13 and using multiple regressions whose results is shown on Table 4.16. The test was done at a significant level 0.05. The test results show that there exists a statistically significant correlation between EPoS data processing speed and operational efficiency ($\beta = 0.445$, $\rho = 0.000 < 0.05$). The result leads to the rejection of the null hypothesis, hence a conclusion that there exists a

significant effect of EPoS data processing speed on operational efficiency of Hotels in Nakuru County

As shown in Tab. 4.14 and 4.15, electronic Point of Sale System has a significant positive effect on operational efficiency with a correlation coefficient of $R = 0.547$ (a) and adjusted $R^2 = 26.4\%$, $F = 2.780$; $\text{Sig.} = .000$ (a). This is a clear indication that EPoS data processing speed is a significant predictor of the firm's operational efficiency. Hence, we fail to reject H_1 . EPoS data processing speed explains 54.7% of the variance in the firm's operational efficiency. The relationship between electronic Point of Sale System and the firm's operational efficiency is positive and significant.

H_{02} : EPoS Transaction Tracking Speed has no significant effect on Operational Efficiency of Hotels in Nakuru County

The second hypothesis was tested by determining the relationship between EPoS transaction tracking speed and operational efficiency using multiple regressions whose results are shown on Table 4.16. The test was done at a significant level 0.05. The test results show that there exists a statistically significant correlation between EPoS transaction tracking speed and operational efficiency ($\beta = 0.177$, $\rho = 0.001 < 0.05$). The result leads to the rejection of the null hypothesis, hence a conclusion that there exists a significant effect of EPoS transaction tracking speed on operational efficiency of Hotels in Nakuru County

H_{03} : EPoS transaction security and Control has no significant effect on operational Efficiency of the Hotels in Nakuru County

The third hypothesis was tested by determining the relationship between EPoS transaction security and Control and operational efficiency using multiple regressions whose results are shown on Table 4.16. The test was done at a significant level 0.05. The test results show that there exists no correlation between EPoS transaction security and Control and operational efficiency ($\beta = 0.060$, $\rho = 0.579 > 0.05$). The result leads to the failure to reject the null hypothesis, hence a conclusion that there is no significant effect of EPoS transaction security and Control on operational efficiency of the Hotels in Nakuru County

H₀₄: EPoS reporting system has no significant effect on operational efficiency of Hotels in Nakuru County.

The fourth hypothesis was tested by determining the relationship between EPoS reporting system and operational efficiency of Hotels in Nakuru County using multiple regressions whose results are shown on Table 4.16. The test was done at a significant level 0.05. The test results show that there exists a statistically significant correlation between EPoS reporting system on operational efficiency ($\beta = 0.358$, $\rho = 0.000 < 0.05$). The result leads to the rejection of the null hypothesis, hence a conclusion that there exists a significant effect of EPoS reporting system on operational efficiency of Hotels in Nakuru County

Therefore, the emergent linear model was;

$$y = 2.250 + 0.445 X_1 + 0.177 X_2 + 0.060 X_3 + 0.358 X_4$$

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter makes summary, conclusions, recommendations and areas of further research in line with the findings of the study.

5.2 Summary of the Study Findings

This study set out to determine the relationship between EPoS data processing speed, EPoS transaction tracking speed, EPoS transaction security and Control and EPoS reporting system on operational efficiency of Hotels in Nakuru County. In this study, a total of 36 questionnaires were administered out of which only 31 questionnaires were returned and were used in the study representing a response rate of 86%. Most of the respondents 62% of the sampled respondents were male while 38% were female. Majority, 44% of the respondents were between the ages of 23-43 years. The findings further revealed that a minority 2% of the respondents interviewed were in the age range of 55 years and above. On aggregate 54% of the respondents were in the age range of 34-54 years. 65% of the operations managers drawn from the Hotels in Nakuru County had degrees. It was also observed that 19% and 13% others had Master's and diploma respectively while only 3% had Certificate. Majority (50%) of the respondents had worked with the hotels in Nakuru County for a period of between 6 to 10 years. A significant number (5%) of the said operational managers had worked with the aforesaid Hotels for a period of 11 to 15 years. Cumulatively, therefore, 81% of all the sampled respondents in Nakuru County had worked with Hotels for a period not exceeding 15 years drawn from the Hotels in Nakuru County. The study drew the summary from the findings derived from the descriptive data;

5.2.1 Effect of EPoS data processing speed on operational efficiency of Hotels in Nakuru County

The first objective was to establish effects of EPoS data processing speed on operational efficiency of hotels in Nakuru County. Descriptive results revealed that the participants strongly agreed that the hotels have improved storage and processing of their customer data. The findings also concurred that through electronic point of sale they have enhanced storage of their room data. However, with regards to service data, the respondents largely agreed that they ensure that the service data is maintained on a daily

basis while a significant number of the respondents remained neutral. Besides, the study revealed that they have improved storage and processing of their customer data. In addition, the respondents were in agreement that they are able to check for any obsolete or out of date stock that needs to be disposed on time. Moreover, it was generally concurred that they are able to check for any obsolete or out of date stock that needs to be disposed on time. The correlation results showed that a strong positive significant relationship existed. This led to the rejection of the null hypothesis and subsequently the adoption of the view that EPoS data processing speed was instrumental in ensuring operational efficiency of Hotels in Nakuru County.

5.2.2 Effect of EPoS transaction tracking speed on operational efficiency of Hotels in Nakuru County

The second objective was to determine effects of EPoS transaction tracking speed on operational efficiency of the Hotels in Nakuru County. Descriptive results revealed that the respondents strongly agreed that the hotels are able to keep track of their customer data and also concurred that the hotels are able to keep track of all their payment and receipts. In addition, the participants also alluded that they are in a position to always track their invoices at any time when need be and also strongly agreed that they have enhanced their cost controls through the use of electronic point of sale. It also emerged that a significant majority of the participants concurred that their customers are able to transfer funds instantaneously from their bank accounts to the hotel's accounts when making purchases. It was generally admitted that the proliferation of the Internet, as a main stream communication media and as an infrastructure for business transactions has generated a wide range of strategic implications for our businesses. The correlation analysis was also done to determine effects of EPoS transaction tracking speed on operational efficiency of the Hotels in Nakuru County. The results showed a significant relationship existed between the two variables. Besides Hypotheses test results show that there exists a statistically significant correlation between EPoS transaction tracking speed and operational efficiency of the Hotels in Nakuru County.

5.2.3 Effect of EPoS transaction security and Control on operational efficiency of the Hotels in Nakuru County

The third objective was to determine the effects of EPoS transaction security and Control on operational efficiency of the Hotels in Nakuru County. Descriptive results revealed

that electronic point of sale has been instrumental in helping the hotels to manage the state of their data security. The study indicated that through electronic point of sale, the hotels have been able to improve on their login validation. It further showed that the hotels have been able to improve their login privileges through electronic point of sale and the respondents strongly agreed that through POS system they have been able to streamline the process of entering inventory into a computer upon completion of sales securely. It also emerged that their point of sales system (POS) has enabled them to implement the front end sales management and tracking functionalities at the back end. However, 7.6% of the respondents expressed contrary opinion. Besides, majority of the respondents agreed that their point of sales system enables the data handling and generation of sales management.

5.2.4 Effect of EPoS reporting system on operational efficiency of hotels in Nakuru County

Finally, the fourth objective was to establish the effects of EPoS reporting system on operational efficiency of the Hotels in Nakuru County. Descriptive results revealed that through the electronic point of sale they are able to generate detailed reports for their firm and that they are able to generate summarized reports through the electronic point of sale system. In addition, the participants also alluded that the hotel is able to obtain management specific report through the electronic point of sale and also strongly agreed that they are able to View and print reports and commission administration effectively through the electronic point of sales. It also emerged that a significant majority of the participants concurred that the firm is able to collect and aggregates sales data automatically which is used to produce a variety of sales reports including: daily reports with historical data, six-week history reports. The study observed that majority of the sampled respondents agreed that electronic point of sales data reports outline specific needs and reduce guessing and bias that their staff would develop throughout the course of their work.

5.3 Conclusions of the Study

This study sought to establish the effect of EPOS on Operational Performance. The results evidently indicated that: firstly, there is a significant positive relationship observed between constraint EPoS data processing speed 52.8% and operational efficiency. Secondly, the relationship between There is a significant positive relationship

EPOS transaction tracking speed on operational efficiency observed between constraint EPOS transactions tracking speed 21.8% of the variance in the firms' operational efficiency. Thirdly, the relationship between EPOS transaction security and Control on operational efficiency was shown by 9.6% of the variance in the firms' operational efficiency. Lastly, the relationship between EPOS reporting system and the firm's operational efficiency is significant and positive explains 44.3% of the variance in the firm's operational efficiency

5.4 Recommendations of the Study

Other than the present study adding to academic knowledge in a number of ways, the hypotheses tested have a number of practical implications for issues relating to the mediating effect of electronic Point of Sale System and operational efficiency of Hotels in Nakuru County is positive and significant. The study has shown how policy-makers should measure the impact of electronic Point of Sale System and operational efficiency. In this breath, the following specific recommendations are made:

1. That these study findings will provide policymakers with insights, focus on the context of the Hotel Industry in order for the country to capture more value in the tourism sector by maintain improved storage and processing of their customer data. In addition, through electronic point of sale storage of their room data should always be enhanced. However, with regards to service data, recommendation is made that the hotels should ensure the service data is maintained on a daily basis. Besides, the hotels should maintain improved storage and processing of their customer data. The government should provide support to the hotel owners through financial and marketing schemes for market access and quality improvement.
2. That the empirical results can help policy-makers recognize the need for electronic Point of Sale System in the organization;
3. The Hotels should continuously monitor the depth to which electronic Point of Sale System that assists in always tracking their invoices at any time when need be and also the hotels have enhanced their cost controls through the use of electronic point of sale. In addition it is recommended that customers should be able to transfer funds instantaneously from their bank accounts to the hotel's accounts when making purchases. And,

4. That the proliferation of the Internet, as a main stream communication media and as an infrastructure for business transactions has generated a wide range of strategic implications for the businesses.

5.5 Areas for Further Research

Further research on electronic Point of Sale System on operational efficiency should be carried out to identify other elements that appear to be critical to the success of operational efficiency. These comprise of further studies on in other sectors other than the hotel industry and in other counties other than Nakuru County.

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APPENDICES

Appendix 1: Introduction Letter

LAWI K. CHIRCHIR
GMB/NE/0539/05/15
P.O. BOX 15855 – 20100
NAKURU
31st MARCH, 2019

The Operations Manager

.....
P.O. Box
.....

Dear Sir/Madam,

**RE: REQUEST TO CARRY OUT RESEARCH WITHIN YOUR
ORGANIZATION**

I do request to be allowed to carry out the above research within your organization. I am Master of Business Administration: Operation Management Option at Kabarak University.-Student No. GMB/NE/0539/05/15. I am carrying out a research on “EFFECT OF ELECTRONIC POINT OF SALE SYSTEM ON OPERATIONAL EFFICIENCY OF HOTELS IN NAKURU COUNTY.” This research is meant for purely academic purposes; however, evaluation results may be made public after the completion of the study for future researchers and other relevant stakeholders to guide them in their work. Every care will be taken in the data collection procedure to ensure that it is within ethical limits.

Thank you in advance for your cooperation.

Yours sincerely

LAWI K. CHIRCHIR

Kabarak University

Appendix II: Research Questionnaires

Please do not write your name or the name of your Hotel on the questionnaire. Kindly answer all questions and indicate your view by ticking (√) as appropriate

PART A: Background Information of Respondent

1. Indicate your gender Male [] Female []

2. Indicate your age

23– 34 Years [] 35 – 44 Year [] 45 – 54 Years [] 55 Years and above []

3. Highest academic qualifications

Masters [] Degree [] Diploma [] Certificate []

4. How long have you worked in the present firm?

0-5 year [] 6-10 years [] 11-15 years []

16-20 years [] Over 20 years []

PART B: EPOS Data Processing Speed and Operational Efficiency of Hotels in Nakuru County

The following are items intended to establish the effects of EPoS data processing speed on operational efficiency of Hotels in Nakuru County. Please tick (√) where appropriate.

1- Strongly disagree, 2- Disagree, 3- Neutral, 4 – Agree, 5 – Strongly agree

Statement on EPOS Data Processing Speed	1	2	3	4	5
We have improved storage and processing of our customer data					
Through Electronic Point of Sale we have enhanced storage of the room data					
We ensure that the service data is maintained on a daily basis					
We have improved storage and processing of our customer data					
We are able to keep our stock records are they arrive					
We are able to check for any obsolete or out of date stock that needs to be disposed on time					

PART C: EPOS Transaction Tracking Speed and Operational Efficiency of Hotels in Nakuru County

The following are items intended to determine the effects of EPoS transaction tracking speed on operational efficiency of the Hotels in Nakuru County. Please tick (√) where appropriate. 1- Strongly disagree, 2- Disagree, 3- Neutral, 4 – Agree, 5 – Strongly agree

Statements on EPOS Transaction Tracking Speed	1	2	3	4	5
We are able to keep track of our customer data					
We are able to keep track of all our payment and receipts					
We are in a position to always track our invoices at any time when need be					
We have enhanced our cost controls through the use of electronic point of sale					
Our customers are able to transfer funds instantaneously from their bank accounts to our accounts when making purchases					
The proliferation of the Internet, as a main stream communication media and as an infrastructure for business transactions has generated a wide range of strategic implications for our businesses					

PART D: EPOS Transaction Security and Operational Efficiency of Hotels in Nakuru County

The following are items in intended to determine the effects of EPoS transaction security and Control on operational efficiency of the Hotels in Nakuru County. Please tick (√) where appropriate. 1- Strongly disagree, 2- Disagree, 3- Neutral, 4 – Agree, 5 – Strongly agree

Statements on EPOS Transaction Security	1	2	3	4	5
Electronic Point of Sale has been instrumental in helping our firm manage the state of our data security					
Through electronic point of sale, we have been able to improve on our login validation					
Our firm has been able to improve its login privileges through electronic point of sale					

Through POS system we have been able to streamlines the process of entering inventory into a computer upon completion of sales securely					
Our point of sales system (POS) enables our firm to implement the front end sales management and tracking functionalities at the back end.					
Our point of sales system enables the data handling and generation of sales management					

PART E: EPOS Reporting System and Operational Efficiency of Hotels in Nakuru County

The following are items in intended to determine the effects of EPoS reporting system on operational efficiency of the Hotels in Nakuru County. Please tick (√) where appropriate.

1- Strongly disagree, 2- Disagree, 3- Neutral, 4 – Agree, 5 – Strongly agree

Statements on EPOS Reporting System	1	2	3	4	5
Through the electronic point of sale we are able to generate detailed reports for our firm					
We are able to generate summarized reports through the electronic point of sale system					
Our firm is able to obtain management specific report through the electronic point of sale					
We are able to View and print reports and commission administration effectively through the electronic point of sales					
Our firm is able to collect and aggregates sales data automatically which is used to produce a variety of sales reports including: daily reports with historical data, six-week history reports,					
Electronic point of sales data reports highlight specific needs and eliminate guessing and bias that our employees would develop throughout the course of their work					

PART F: Operational Efficiency of Hotels in Nakuru County

The following are items in intended to examine the operational efficiency of the Hotels in Nakuru County. Please tick (√) where appropriate. 1- Strongly disagree, 2- Disagree , 3- Neutral, 4 – Agree, 5 – Strongly agree

Statements on Operational Efficiency	1	2	3	4	5
Our firm has been increasing its room occupancy as a result of electronic point of sales systems					
We have been able to attain reservation efficiency since the introduction of electronic point most of our products					
Our revenue efficiency has been positive in the past two years					
Our check out efficiency has improved over the past two years					
Our revenue margins are increasing					

Thank you very much for your cooperation

Appendix III: List of Hotels

Sn	Hotel	Location	Star
1	Kiboko Luxury Camp	Lake Naivasha Naivasha	4
2	Sentrim Elementaita Lodge	Lake Elementaita	4
3	Sleeping Warrior	Gilgil	4
4	Eagle Palace	Nakuru Town	4
5	Naivasha Kongoni Lodge	Naivasha	4
6	Lake Elementaita Serena Camp	Lake Elementaita	5
7	Sarova Lions Hills Game Lodge	Lake Nakuru National Park	4
8	Lake Naivasha Sopa Lodge	Naivasha	3
9	Enashipai Resort and Spa	Naivasha	3
10	Jacaranda Lake Elementaita	Elementaita	4
11	Lake Naivasha County Club	Naivasha	4
12	Great Rift Valley Lodge	Naivasha	4
13	Elsamere Lodge Naivasha	Naivasha	4
14	Chui Lodge	Lake Naivasha	4
15	Mbweha Lodge	Lake Nakuru	5
16	Merica Hotel	Nakuru Town	4
17	Chester Hotel	Nakuru	2
18	Jarika County Lodge	Nakuru	3
19	Hotel Waterbuck	Nakuru	3
20	Midland Hotel	Nakuru	3
21	Ziwa Bush Lodge	Nakuru	3
22	Hillcourt Resort	Nakuru	2
23	Sarova Woodlands Hotel	Nakuru	4
24	Ole Ken Hotel	Nakuru	3
25	Hotel Cathay	Nakuru	3
26	Bontana Hotel	Nakuru	3
27	Lake Nakuru Flamingo Lodge	Nakuru	3
28	Eseriani the Hotel	Naivasha	3
29	Lake Naivasha Simba Lodge	Naivasha	3
30	Masada Hotel	Naivasha	3
31	Sarova Lion Game Lodge	Naivasha	3
32	Lake Naivasha Peppercorn Holiday Resort	Naivasha	3
33	Olerai Lodge	Naivasha	3
34	Sawala Lodge	Naivasha	4
35	Jaza Naivasha Resort	Naivasha	3
36	Viewers Park Hotel	Naivasha	3

Source: www.tourismauthority.go.ke

Appendix IV: University Authorization Letter



INSTITUTE OF POST GRADUATE STUDIES

Private Bag - 20157
KABARAK, KENYA
E-mail: directorpostgraduate@kabarak.ac.ke

Tel: 0773265999
Fax: 254-51-343012
www.kabarak.ac.ke

1st August, 2018

Ministry of Higher Education Science and Technology,
National Council for Science, Technology & Innovation,
P.O. Box 30623 – 00100,

Dear Sir/Madam,

RE: RESEARCH BY LAWI KIPNGETICH -GMB/NE/0539/05/15

The above named is a student at Kabarak University taking Masters Degree in Business Administration. He is carrying out research entitled “Effects of Electronic Point of Sale System on Operational Efficiency of Hotels in Nakuru County.”

The information obtained in the course of this research will be used for academic purposes only and will be treated with utmost confidentiality.

Please provide the necessary assistance.

Thank you.

Yours faithfully



Dr. Betty Tikoko
DIRECTOR - (POST GRADUATE STUDIES)

Kabarak University Moral Code

As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart, Jesus as Lord. (1 Peter 3:15)



Kabarak University is ISO 9001:2015 Certified

Appendix V: NACOSTI Authorization Letter



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 3310571, 2219420
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/18/43076/26297**

Date: **29th October, 2018**

Lawi Kipngetch Chirchir
Kabarak University
Private Bag - 20157
KABARAK.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *“Effects of electronic point of sale system on operational efficiency of hotels in Nakuru County”* I am pleased to inform you that you have been authorized to undertake research in **Nakuru County** for the period ending **29th October, 2019**.

You are advised to report to **the County Commissioner and the County Director of Education, Nakuru 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.


BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nakuru County.

The County Director of Education
Nakuru County.

Appendix VI: NACOSTI Permit


THIS IS TO CERTIFY THAT:


MR. LAWI KIPNGETICH CHIRCHIR
of KABARAK UNIVERSITY, 669-20200
KERICHO, has been permitted to conduct
research in Nakuru County

Permit No. : NACOSTI/P/18/43076/26297
Date Of Issue : 29th October, 2018
Fee Received :Ksh 1000

on the topic: EFFECTS OF ELECTRONIC
POINT OF SALE SYSTEM ON
OPERATIONAL EFFICIENCY OF HOTELS
IN NAKURU COUNTY

for the period ending:
29th October, 2019




Director General
National Commission for Science,
Technology & Innovation



Applicant's
Signature

THE SCIENCE, TECHNOLOGY AND
INNOVATION ACT, 2013

The Grant of Research Licenses is guided by the Science,
Technology and Innovation (Research Licensing) Regulations, 2014.

CONDITIONS

1. **The License is valid for the proposed research, location and specified period.**
2. **The License and any rights thereunder are non-transferable.**
3. **The Licensee shall inform the County Governor before commencement of the research.**
4. **Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies.**
5. **The License does not give authority to transfer research materials.**
6. **NACOSTI may monitor and evaluate the licensed research project.**
7. **The Licensee shall submit one hard copy and upload a soft copy of their final report within one year of completion of the research.**
8. **NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice.**


REPUBLIC OF KENYA

NACOSTI
National Commission for Science,
Technology and Innovation

Serial No.A 21463
CONDITIONS: see back page

National Commission for Science, Technology and innovation
P.O. Box 30623 - 00100, Nairobi, Kenya
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