EFFECT OF INFORMATION MANAGEMENT SYSTEMS ON REVENUE COLLECTION AT KENYA WILDLIFE SERVICE

BY

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MASTER OF SCIENCE IN COMMERCE (FINANCE AND INVESTMENT)

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DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

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Sign: ..... Date: .....

I do hereby confirm that I have examined the master's dissertation of

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And have certified that all revisions that the dissertation panel and examiners recommended have been adequately addressed.

Signature..... Date.....

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ABSTRACT

Kenya Wildlife Service adopted a modern information management system with an aim of improving quality of services, reducing costs, increasing efficiency, enhancing revenue collection, among other benefits. However, Kenya wildlife service has not realized the full potential in revenue collection using information management system for the organization as evidenced by revenue losses through pilferage or collusion between employees and tour operators. This therefore brings lack of clarity and indistinct relationship on how exactly adoption of the system has affected KWS revenue collection. This study explored the influence of information management system on revenue collection at Kenya wildlife service. The specific objectives of the study were to establish the effect of customer relationship management system, human resource management system, internal control system and electronic payment system on revenue collection at Kenya wildlife service. This study was anchored on Technology Acceptance Model, Social control Theory and the Systems theory to explain the theoretical link between the variables. Descriptive research design was adopted and the target population was 245 Kenya wildlife service staff members. A sample of 71 was selected using stratified sampling technique and primary data was collected using a structured questionnaire. Data collected was analysed using descriptive statistics and multiple regression analysis with the help of Statistical Package for Social Sciences version 24. The study established that customer relationship management system, internal control system and electronic payment system had a positive and significant effect on revenue collection at Kenya wildlife service. However, human resource management system had no significant effect on revenue collection at Kenya wildlife service. Based on the findings, the study recommends Kenya wildlife service terminal stations using information management systems to improve on customer relationship, electronic payments and internal controls for optimum revenue collection.

Key words: Customer relationship, electronic payment, human resource, internal control, management system.

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DEDICATION

This work is dedicated to my dear wife Jenifer, my children Blessing and William, all lecturers, my supervisor Dr. Michael Njogo, fellow classmates, friends and colleagues. Thank you all for the support, guidance and contribution in the course of conducting my research work.

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ACRONYMS AND ABBREVIATIONS

CRM	Customer Relationship Management
ETS	Electronic Ticketing System
IS	Information System
KWS	Kenya Wildlife Service
KRA	Kenya Revenue Authority
PIN	Person Identification Number (PIN)
POA	Point Of Access Terminal
POIPOS	Point Of Issue Point Of Sale Terminal
RM	Revenue Management
TAM	Technology Acceptance Model (Theory)
TRA	Theory of Reasoned Action (Model)
UTAUT	Unified Theory of Acceptance and Use of Technology
IT	Information Technology
PU	Perceived Usefulness (PU)
PEOU	Perceived Ease of Use (PEOU)
SPSS	Statistical Package for Social Sciences (SPSS)
SBU	Strategic Business Unit
MIS	Management Information System
ERP	Enterprise Resource Planning

TERMS AND DEFINITIONS

Customer relationship management system - a technology-based structure that helps the organization to manage its customer interactions. It incorporates complete set of ICT solutions that supports every stage in the customer's journey and thus is required to efficiently analyze, manage, and optimize your customer interactions (Ullah et al., 2020).

Electronic Payment System - An online financial transaction between a payer and a payee (Kessy, 2019).

Human resource management system - A set of software tools for managing human resources and associated procedures enabling a firm to have a complete understanding of its workers while remaining compliant with changing performance, tax and labor rules (Rasool et al., 2018).

Internal control system - Technological procedures and rules put in place by management to guarantee operational efficiency and maintain the integrity of assets (Chekol & Yemer, 2017).

Revenue Collection - The charges, taxes or fines charged to users or members of the public by a government entity (Thyaka & Kavale, 2020).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Revenue collection is an important component of fiscal administration and policy in any country's economy. Revenue is a fundamental instrument through which wildlife conservation organizations' financing is ensured. The growing fatigue of donors and conservation partners, competing world tourist attractions and dwindling domestic revenues reserves in most of the developing countries are some of the reasons that have necessitated the need for organizations to strengthen revenue collection systems. Devising an efficient means of revenue collection has remained the biggest challenge especially in the developing countries (Japheth, 2015).

One way of strengthening organizations' revenue collection is through the adoption of a comprehensive management information systems, which involves adoption of electronic systems that facilitate the storage, organization and retrieval of information necessary for enabling the organization to effectively and efficiently collect its revenues. It acts as a mechanism for establishing a cashless world by virtual money and automates all processes in revenue collection, enabling organizations to leverage on the technology's full capabilities to transform their revenue collection services (Mose, Njihia & Magutu, 2013). Key management information systems that could improve Kenya wildlife service's capacity to enhance revenue collection include customer relationship management system, internal control system, electronic payment system and human resource management system.

Controlling how information is generated, collected, stored, organized, disseminated, and utilized fosters effective and efficient information access, processing, and usage by individuals and organizations. When the organization has control over the structure, processing, and delivery

of information, management is engaged and most of the various processes, activities and functions are improved (Eroshkin, Kameneva, Kovkov & Sukhorukov, 2017). Information management system (IMS) describes the infrastructure, resources and processes that enable secure, easy and timely retrieval, storing, sharing and processing of information. Organizations are using IMS to be more efficient, effective and innovative (Shin, 2006). Joseph and Wen (2005) argue that, apart from increasing the effectiveness and efficiency of an organization, IMS has the potential to change a business through its ability to effectively leverage resources and drive revenues.

The application of IMS to enhance revenue collection has been found out to contribute to increase in the revenues mainly by ensuring better quality of services, increased efficiency and cutting down on operation costs (Alusdairy & Tang, 2004). The adoption of IMS for improvement in various aspects of the organization such as revenue collection, efficiency and performance is a global concept. In Thailand, Sirirak, Islam and Ba (2011) established that IMS has been adopted by major firms in the hospitality industry to enhance their operational productivity, customer satisfaction and enhanced revenue. In Central and South-Eastern Europe, Mihalic and Buhalis (2013), indicated that most firms have adopted information technology as a competitive advantage builder and indeed it led to increased revenue.

Firms in the USA have also realized the importance of IMS adoption in their operations and hence they have invested in IMS such as internal control systems, customer relationship management systems and electronic payments systems (Li, 2012). Compared to their counterparts in USA, firms in China have also embraced IMS to enhance cost effectiveness and improve financial performance. Firms in China use information technology to process data involving documents in the supply chain systems, banking, payment and management systems.

In Jamaica, adoption of social media marketing saw majority of the firms realize an influx in the number of customers by a tune of up to 5 percent (Bethapudi, 2013).

African firms have equally embraced IMS. In Ghana, Appaw and Agbola (2013) documented that firms in the hotel industry in Ghana have adopted IMS in various services such as customer relationship management, human resource management systems, front office operations and yield management so as to improve their financial performance. In Kenya, Ng'ang'a (2013) argued that most firms have resorted to electronic payment systems and customer relationship management systems to enhance revenue collection.

1.1.1 Information Management Systems

A company's information management system is a mix of physical information technology, software and human resources in charge of processing corporate data. Information technology plays an important role in enhancing efficiencies of the organization and generating competitive advantages. Computer equipment, software, databases, analytical models, procedures and administrative decision-making processes are all used in information systems. Traditionally, information management systems have been developed to assist and improve the efficiency and operational effectiveness of each functional area. IMS are distinguished by the fact that they are made up of smaller systems that may work together or independently. Furthermore, if they are interconnected, they can make up the entire organization's IMS. As a result, an IMS can be defined as a collection of elements dedicated to administering, processing, and disseminating information and data that is organized and ready for use, and that is generated to meet a specific organizational need. The IMS that were incorporated in this study were customer relationship management system, internal control system, electronic payment system and human resource management system.

Customer relationship management (CRM) is an information management system that helps the organization to manage its customer interactions (Rodriguez & Boyer, 2020). It incorporates complete set of information technology solutions that supports every stage in the customer's journey and thus is required to efficiently analyze, manage and optimize your customer interactions (Ullah et al., 2020). CRM acts as a marketing system that uses databases to collect prospect and customer information. The data is transformed into information that is utilized to produce more focused marketing, enhance the overall customer experience and boost revenue. Haislip and Richardson (2017) indicate that effective application of CRM can enhance revenue collection by having stronger customer relationships, referrals and higher conversion rates.

Internal control system is a collection of rules and procedures put in place to ensure that the organization's objectives, goals, and purpose are fulfilled (Ndungu, 2013). They guarantee that each transaction is performed correctly in order to minimize abuse, theft and waste of the organization's resources. Organizations use internal control systems to meet revenue, performance and organizational objectives, provide trustworthy reports, minimize resource loss, and comply with regulations and laws (Chekol & Yemer, 2017). An internal control system is established to guarantee that the enterprise's operations are conducted in a timely and effective way. According to Njagi and Mwangi (2018), this also guarantees that revenue collection targets are met, records are thorough and accurate, assets are protected, and management rules are followed.

Electronic Payment System (EPS) provides an online financial transaction between a payer and a payee (Kessy, 2019). The financial transaction is conducted online through a digital instrument between payers and the receiving authorities, which is supported by banks or EPS

intermediaries such as points of sale and mobile money (Sakanko & David, 2019). Introduction of the EPS has shifted financial operations from a traditional relatively stable environment to an electronic-based operation. Awwad (2021) observes that EPS can improve revenue collection because it enables faster pay-outs, greater efficiency, better tracking, reduced time use, transparent transactions, increased number of clients, cost and time savings, more service for customers and enhancement of the organization's reputation.

Human resource management system is a set of software tools for managing human resources and associated procedures enabling a firm to have a complete understanding of its workers while remaining compliant with changing performance, tax and labor rules (Rasool et al., 2018). Human resource management system (HRMS) enables the organization to optimize employee management and track performance and remuneration of employees efficiently (Changsu Kim, 2015). HRMS provides a single interface to assist with analysis, reporting, and compliance. Hartmann and Lussier (2020) observe that it is where the organization organizes its personnel into organizational units like departments or locations, create manager-employee reporting connections, and enhance revenue collection for the employees with that responsibility in the organization.

1.1.2 Revenue Collection

The processes undertaken by an organization to collect due financial commitments from its clients or the public are referred to as revenue collection. Licensing fees, user fees, taxes, penalties, and the use of state facilities are all possible sources of revenue for a government agency. Typically, each government agency is in charge of collecting any money that it may be entitled to. Permission fees, taxation, cess, licensing fees, and other forms of income are used by agencies such as the Kenya Wildlife Service (KWS). The activities and functions of KWS may

be adversely affected or even stop, projects may go behind schedule, and employees may resort to go-slows and strikes, when the organization does not collect adequate revenues. When agencies like KWS fail to collect required funds in a timely manner, its functions and projects suffer as a result.

Kenya Wildlife Service (KWS) has over the years met its revenue collection targets. However, in the 2020/21 financial year, it only collected 30% of the projected annual revenue of KES 4.62 billion from park fees following a reduction in tourism activities caused by the COVID-19 pandemic. To enable it to attain its revenue collection targets over the years, the organization introduced the information management system which is used to pay park entrance fees for people and vehicles visiting Kenya Wildlife Service (KWS) parks, as well as for facilities such as camping. Travel agent Safari Cards, Resident Safari Cards, Non-Resident Safari Cards, Citizen Safari Cards, Personal Annual Safari Cards, Concession Safari Cards and Vehicle Annual Safari Cards are some of the various types of safari cards available. Deposit slips, EFTs, bank cards and M-pesa are all approved methods of payment. Besides, KWS has also adopted other IMS such as CRM system, HRM system and internal control system.

1.1.3 Kenya wildlife Service (KWS)

The Wildlife Conservation and Management Act CAP 376 No 16 of 1989 established the Kenya Wildlife Service (KWS) with the overall mandate of conserving and managing wildlife in Kenya for posterity. National Parks fall under KWS's exclusive control. KWS is in charge of licensing, controlling and regulating both habitat protection and management practices within and without the protected areas. Kenya wildlife service directly manages 22 national parks, 125 stations, 28

national reserves and 5 sanctuaries scattered throughout Kenya (wildlife conservation & management act, 2013).

In conjunction with stakeholders, KWS works to conserve and manage wildlife resources throughout all protected area systems. Its mission is to collaborate with others to preserve, protect, and manage wildlife resources in a sustainable manner. KWS's community wildlife initiative, in conjunction with others, promotes biodiversity conservation among people living on wildlife-critical land, such as wildlife corridors and dispersion grounds outside of parks and reserves. To effectively perform its objectives and attain its mission, KWS requires adequate revenues. It has devised various programs to enable it to collect revenues from all parts of the country. Kenya is split into eight protected regions due to its diverse habitats. KWS has been keen on its revenue collection strategies and has employed different methods and adopted various forms of information management system to minimize revenue leakages. This study seeks to assess the effect of information management system on revenue collection at Kenya wildlife service.

1.2 Statement of the Problem

Adoption of information management systems in businesses is aimed at enhancing revenue generation, reducing costs of operation, increasing effectiveness and reducing insecurity among other benefits (Achieng' & Makori, 2017). Jediel (2016) noted that customer relationship management system can enhance customer interaction and satisfaction, thus improving sales while Lule *et al.* (2012) argued that adoption of electronic payment system enhances security, speed and abridged charges in payments. Human resource management system and internal control systems can be adopted to improve employee management and performance and reduce revenue leakages and wastage of resources. Kenya wildlife service has adopted various

information management systems with an aim of improving the quality of services, reducing costs, increasing efficiency, enhancing revenue generation, among other benefits (Schandorf, 2012).

Despite the adoption of the information management systems, Kenya wildlife service continues to experience mixed revenue collection trends. The organization only management to collect 64% of its budgeted revenues in the 2019 financial year (KWS, 2020), thus indicating a performance gap of 36% to demonstrate that it is unable to meets it revenue collection target by a significant margin. Additionally, the increase in return customers was only 2.8% (KWS, 2020) meaning that there still exist challenges with attracting more customers due to low visitor experience. Some previous studies have shown that adoption of information management systems does not necessarily improve revenue collection.

Mutisya (2014) documented that even though adoption of information management systems improves firm performance, it is up to a certain extent. The study however, left some conceptual gaps as it did not include internal control system and electronic payment system, which were incorporated in the current study. Further, the study by Jediel (2016) assessed the effect of information management systems on business performance in the informal sector in Kenya. The study had methodological gaps as it only used descriptive statistics to analyze the data whereas this study used regression analysis to test the hypothesis. Moreover, the study by Okwanyo (2019) established that electronic payment mechanisms enhance revenue performance. The study however, had some contextual gaps as it was conducted in Kisumu County Government while the current study was on KWS. This study sought to fill these gaps by establishing the effect of information management systems on revenue collection at Kenya wildlife service.

1.3 Research Objectives

1.3.1 General Objective

To determine the effect of information management systems on revenue collection at Kenya Wildlife Service.

1.3.1 Specific Objectives

i) To establish the effect of customer relationship management system on revenue collection at Kenya Wildlife Service.

ii) To determine the effect of internal control system on revenue collection at Kenya Wildlife Service.

iii) To assess the effect of electronic payment system on revenue collection at Kenya Wildlife Service.

iv) To determine the effect of human resource management system on revenue collection at Kenya Wildlife Service.

1.4 Research Hypotheses

$H_0$1: *Customer relationship management system has no significant effect on revenue collection at Kenya Wildlife Service.*

$H_0$2: *Internal control system does not have a significant effect on revenue collection at Kenya Wildlife Service*

$H_0$3: *Electronic payment system does not have a significant effect on revenue collection at Kenya Wildlife Service*

$H_0$4: *Human resource management system does not affect the Kenya Wildlife Service's revenue collection significantly.*

1.5 Significance of the Study

Policy recommendations from this study are beneficial to a wide range of stakeholders such as government policy makers, management of Kenya Wildlife Service and other organizations. Management of Kenya Wildlife Service will assess whether the adoption of information management system has any significant impact on the amount of revenue collected. Besides, the study will also ascertain whether the adopted information management systems has any significant effect on reduction of revenue pilferage and whether it is economically viable to expand the already adopted information management systems.

The study is of great importance to the government policy makers since it can be used as a basis for adopting information management systems in the Kenyan public sector. This study raises awareness about the feasibility of information management systems and act as a foundation for potential adoption of such systems by other parastatals with less technical resources and policy formulation. Future researchers will benefit from the research gaps identified by this study. They can explore further on the topic beyond a study of Kenya Wildlife Service to other wider contexts. The study was anchored on proven empirical theoretical foundations and this helps to link adoption of information management systems to revenue collection in organizations.

1.6 Scope of the study

In order to achieve the desired result and to keep track of what is going on, attention was focused on information management systems that have been adopted by Kenya Wildlife Service. These included electronic payment system, human resource management system, internal control system and customer relationship management system. The study used secondary and primary

data collected from Kenya Wildlife Service and other relevant sources such as journal articles. The study was conducted at selected Kenya Wildlife Service parks in Kenya.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter has discussed the relevant literature on evaluating the effect of implementing information management systems at Kenya Wildlife Service in terms of; human resource management system, internal control system, electronic payment system and customer relationship management system, and their effect on revenue collection. The chapter presents the theoretical review, empirical review and the conceptual framework of the study.

2.2 Theoretical Review

This section presents a review of the theoretical foundations to the study. To interrogate the concepts of information technology and its performance effects, the study adopted the Technology Acceptance Model (TAM), Social control Theory and the Systems theory as presented and explained in the following subsections.

2.2.1 Technology Acceptance Model (TAM)

Davis (1986) proposed the Technology Acceptance Model (TAM), which forecasts the acceptability of an information system. According to TAM, the acceptance of an information system is influenced by two aspects. That is, perceived utility (PU) and perceived ease of use (PEU). According to Fishbein and Azjen (1975), this framework is founded on basic social science theory and the Theory of Reasoned Action (TRA) in particular. The framework stipulates those beliefs influence behaviors, which in turn influence intentions. TRA proposes that an individual's belief influences their attitude, which forms behavioral intents (Fishbein & Azjen, 1975). Supporters of the Technology Adoption Model (TAM) contend that perceived utility (PU)

and perceived ease of use (PEOU) shape an end user's belief about a technology, predicting his or her attitude to the technology, and hence its acceptance (Davis,1989).

When emerging technology is encountered or provided to end users, the perceived usefulness of the technology and the resulting perceived ease of use decide whether the technology or information system is accepted or rejected (Davis, 1989). Perceived usefulness (PU) is characterized as the degree to which a person assumes that something is useful and that using a particular system will improve his or her work results, morale, efficacy, and efficiency, as well as make the job simpler (Davis, 1989). In the context of this study, this theory was applied to explain the expected influence of customer relationship management system and electronic payment system with revenue collection at Kenya Wildlife Service. Some of the expected or perceived usefulness of adopting customer relationship management and electronic payments systems are easy transaction of payments, accuracy and reduced errors, time saving, improvement of customer interaction and retention and convenience which in turn improves revenue. The presumed ease of use (PEOU), on the other hand, is the degree to which an individual believes that using a specific method was simple, easy to read, straightforward and understandable, simple to use, and versatile.

However, the relation between PEOU and technology adoption is uncertain, and it may be moderated by third variables such as gender, history, experience, and self-efficacy (Davis, 1989). Although women expect email PEOU to be higher than men’s, Gefen and Straub (1997) discovered that women's email usage is significantly smaller than men. The theory has been applied across different contexts in explaining the adoption of technology. Zain *et al.* (2005) for instance adopted TAM to determine the relationship between information technology acceptance and organizational dexterity in Malaysia; Lee and Park (2008) adopted it to analyze the Mobile

technology usage and its effect while Ahearne, Srinivasan and Weinstein (2004) adopted it to establish technology adoption effect on sales. Additionally, Sugiharto, Suhendra and Hermana (2016) used it to model IT adoption among small food processing firms in Indonesia while Kansakar, Munir and Shabani (2019) used the theory to investigate the challenges and advantages of technology adoption in the hospitality industry in Tunisia.

The TAM will be applied to link electronic payment system with revenue collection. It is expected that KWS would roll out the electronic payment system to experience benefits that emanate from the electronic process of getting revenues. Locally, Makworo, Muhoho and Mugambi (2019) adopted the theory to establish the effect of E-Banking Strategy on SMEs in the Hospitality Industry in Nairobi County. Njeri (2017) adopted TAM in her study on the adoption of e-marketing in the hospitality industry in Kenya while Kiriro (2015) used TAM to test the impact of IT on organizational performance. In this study, TAM theory was adopted to help explain the perceived usefulness and ease of using customer relationship management system and electronic payment system by KWS. Technology acceptance model is important to this study since electronic payment system is an information system and therefore, its success or otherwise during implementation can be predicted depending on its acceptability both within the organization by the staff and outside the organization by the customers. The acceptability of the electronic payment system as a revenue collection system can be argued to depend on its perceived utility and the perceived ease of use of the technology by the customers and the end users.

2.2.2 Social Control Theory

Hirschi (1969) was the first to suggest the social control theory which states that individuals must be regulated by regulations, laws, and rules, in order to control the society. As a result,

people with a poor bond to social controls are more likely to indulge in deviant or criminal conduct (Prat et al, 2011). Further, Bartol and Bartol (2011) posits that, delinquency and crime occur when the links of a person to the normative standards and conventional order are non-existent or weak. Hirschi (1969) argued that there exist two systems of control; inner controls and outer controls that work against the individual's tendency to satisfy self-interest. According to Hirschi, there are four forms of bonds that people form that decide whether or not they can engage in illegal activity (Prat et al, 2011).

Prat et al (2011) classify the four bonds as attachment (the extent of psychological affection an individual has for pro-social institutions and others), commitment (the value of the social associations that individuals find important, which they are not willing jeopardize by committing deviant or criminal acts), involvement (the opportunity costs that emanate from how individuals use their time) and belief (the extent that an individual observes the values connected with lawful behaviors) (Prat et al, 2011). According to the social control hypothesis, individuals should not have knowledge at birth, but rather grow it over time as a result of their experiences with people and positions in their lives. Japheth (2015) argues that human beings are selfish beings who make decisions based on which choice will give the greatest benefit, and opines that the reason most people go to work is because they get paid and the pay satisfies their basic needs, but naturally people don't like to work. A control system is therefore geared towards eliminating self-interest and promoting the orientation towards the achievement of a certain goal.

A major tenet of the social control is enforcement of rules and standards. However, this study linked the control of various activities in a park, such as payment, movement and internal activities through technology, in this case, information management system. Such control activities are distinct from other aspects of social control such as processes of sanctioning and

adjudication, and the creation of norms, or the wide-ranging societal integration and guidance that concerned early theorists of urbanization and industrialization (Japheth, 2015).

In the modern world, this theory is evolving to look at how technology can be used to control human behaviour, interactions and activities through processes of specialization, professionalization and rationalization taking place with renewal with an aim of pursuing efficiency and effectiveness. Thankfully, developments in materials science, artificial intelligence, architecture, computerization, electronics, biochemistry, cognitive science and numerous other areas promise new control possibilities (Marx, 2007). The use of information systems to control activities in a park at KWS is one possible solution in ensuring pursuit of efficiency and effectiveness as argued by Marx (2007).

In this study, the theory was applied to link adoption of CRM system and HRM system to revenue collection. The theory was applied in a study by Ewa and Udoayang (2012) which explored the effect of internal control systems on banks' ability to stop staff fraud in Nigeria. Prior to the introduction of the CRM and HRM systems, KWS used manual and silo methods to manage employees and customers. It is therefore critical to review how CRM and HRM systems have impacted on the performance and revenue collection at KWS. This study shall therefore apply the social control theory in determining whether the HRM and CRM systems that have been instituted by KWS have been able to achieve the desired results and in particular whether it has resulted in decrease in revenue pilferage and increase in the revenue collected. According to the social control theory, if the systems are sufficient, then the cases of revenue pilferage are expected to decrease and thus increasing revenue collection. Therefore, having effective customer relationship management and human resource management systems will ensure customer queries are effectively addressed which enhances customer satisfaction for improved

future revenues. Besides, effective human resource management system ensured that adequate human resources are deployed for revenue collection hence enhancing collected revenues at KWS.

2.2.3 Systems Theory

Systems theory was proposed by Bertalanffy (1969) and it states that any organization or activity is a collection of interconnected and linked pieces that might be human-made or natural. Every system is defined by its purpose and structure, impacted by its surroundings, restricted by time and space, and communicated by its functioning, according to the theory. Because of synergy, the system should be greater than the sum of its parts (Rodriguez et al., 2018). As each component is connected to the others, systems theory may be used to the design and implementation of internal control systems. Systems theory was relevant in this study because it advocates for the connection and integration of all of the components, activities, and processes inside the internal control system to achieve the desired corporate goals (Susskind & Rumore, 2015).

While implementing the internal controls, attention should be given to the many components, players, and stakeholders, as well as their input, in order to create and execute effective interventions in cases when actual organizational performance falls short of expectations. Furthermore, effective interventions may be devised and executed in a timely manner to rectify any substantial deviation found. Organizational success is influenced by the interaction and interdependence between the subsystems, interaction between internal components, synergy between the sub-systems and external components. According to the systems approach actions and decisions in one are or functional unit of the organization affects other functional units or areas (Gooding et al., 2018).

In this research, systems theory was used to relate internal control system to revenue collection. Management should create and implement numerous internal controls to guarantee the efficacy and efficiency of revenue collection operations and systems, allowing Kenya Wildlife Service to achieve its purpose and goals and hence achieve its revenue collection targets. This would guarantee that organizational activities are carried out as planned, allowing them to contribute to the organization's overall revenue collection success. Furthermore, internal controls limit the risks that the company confronts and so guarantees that the business's resources are used effectively to meet its revenue collection goals.

2.3 Empirical Review

This section discusses the literature that is relevant to the study objectives. To ensure relevance to the research study, empirical literature review was based on the four specific objectives of the study presented below.

2.3.1 Electronic Payment System and Revenue Collection

Okiro (2015) study was on the influence of e-payment system adopted by Nairobi County Government on revenue collection by the county. A descriptive research design was adopted by the study and the population targeted was eighteen Nairobi County Government departments. Secondary sources were used to gather the data that was required in the study which was later analyzed using inferential and descriptive statistics. The study found out that revenue collection increased substantially after the introduction of the e-payment system. There is a significant positive relationship between e-payment and revenue collection at the Nairobi County Government.

Okwanyo (2019) studied how revenue collection in Kisumu County Government he influence of electronic payment on. The study's specific objectives were to establish the effect of

online payment and mobile phone payment on revenue collection in Kisumu County Government. The technology acceptance theory anchored the study and descriptive research design was applied. Stratified sampling technique was used to select the sample from a target population of 140 respondents taken from 7 sub-Counties. Structured questionnaires were applied to gather primary data while audited financial records provided the secondary data. The study found that revenue collection in Kisumu County Government had a significant positive relationship with electronic payment. Thus, electronic payment mechanisms significantly influence revenue collection in Kisumu County Government.

Qteishat, Alshibly and Al-ma'aitah (2014) study aimed at establishing the effect of e-ticketing system on customer satisfaction through a meta-analysis. The study was a meta-analysis of previous works on the themes and it established that e-ticketing practices such as data security, customer support, user-friendliness and technical support lead to enhanced customer satisfaction and revenue collection. Kristantyo and Putranto (2020) interrogated the factors that make people adopt e-ticketing and its influence on organizational performance. Through primary data and Partial Least Square (PLS) analysis method, it was established that some of the critical factors are facilitation, effort expectancy, performance expectancy and social influence which determine the adoption of e-ticketing. Its adoption was associated with improved revenue collection, customer satisfaction and efficiency.

Marfo and Quansah (2020) on a study in the bus transport sector in Ghana explored the factors that influenced uptake of e-ticketing system and how it influenced performance. The study adopted quantitative approaches. Adopting TAM model, the study established that subjective norms, perceived ease of use, and usefulness were the determining factors in adoption e-ticketing which was established to improve performance significantly. Ahmed and Amin

(2019) investigated whether e-ticketing, enhanced customer satisfaction among train users in Pakistan. The study was a meta-analysis of the previous empirical reviews. The study established a strong correlation between e-ticketing and customer satisfaction. Further, it was established that convenience, security and user-friendliness have a significant impact on customer satisfaction whereas the privacy has no significant impact on customer satisfaction.

2.3.2 Customer Relationship Management System and Revenue Collection

Customer Relationship Management (CRM) involves the acquisition and use of customer knowledge and the use of this information across every business area that touches the customer. Improving customer relationship management is the philosophy of improving customer centricity on one or more fronts, such as: increasing revenue or sales, enhancing customer service, increasing customer privacy, improving efficiency, reducing costs, strengthening customer loyalty, gaining market share, improving profits and shareholder value (Cheruyot et al., 2014).

Cheruiyot et al. (2014) study looked at the Kenya Wildlife Service's information management system in terms of income risk control and financial results. The target population consisted of 1,286 respondents working in national parks where park entrance fees collected using the information management system. A total of 296 employees were chosen to represent the target population. Structured questionnaire was used to gather data which was then analyzed through descriptive statistics. According to the report, the introduction of information management system has strengthened consumer relations by electronically recognizing consumers and automatically reviewing tariffs, meaning that there are no tariff conflicts.

To popularize the information management system, the study suggests that Kenya Wildlife Service should boost employee awareness of income leakage and its effect on financial results. It also suggests that workers and conservation clients be encouraged to participate in the

improvement of the information management system. Kenya Wildlife Service should perform participatory revenue collection risk assessments and design an efficient electronic framework that can monitor and reduce revenue collection leakages. Finally, the report suggested that Kenya Wildlife Service should re-evaluate the information management system in order to match it with the organization's improved liquidity and correct asset usage (Cheruyot et al., 2014).

Zeynab, Bartool, Farnaz and Nima (2018) studied how organizational performance was influenced by customer relationship management. The study's main aim was to find out how customer orientation, technology, customer knowledge management and organizational capacity play a role in customer relationship management. The target population was 155 respondents from the East Azerbaijan Tax Administration in Iran where primary data was gathered using a structured questionnaire. Findings from the study established that organizational capability, customer orientation, information technology and customer knowledge management are positively associated with customer relationship management. The overall effectiveness of customer relationship management appears to be a determinant of organizational efficiency.

Soliman (2011) study was on marketing performance and its association with customer relationship management from the viewpoints of several Egyptian financial institutions. The study's target population was 197 financial institutions in the Arab Republic of Egypt. Structured questionnaire was applied to gather data which was then analyzed using multiple regression analysis and descriptive statistics. For each component and using SPSS, descriptive statistics including coefficients of variations, standard deviation, and means were computed. Spearman rank correlation, factor analysis, and multiple linear regression analysis were applied to perform analytical statistics. The findings from the study by Soliman (2011) determined that customer relationship management has a strong relationship with marketing success. Caring for key

customers, improved organizational efficiency and successful customer knowledge management lead to improved marketing performance.

The study by Coltman, Devinney and Midgley (2011) investigated the influence of customer relationship management on firm performance in Australia. The study's target population was 50 Australian companies from diverse industries that showed a strong commitment to CRM by having database marketing managers, a high percentage of senior CRM appointments and loyalty schemes. Marketing or sales directors, chief information officers, chief financial officers, or management executives at the general manager level in a strategic business unit were the main informants (SBU). In the study, 97 executives were chosen at random as a representative sample of the target population, and 86 of them correctly completed the survey questionnaire.

To analyze their results, Coltman et al (2011) took a two-step approach. This was achieved by estimating the structural equation model and performing hypothesis testing. Key informant bias, non-responsive bias, common method bias, convergent and discriminant validity tests were all done. SMART-PLS program was used to evaluate the conceptual model and its related hypotheses using partial least squares (PLS). According to the findings, the contribution of computer-aided (IT) strategy to a customer relationship management (CRM) program is best calculated as an improvement in the reliability of formulating accurate customer information and providing specific strategies that lead to higher-order combinations of IT, human, and business capabilities that contribute significantly to firm success. According to the findings, an ideal CRM approach should concentrate on both sales growth and cost reduction. The researchers proposed that longitudinal studies be used to corroborate cross-sectional findings and analyze the results of the CRM program before and after it was introduced.

2.3.3 Human Resource Management System and Revenue Collection

Ngeno (2018) study was on the relationship between computerized enterprise resources planning strategy and revenue collection in Kericho County Government. A descriptive research design was applied in the study and the support and senior staff in the county government formed the study population. A structured questionnaire was applied to gather the data required for the study purposes which was then analyzed using descriptive statistics and multiple regression analysis. The study findings from the study indicated that there was a significant linear association between revenue collection in Kericho County Government and human resource management by the county. Human resource management increased revenue collection through recruiting and selecting skilled staff and motivating the workforce through effective rewarding, performance measurement and training programs and thus enhanced revenue collection process and performance measurement programs.

Putting a lot of money into education and training has long been touted as the key to getting good results (Delaney & Huseld, 1996). Capacity building within an organization's employees has been shown to increase employee productivity, which in turn improves organizational efficiency. Majority of studies tend to suggest that worker ability has a positive effect on a company's success (Mutsotso & Wanyama, 2010).

Wanyama and Mutsotso (2010) studied the impact of capacity building on employee productivity. The main goal was to look into the relationship between capacity building and employee productivity in Kenyan commercial banks. Commercial banks in Kakamega were the subject of the report. At the time of the survey, a census study was carried out in all banks in the district. The study specifically targeted main informants such as human resource managers, bank managers and supervisors who were familiar with bank operations. Structured questionnaires

were used to collect primary data and the data was analyzed using both descriptive and inferential statistics. Descriptive statistics included employing the use of frequency tables, pie charts, bar graphs, mean, mode, standard deviations and variance. Inferential statistics used Pearson's correlation coefficient to figure out how variables were related. The interactive effect of the independent variables on the dependent variable was demonstrated using simple regression analysis and the values of the coefficients and regression analysis were obtained using Statistical Software for Social Sciences (SPSS).

Wanyama and Mutsotso (2010) study found out that there is a strong perfect linear connection between employee productivity and capacity building. They came to the conclusion that in order for companies to achieve high productivity, they must consider the needs of customers and employees, such as satisfaction, morale, product quality, and staff competence. Organizations with high-capacity building registered high employee productivity. According to the findings, companies should coordinate and execute training programs through human resource departments that are aligned with the company's goals and complement employees' abilities and skills in order to improve organizational performance.

Cheruyot et al. (2014) study sought to assess the financial effect of the Safari Card's transactional risks on the performance of KWS. According to the report, information management framework helped KWS improve its liquidity as a financial performance metric. The study's second goal was to see how Safari Card cash handling risk affected KWS's financial results. Although the implementation of Safari Card's cash handling system improved KWS liquidity and created confidence among creditors, it did not improve efficiency. The study' third goal was to determine the financial impact of the information management system's relationship management of customers who were brought to KWS. The introduction of Safari Card

Customers Ties' risk management scheme had no positive impact on working capital and asset usage.

Falola, Osibanjo, and Ojo (2014) investigated the efficacy of training and growth in the Nigerian banking industry in terms of employee success and organizational competitiveness. The study's main goal was to investigate the impact of training and growth on employee efficiency and competitive advantage in the Nigerian banking industry. The target population was all the banks in Lagos State, South-West Nigeria, since it is where the majority of the banks' headquarters are located. A total of 223 questionnaires were randomly selected from the target population and evaluated with descriptive statistics. The study found out that employees' performance and organizational efficiency are affected by training and development.

They also discovered that cognitive training methods have a profound impact on employees' optimum performance and creativity. For any organization to succeed, its management must see training as a means to an end. They concluded that training is necessary for any organization to survive and adopt to changing business environments. Employers should create a training environment by enacting favorable training policies that enable every employee to participate in training and management should understand and act on its employees' training needs (Falola, Osibanjo & Ojo, 2014).

Wassem et al. (2019) investigated the impact of employee capacity and managerial support on efficiency. The main goal of the study was to establish how capacity building and motivation affected employee performance in the Pakistan's textile industry. Employee retention was also investigated as a moderator of the effects of capacity building and motivation on employee performance in this study. The research focused on top-level management employees in Pakistan's textile industry who were performing their duties. The target population was 200

workers in Pakistan's textile industry. The data was collected using a structured questionnaire and analysed using descriptive statistics and casual modeling methods to assess and interpret the primary data collected during the research. Descriptive statistics was carried out with SPSS software while the casual modeling was carried out with SMART-PLS.

Wassem et al. (2019) study found out that employee output is significantly impacted by capacity building. Employee retention is a source of improved confidence and commitment among employees who aspire to acquire competent expertise and develop a successful culture. Employee retention in Pakistan's textile industry was found to have a significant impact on the relationship between manager assistance and employee productivity. They said that retained workers are more experienced and capable of handling any situation that arises in the workplace and thus have a positive overall impact on employee efficiency, which in turn generates opportunities for organizational growth. According to the research, companies should coordinate employee training with the help of their HR departments. Employees in developing countries should emphasize capacity building through training programs to continuously enhance employee understanding, abilities and skills.

2.3.4 Internal Control System and Revenue Collection

Mwachiro (2013) conducted research at the Kenya Revenue Authority to determine the effect of internal control system on revenue collection. The study's aim was to look into the internal controls implemented by KRA and their effect on revenue collection. Since they were directly or indirectly involved in decision making and controls, KRA staff, mainly top and middle level managers, were the researcher's target audience. Primary data was collected using structured questionnaires and interviews. The researcher used a purposeful sampling technique to ensure

that only individuals with relevant expertise were sampled when selecting interviewees with the option of replacing those who did not wish to respond.

Mwachiro (2013) study data was analyzed using both statistical and narrative techniques. The effects of internal controls and revenue collection were assessed using correlation analysis, while the qualitative results of the survey were explained using narrative analysis, and the findings were summarized in tables and statements. According to the findings, the level of internal controls and the amount of revenue collected by KRA have a significant relationship. In addition, the study discovered that the organization has put in place effective internal control systems to aid in collection and fraud prevention. The Simba device has been purchased by KRA for use by the Customs Service and ITMS in the collection of domestic taxes. These systems are controlled from a central location, and passwords are assigned based on the requirements. These systems are monitored and reviewed on a regular basis in order to correct errors and malpractices.

According to Mwachiro (2013) study, division of roles and responsibilities within KRA has enabled senior executives to supervise more effectively. Individuals that are involved in tax assessment, for example, are not expected to collect the tax; instead, this responsibility is assigned to another responsible officer. Various employees are in charge of payment and licenses, as well as actual payment for accountability purposes. It was also discovered that internal controls have not been reviewed in three years, and that not only one department, but every senior manager is responsible for controlling them. It was difficult to take responsibility for any acts or inactions as a result of the failure of any program. The relationship between fraudulent operations and revenue collection efficiency was not determined in the report. Future research should link KRA to the level of conformity, according to the report, in order to figure

out how the two are related. The process of system monitoring and its effects on revenue performance was not well illustrated.

Caroline (2014) investigated the impact of internal controls on manufacturing firms' financial performance in Kenya. The study's aim was to uncover the connection between internal control systems and financial performance in Kenyan manufacturing firms. The study targeted 65 manufacturing companies in Kenya, and a stratified sampling technique was used to select a sample of 20 respondents from the target population. Primary data was obtained using structured questionnaires, while secondary data was gathered from financial statements based on data availability and accessibility. Data was analysed using correlation analysis and multiple regression analysis with the help of statistical package for the social sciences (SPSS) program.

Caroline (2014) discovered that a reporting environment was one of the organizations' internal control functions that had a direct impact on the company's financial performance in the majority of manufacturing businesses. The statistical findings of the study showed a positive relationship between internal controls and the financial performance of manufacturing firms in Kenya. Furthermore, majority of Kenya's large-scale manufacturing firms have invested in new technologies, such as information communication technology, to reduce transaction fraud, according to the report. The study's findings suggested that internal and external auditors should update international financial reporting standards on a regular basis to improve their expertise, and that the Kenya Association of Manufacturers should monitor and supervise companies to ensure that regulations are followed. The study also recommended that organizations develop a mechanism for incorporating relevant feedback from various stakeholders into their internal control systems and transparently communicate the structure and performance of their

governance, risk management, and internal control systems to internal and external stakeholders in their various reports.

In order to investigate and attempt to establish a connection between internal control systems and financial performance in professional training institutions in Kenya, Mugo (2013) studied the impact of internal controls on financial performance of technical training institutions in Kenya. The controls were examined from the perspectives of the control environment, internal audit, and control activities, with financial results focusing on liquidity and transparency. This study specifically targeted respondents who were either financial managers, heads of departments, members of the management committee, or finance and accounting personnel from professional training institutions in Kenya.

Mugo (2013) used both primary and secondary data to perform the study. Primary data was collected using semi-structured questionnaires, while secondary data was obtained by reviewing the records and documents available. The study used a stratified sampling technique to choose one employee from each of the 37 institutions selected to represent the population, a sample of 37 technical training institutions out of a total of 49. Multiple regression analysis and correlation analysis were used to analyze the data with the aid of SPSS. The findings of Mugo (2013) study revealed that the internal control system and financial performance are inextricably linked. The study recommended competency profiling, which could be based on what Kenyan organizations want to do with internal auditing and what would be expected of the required number of employees. It was also suggested that Kenya's professional training institutions should establish and maintain a knowledge/information management framework within the institutions to allow all parties within the institution free access to and use of information.

Onyango (2014) investigated the impact of internal controls on the efficiency of Kenyan county governments. The study's main goal was to investigate the impact of internal controls on county governments' performance in Kenya by establishing a connection between internal audit, reporting, activity tracking, information communication and risk assessment on County Governments' performance. The study's target population was Kenya's 47 County Governments, with the finance department employees being specifically targeted as the respondents. Primary data was used in the study, and it was collected using a structured questionnaires with closed and open-ended questions, while secondary data was gathered from County Governments' documents and publications. The data collected was coded and analyzed using correlation analysis and multiple regression analysis techniques with the aid of SPSS to determine the relationship between county government outcomes and the independent variables. The findings of the study revealed that there is a significant positive relationship between internal controls and the performance of County Governments in Kenya (Onyango, 2014).

2.3.5 Information Management System and Revenue Collection

Ahmad and Alnajjar (2009) studied the effect of management information systems on organizational performance in Jordanian universities. The study's aim was to look at the impact of management information systems (MIS) on organizational success at Jordanian universities from an academic standpoint. The target population were the deans and departmental heads of all business faculties in Jordanian universities since they serve in both academic and managerial roles and are closely linked to management information systems of the Universities. A total of 21 universities were chosen at random, and 120 questionnaires were distributed, with an 84 percent response rate. Secondary data was gathered from published articles, journals, books and previous studies.

The study used the Statistical Program for Social Sciences to analyze the data collected (SPSS). The variables were described using descriptive analysis methods such as frequencies, percentages, means, standard deviation, and variance coefficient, while the study's hypotheses were evaluated using spearman's correlation and simple regression analysis. The most significant factor that encouraged the use of information management systems, according to the report, was the organizational structure and cultural environment. On the other hand, providing an organizational structure that facilitates the exchange of knowledge and information, as well as procedures and regulations that make the operation of management information systems simpler, is less important. The commitment of businesses to training and qualifying employees to use management information systems was the most important factor for individuals. According to the results, there is a substantial statistical correlation between management information system variables and organizational performance (Ahmad & Alnajjar, 2009).

Suhaimi, Nawawi, and Salin (2016) conducted research on the impact of enterprise resource planning on the management control system and the position of accountants. The study's ultimate goal was to assess the feasibility of implementing an enterprise resource planning (ERP) framework in the management control system and to identify changes in accountants' roles in ERP system implementation. The study focused on two Malaysian companies, one engaged in construction and the other in property growth. This was a case study approach that took advantage of a wealth of expertise and experience by focusing the research effort and money on only a few topics. Participants were observed, records were analyzed, and interviews with key employees of the organizations using the programs were used to gather data for the study.

Suhaimi, Nawawi, and Salin (2016) study employed the triangulation method, which entails using several sources of evidence to cross-check the test results, thus improving the research's reliability and validity. Semi-structured interviews with the group financial controller, all companies' accountants, and an IT executive were conducted and analyzed in the form of contracts with vendors, brochures, and annual reports. The researchers used data generation and data reduction methodologies to evaluate knowledge relevant to companies that have implemented enterprise resource program (ERP) system. ERP is a fantastic control system of management tool, according to Suhaimi, Nawawi, and Salin (2016). Though ERP had a clear impact on formal control, this study found no significant differences in control over the ERP framework's implementation when it came to informal control mechanisms. According to the researchers, this is due to the fact that juniors are usually respectful to their seniors.

The impact of organizational structure on Nigeria's selected technical and service firms' organizational efficiency was investigated by Ogbo, Chibueze, Christopher, and Anthony (2015). The aim of their study was to see if decentralization improved the quality of decision-making within a company, as well as employee productivity. The study surveyed Innoson Nigeria Ltd, Etisalat and Enugu Regional Office. The survey technique was used to collect both primary and secondary data for the study. By the use of specially crafted questionnaires, primary data was collected from a total of 80 respondents. The data was then analyzed using simple percentage, chi-square and correlation analysis to test the hypotheses.

The study found out that decentralization improved decision-making in Nigeria's technological and service companies, job routine affected employee productivity and there was a significant positive relationship between narrow span of organizational control and efficiency. The study recommended that managers of technical and service companies should use more

decentralized types of frameworks to improve decision-making and that lower-level managers should be allowed to participate in the decision-making process to encourage goal congruence and prevent sub-optimization in organizations (Ogbo, Chibueze, Christopher & Anthony, 2015).

Otieno, Obura, Aila, Ojera, and Siringi (2013) conducted a study in Homabay County, Kenya, to examine the effect of information systems on revenue collection. The specific objectives of the study were to determine the relationship between internal control systems and revenue collection in Kenyan local governments, determine the level of quality service offered by local governments to customers and to determine whether information systems contribute to revenue collection efficiency and effectiveness. Systematic cross-section survey was used to collect data from 2,007 individuals, of whom 165 were employees of the Local Authorities and 1,842 were traders in the Homa Bay County. According to the survey, there is a strong positive relationship between internal control systems and revenue collection. However, it was noted that the resistance to change has stymied the full implementation of information systems.

According to Otieno, Obura, Aila, Ojera, and Siringi (2013), local governments should invest heavily in ICT. This is due to the fact that computerized information systems have a positive impact on revenue collection. As a result of timely revenue collection, computerization of council operations such as revenue collection improves efficiency, improves management reputation, and provides consistent records, among other things. Internal control mechanisms are improved by information systems, resulting in increased effectiveness and productivity for the Council. The study suggested the following areas for further research: workers' attitudes toward ICT adoption in Kenyan local governments and whether they completely embrace the use of ICT, the degree of computerization of revenue collection exercises and their cost-effectiveness, and the impact of internal control systems (ICS) on revenue collection by local governments.

2.4 Knowledge gap

Studies have interrogated the link between information management systems, for instance Eps and human resource management system and revenue collection from wider contextual perspectives. As a result, most of the existing studies have presented contextual and conceptual research gaps. Studies which have been conducted in other economies outside Kenya, have presented vital theoretical contribution to the topic but limits generalization of their findings to an emerging economy like Kenya. Studies for instance Qteishat, Alshibly and Al-ma'aitah (2014), Kristantyo and Putranto (2020), Marfo and Quansah (2020) as well as Ahmed and Amin (2019) have played an important role of contributing to the study theme. However, differences in contextual settings, for instance differences in the technological advances and acceptance between the countries makes it difficult to generalize their findings to Kenya, hence a need to fill this research gap.

Additionally, some of the previous studies assumed a direct relationship between information management system and revenue collection with little recognition of the importance of the joint influence of the various information management systems. Therefore, this study not only interrogated the importance of information management systems on revenue collection, but also sought to find out the joint effect of HRM system, internal control systems, EPS and CRM system on revenue collection at Kenya Wildlife Service. This was to ensure that the conceptual gaps in the previous studies assuming a direct relationship are filled.

2.5 Conceptual Framework

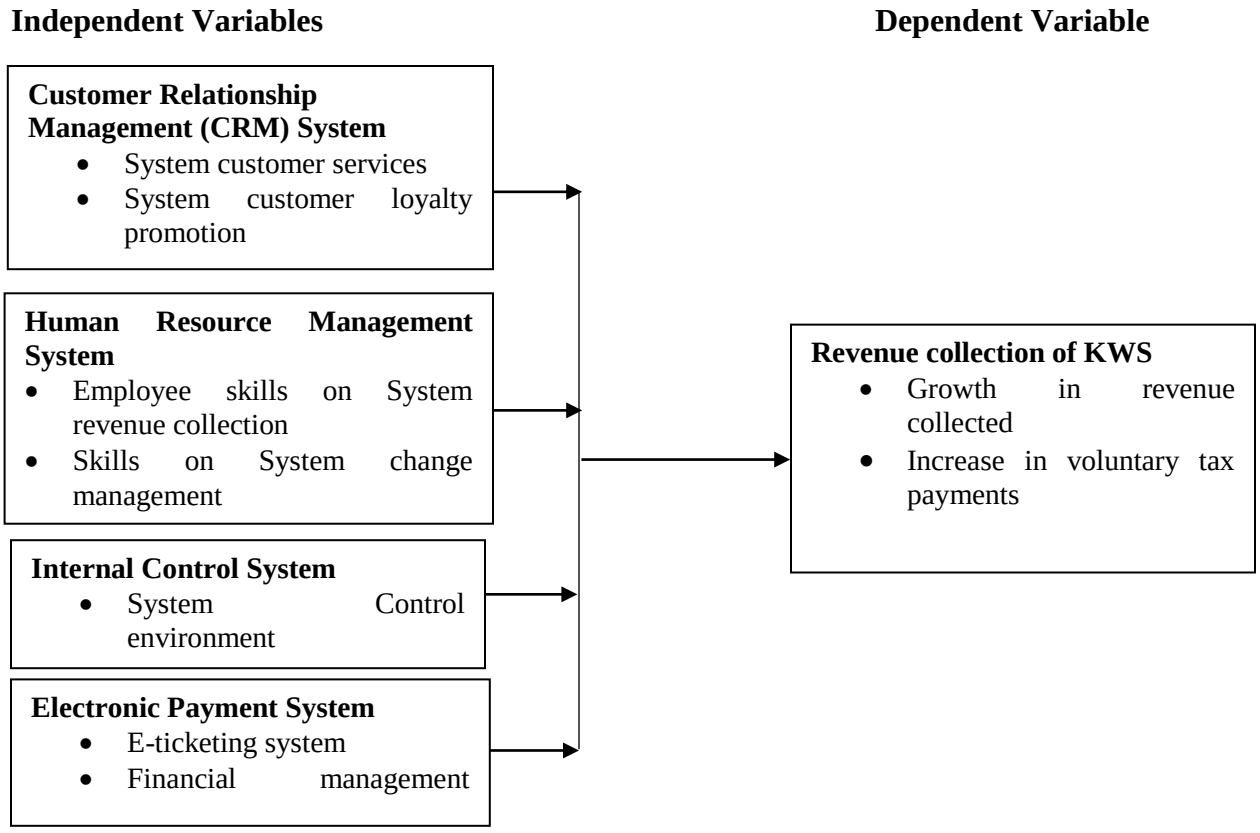
A conceptual framework is a concept that a researcher believes will help explain the logical progression of the phenomenon under investigation (Camp, 2001). It is linked to the values, empirical experiments, and important hypotheses that are used to promote and systematize the

researchers' knowledge (Peshkin, 1993). It is the researcher's description of how the research issue would be investigated. The conceptual framework provides an integrated way of viewing a subject under consideration (Liehr & Smith, 1999). From a mathematical standpoint, the conceptual framework describes the relationship between a sample's main concepts. It is organized in a logical framework to help provide a picture or visual representation of how ideas in a study relate to one another (Grant & Osanloo, 2014).

The framework assists the researcher in clearly identifying and defining the concepts within the research problem (Luse, Mennecke & Townsend, 2012). According to Akintoye (2015), when existing theories are insufficient to create a firm structure for the study, researchers often employ the conceptual framework. The use of technology in receiving fees for services provided is one of the emerging approaches used to manage revenue risks. The primary goal of this research was to determine the effect of information management system on revenue collection at the Kenya Wildlife Service. This is depicted in the following conceptual framework:

FIGURE 1

Conceptual Framework



Source: Researcher (2022)

2.6 Operationalization of Variables

TABLE 1

Operationalization of Variables

Variable	Type	Indicators/ Measures	Measurement Scale
Customer Relationship Management System	Independent Variable	• System customer services • System customer loyalty promotion	- Ordinal Scale
Human resource management System	Independent Variable	• Employee skills on System revenue collection • Skills on System change management	- Ordinal Scale
Internal Control System	Independent Variable	• System Control environment • System Control activities	- Ordinal Scale
Electronic payment system	Independent Variable	• E-ticketing system • Financial management system	- Ordinal Scale
Revenue collection	Dependent Variable	• Growth in revenue collected • Increase in voluntary tax payments	- Ordinal Scale

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter has included the following subsections: The research design, the target population, the sampling method and sample size, the research instruments, the validity and reliability, the data collection, the data analyses techniques, the data presentation procedures and the ethical considerations.

3.2 Research Design

The researcher adopted descriptive research design to examine the effect of information management systems on revenue collection at Kenya Wildlife Service. When the issue is clearly defined, researchers can use descriptive research design to describe the relationship between the independent variables and the dependent variable (Kothari, 2004). The way things are decided and documented through descriptive analysis explains data and characteristics of the population and phenomena being studied.

3.3 Target Population

The target population is a well-defined category of persons, families, components or events that are being studied (Kothari, 2004). As such, the target population should match the specification that the researcher is researching and should be homogeneous. A total of 245 Kenya Wildlife Service staff members were the target population of this study. Based on the parks managed by Kenya Wildlife Service, the target population was stratified according to parks. Kenya Wildlife Service has numerous parks nationwide, namely: Aberdare Park, Nakuru Park, Nairobi Park,

Tsavo East Park, Malindi Marine Park, Tsavo West Park and Amboseli Park. The overall target population and the target population for each park is presented in the Table 2.

TABLE 2

Target Population

Parks	**Target population**
Nairobi Park	36
Lake Nakuru Park	46
Aberdare Park	35
Tsavo East Park	48
Tsavo West Park	40
Amboseli Park	24
Malindi Marine Park	16
Total	**245**

Source (KWS, 2021)

3.4 Sampling Procedure and Sample Size

A sample refers to a smaller sub-unit of the targeted study population (Kumar, 2011). Mugenda and Mugenda (2013) and Kumar (2011) have suggested various approaches for the determination of a smaller sample size when the target population is big, for instance, taking a sample size between 10% and 30% of the target population or using a formula. Cooper and Schindler (2003) suggested the use of various formulas such as Yamane, Fischer, Krejcie, Morgan and Cochran to determine the sample size when the target population is finite. In that line of argument, this study adopted Yamane (1957) formula to determine the sample size at an error term of 10%.

n = $\frac{N}{1+Ne^2}$ = [245 / {1 + (245 *0.1^2)}] = 71 Where n is the sample size, N is the target population of the study which is 245 and e is the error term set at 10% in this study.

Yamane formula and stratified sampling technique were used to select a sample of 71 respondents. The use of stratified random sampling enabled respondents to be proportionately

represented. The number in each stratum was based on proportion to the population (Burger & Silima, 2006). Table 3 shows the proportionate stratification of the sample size in each park.

TABLE 3

Sample Size

Park	**Target population**	**Sample Size**
Nairobi Park	36	10
Lake Nakuru Park	46	13
Aberdare Park	35	10
Tsavo East Park	48	14
Tsavo West Park	40	12
Amboseli Park	24	7
Malindi Marine Park	16	5
Total	**245**	**71**

Source (Author, 2022)

3.5 Data Collection Instrument

Using standardized questionnaires, primary data was obtained from the respondents. Questionnaires had questions that were both closed and open ended. Questionnaires have a high level of data standardization and generalized information acceptance by any population. In a descriptive study, questionnaires are useful when it is important to get information from individuals quickly and easily in a non-threatening manner. At the development point, they provide flexibility in determining how to address the research questions (Berdie, Anderson, & Niebuhr, 1986). Kombo and Tromp (2006) note that a questionnaire is a suitable tool for data collection, as it gives the respondent time to provide well-thought-out answers.

3.5.1 Validity and reliability of the Research Instrument

According to Krishnaswamy (2009), validity is the extent to which the test item sample represents the content intended to be tested by the test. The validity of the information used in

this study is a measure of how well data obtained using a tool such as a questionnaire represents a specific domain or substance of a specific definition. The validity of a research instrument is accomplished when it measures what it claims to test. Using the content validity ratio, which is the extent to which the test scores are assessed as stated, the content validity is measured. The validity of the face can be accomplished by asking the respondents to provide input on the research instrument so that it can be optimized and corrected to target respondents before real presentation. The research questionnaire was subjected to tests for content, face and construct validity.

Mugenda and Mugenda (2003) noted that the reliability of a measuring instrument refers to the capacity of the instrument to achieve reliable results whenever it is used. In this analysis, the reliability of the questionnaires was evaluated using the results of the Soysambu Conservancy pilot test. In order to allow the researcher to fix any errors that may be generated from the instrument, the results were crucial, thereby enhancing its reliability and thereby obtaining accurate results. Table 4 indicates the reliability results.

TABLE 4

Reliability Results

Variable	**Cronbach Alpha**	**Decision**
Customer Relationship Management (CRM) System	0.824	Reliable
Human resource management system	0.789	Reliable
Internal Control System	0.816	Reliable
Electronic payment system	0.795	Reliable
Revenue collection by KWS	0.819	Reliable

Source (Author, 2022)

The reliability results in Table 4 indicate that all the study variables were reliable since their Cronbach Alpha values were above 0.7. Therefore, the questionnaire was not revised

during the main survey. In regard to validity, two types of validity were established in this study, which is face and content validity. Face validity was tested through expert and non-expert opinion and content validity was tested through both exhaustive literature review on the research topic and expert opinion. Based on these two results, the questionnaire was deemed reliable and valid.

3.6 Data Collection

Once the researcher was given a go ahead to collect data by the supervisor, the researcher sought authorization (Research Permit) to collect data and permission to conduct the study at Kenya Wildlife Service. The questionnaires were either hand delivered or emailed to Kenya Wildlife Service employees stationed at various national parks countrywide namely: Tsavo East Park, Nakuru Park, Nairobi Park, Tsavo West Park, Aberdare Park, Malindi Park and Amboseli Park. The researcher guided the respondents on how to fill the questionnaires while being extra careful not to pre-empt the respondents' responses. The respondents were requested to fill the questionnaire in three days.

3.7 Diagnostic Tests

A regression diagnosis refers to a collection of procedures for regression analysis carried out to determine the validity of the regression model proposed. Linearity test, multi-collinearity test, heteroscedasticity test and normality test are discussed in this section. These are briefly explained below.

3.7.1 Linearity Test

One of the key assumptions in regression analysis is that all the independent variables in the regression equation must have a linear relationship with the dependent variable. Pair-wise

correlation matrix was used to check for linearity where all the relationships in the matrix must be statistically significant (with a p-value of less than 0.05).

3.7.2 Multi-collinearity Test

Multi-collinearity in a multiple regression model refers to the presence of high inter correlations between two or more independent variables. When a researcher or analyst attempts to determine how effectively each independent variable can be used to predict or understand the dependent variable in a statistical model, multi-collinearity can lead to distorted or misleading results (Kothari, 2004). To test for multi-collinearity, variance inflation factors (VIFs) and correlation coefficients were used. The thresholds VIF used in this study is 5. Any variable with a VIF > 5 was dropped. Presence of Multi-collinearity alters the regression coefficients, resulting to instability of the coefficients and invalid significance tests (Cooper & Schindler, 2006).

3.7.3 Heteroscedasticity Test

Gujarati (2003), describes Heteroscedasticity as the lack of constant error variance which may lead to biased standard errors, unacceptable test statistics and unacceptable confidence intervals. With the aid of the Breusch - Pagan Test (B-P test) for Heteroscedasticity, this analysis used the Chi-square test to test if all the variances are constant across the data and whether the variances are normally distributed (Clark, 2018).

3.7.4 Normality Test

One of the key assumptions in regression analysis is that the data is normally distributed. To test for this assumption, the coefficient of skewness was used to test for normality. Skewness tests the degree to which the distribution of values around the mean varies from symmetry or normality. If it has a skewness of zero, data is normally distributed, whereas negative skewness

values mean that the data is skewed to the left and positive skewness values indicate skewness to the right (Ndung'u, 2019). This research used Kolmogorov-Smirnova test to determine the normality of the data before analysis.

3.8 Data Processing and Analysis

The questionnaire was checked for consistency, accuracy and comprehensiveness. The questions and responses were coded and entered into a computer data base. The coded data was analysed using descriptive statistics and multiple regression analysis with the help of the Statistical Package for Social Sciences (SPSS) version 24 software and Microsoft excel. Multiple regression analysis model was of the form; $Y = \beta o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$ where Y = Revenue collection at Kenya Wildlife Service, βo = Constant term, βi = Coefficients of the independent variables, X_1 = Customer Relationship Management System, X_2 = Human Resource Management System, X_3 = Internal control System, X_4 = Electronic payment system and ε = Error term. The analyzed data was presented using, bar graphs, frequency tables and pie charts.

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.1 Introduction

The main aim of the study was to determine the effect of information management system on revenue collection at Kenya wildlife service. Specifically, the study aimed at establishing the effect of CRM system, HRM system, internal control system and electronic payment system on revenue collection at Kenya Wildlife Service. The study used primary data obtained from 7 national parks to conduct both descriptive and inferential analyses.

Measures of central tendency that is means as well as measures of dispersion that is standard deviation were the specific descriptive statistics used to describe the data. On the other hand, multiple regression analysis was the inferential statistics applied to establish the relationship between the study variables. Before conducting inferential analysis, diagnostic tests were conducted to ascertain that the assumptions of classical linear regression were met. The description of the analysis and results as well as the presentation and explanation are presented in this chapter. Tables as well as figures were used to present the findings of the study.

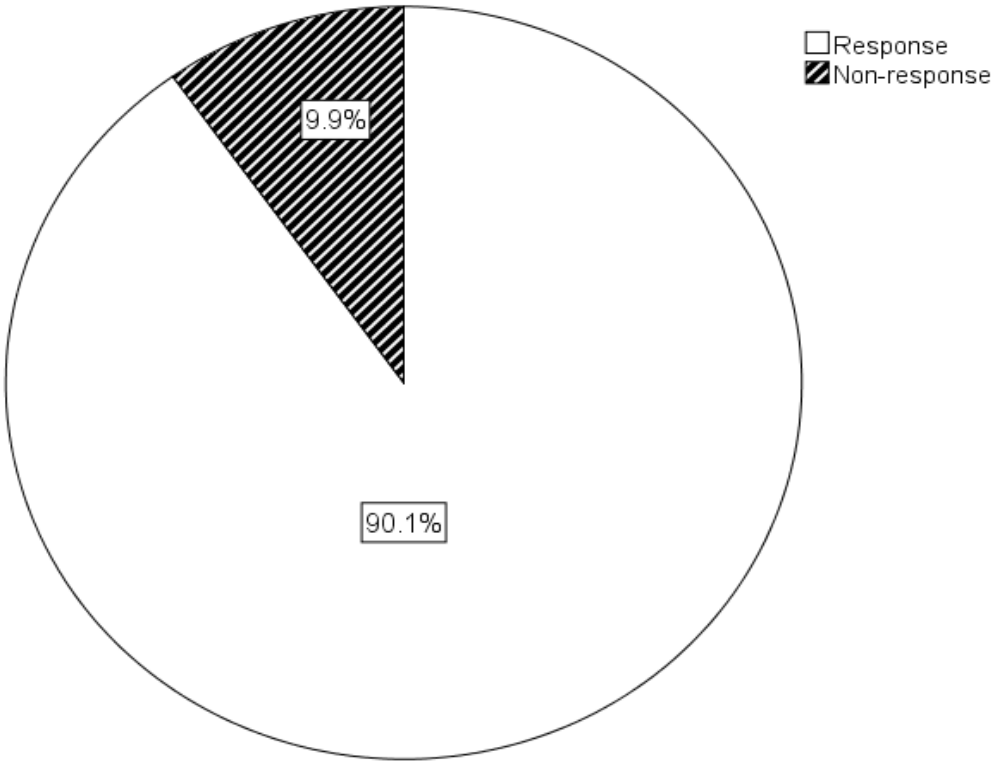
4.2 Response Rate

For the purpose of obtaining the primary data required, the study involved respondents from the major parks nationwide, namely: Aberdare, Nakuru Park, Nairobi Park, Tsavo East Park, Malindi Marine Park, Tsavo West Park and Amboseli Park. A total of 71 respondents were targeted out of which 64 were well filled. This gave a response rate of 90.1% as shown in Figure 2. This response rate was considered adequate for this type of study. According to Alvesson and Skoldberg (2017), a response rate of 50% and above is adequate for a survey. Similarly, Quinlan,

Babin, Carr and Griffin (2019) noted that a response rate of 60% or above is adequate to make generalizations and based on this, the response rate obtained in this study was considered satisfactory.

FIGURE 2

Response Rate



Source (Author, 2022)

4.3. Demographic Characteristics

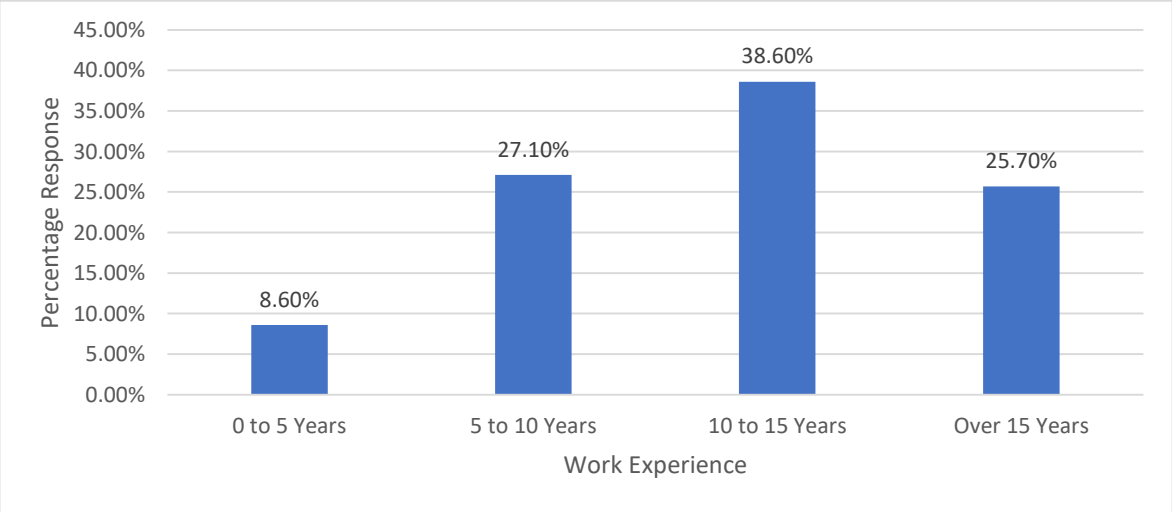
The study sought to establish the characteristics of the study respondents in terms of their work experience, department of work, division, whether they know information management system, its success rate and whether they have been inducted to use it. The section therefore presents the results of these characteristics.

4.3.1 Respondent's Work Experience

The study described the work experience of Kenya Wildlife Service staff from major parks nationwide, namely: Aberdare, Nakuru Park, Nairobi Park, Tsavo East Park, Malindi Marine Park, Tsavo West Park and Amboseli Park. The results are presented in Figure 3. It was established that majority of the staff, 38.6%, had a work experience between 10 and 15 years. Those with a work experience below 5 years were only 8.6%. The findings imply that majority of the respondents had a high institutional knowledge and were in a good position to explain the effect of information management system on revenue collection at Kenya Wildlife Service.

FIGURE 3

Respondent's Work Experience



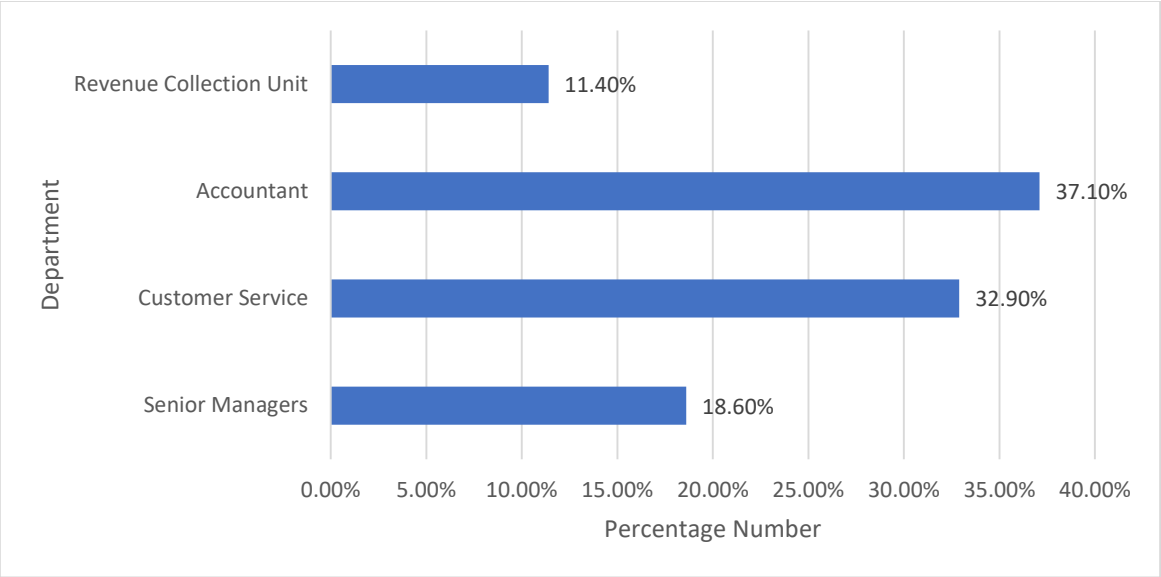
Source (Author, 2022)

4.3.2 Respondent's Department of Work

The study also described the respondent's departments of work as either customer service, accountants, revenue collection units or senior managers. The results are presented in Figure 4.

FIGURE 4

Respondent's Work Departments



Source (Author, 2022)

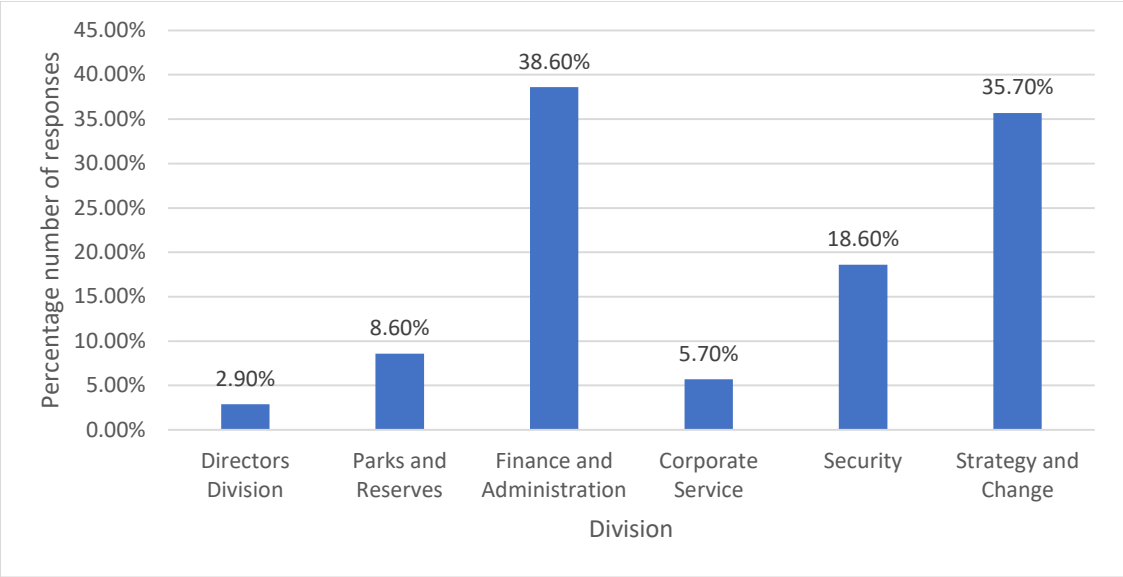
The results in Figure 4 indicate that there was representativeness in the respondents from across the four departments. However, majority, 37.1%, were from the accounting department while 32.9% were from customer service. The remaining categories were from revenue collection unit as well as senior managers. This implies that the data collected contained varied opinions.

4.3.3 Respondent's Division

The study also described the respondent's divisions as either the director's, parks, reserves, devolution and community, finance and administration, corporate service, security, strategy and change, biodiversity and research as well as species management. The results are presented in Figure 5.

FIGURE 5

Respondent's Divisions



Source (Author, 2022)

It was demonstrated in Figure 5 that the respondents were selected from diversified divisions to indicate that the information collected was not biased. While no respondent came from the community and devolution, biodiversity and research as well as species management divisions, majority of the respondents, 38.6%, came from the finance and administration division as well as strategy and change (35.7%). Generally, the findings imply that there was representativeness in selecting the respondents alongside divisions.

4.3.4 Awareness on existence of information management system at KWS

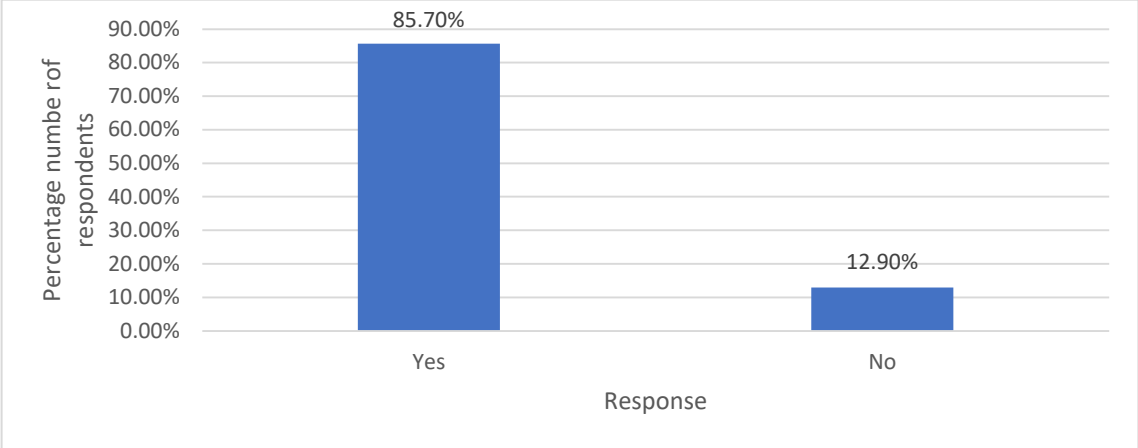
The study sought to find out whether the respondents were aware of the existence of information management systems at Kenya Wildlife Service and it was indicated that all the respondents were aware that they existed. Therefore, the respondents were informed on matters regarding the information management system.

4.3.5 Success of Information management system at KWS

The study further sought the opinion of the respondents on the success of information management system at Kenya Wild Service. The results are presented in Figure 6.

FIGURE 6

Success of Information management System at KWS



Source (Author, 2022)

As established in Figure 6, it was indicated that indeed information management systems had been successful. Specifically, majority of the respondents (85.7%) agreed that they had been successful. However, 12.9% stated that they had not been successful.

4.4 Descriptive Statistics

The descriptive statistics of the study variables which were measured on a Likert scale of 1-5 (Strongly disagree - Strongly agree) are provided in this section. The means and standard deviations of all the statements that measured predictor as well as the response variable are provided. These findings are provided based on the study variables and objectives of the study.

4.4.1 Customer Relationship Management System

The first objective of the study was to establish the effect of customer relationship management system on revenue collection of Kenya Wildlife Service. This section presents a description of customer relationship management system at Kenya Wildlife Service stations. The results are presented in Table 5.

TABLE 5

Customer Relationship Management System

Statement	Mean	Standard Deviation
The customer relationship management system has a customer feedback mechanism	3.29	1.32
Customer complaints reduced after implementing the customer relationship management system	3.43	1.12
Customer loyalty has increased after implementing the customer relationship management system	3.54	0.96
The customers service time is shorter after implementing the customer relationship management system	3.44	1.15
Average	**3.43**	**1.14**

Source (Author, 2022)

The results demonstrated that at KWS stations included in the study, benefits of customer relationship management was moderate (M = 3.43; SD = 1.14). Specifically, the results demonstrated that customer loyalty had increased after implementing the customer relationship management system (M = 3.54; SD = 0.96). However, the customer feedback mechanism as well as reduction in customer complaints after implementing the customer relationship management system remained moderate (M = 3.29 and 3.43 respectively). Similarly, reduction in customers service time after implementing the customer relationship management system was moderate (M

= 3.44; SD = 1.15). This implies that customer relationship management system has affected customer service and relations at KWS moderately.

4.4.2 Human Resource Management System

The second objective of the study was to assess the effect of human resource management system on performance of Kenya Wildlife Service. This section presents a description of the Human Resource Management System at KWS stations. The results are presented in Table 6.

TABLE 6

Human Resource Management System

Statement	Mean	Standard Deviation
There is adequate employee engagement on the use of human resource management system at KWS.	3.43	1.08
Employees are inadequately trained on the human resource management system	3.03	1.31
Human resource management system has been accepted and easily used by employees at KWS.	3.79	1.09
Average	**3.41**	**1.16**

Source (Author, 2022)

The results indicated that on average, use of human resource management system in regard to information management at KWS was moderate (M = 3.41; SD = 1.16). Specifically, majority of the respondents agreed that human resource management system has been accepted and easily used by employees at KWS (M = 3.79; SD = 1.09). However, they indicated that adequacy of employee engagement on the use of human resource management system at KWS was moderate (M = 3.43; SD = 1.08). Similarly, adequacy of employee training on the human resource management system was moderate (M = 3.03; SD = 1.31). This implies that human resource management system has affected employee capacity building at KWS moderately.

4.4.3 Internal Control System

The third objective of the study was to investigate the effect of internal control system on revenue collection of Kenya Wildlife Service. This section presents a description of internal control system at KWS terminal stations. The results are presented in Table 7.

TABLE 7

Internal Control System

Statement	Mean	Standard Deviation
Internal control system has mechanisms for regular and independent reconciliations of revenue accounts	3.61	1.17
In this organization revenue collection employees are rotated regularly	3.56	1.29
When any weaknesses in controls are established, effective mechanisms are executed to address the weaknesses	3.39	0.97
Management regularly assesses the internal control system	3.79	1.02
KWS has an independent revenue monitoring unit.	4.03	1.02
The system has clearly defined standard operating procedures	4.14	0.92
Average	**3.75**	**1.07**

Source (Author, 2022)

The results indicated that on average, internal controls at KWS had improved to a high extent (M = 3.75; SD = 1.07). Due to the system, there was an agreement that the management does assess the system of control from time to time, KWS has an independent revenue monitoring unit and the system has clearly defined standard operating procedures (M = 3.79, 4.03 and 4.14 respectively). Additionally, there was agreement that internal control system allows for independent reconciliations of revenue collection on regular basis (M = 3.61). However, implementation of elaborate mechanisms to address weaknesses of controls was moderately done

(M = 3.39). Overall, it implies that internal control system has been effective at KWS to a high extent.

4.4.4 Electronic Payment System

The fourth objective of the study was to determine how electronic payment system affects revenue collection of Kenya Wildlife Service. This section presents a description of electronic payment system at KWS terminal stations. The results are presented in Table 8.

TABLE 8

Electronic Payment System

Statement	Mean	Standard Deviation
Management fully supports the use of electronic payment system	4.01	1.16
Management provided adequate budget to support Safari card rollout	3.51	1.16
Management is aware of the strengths and shortcomings of the electronic payment system.	3.84	1.11
There exist clear reporting structures in the revenue collection division	3.99	1.07
Average	**3.84**	**1.13**

Source (Author, 2022)

As shown in Table 8, the results showed that electronic payment system has enhanced overall revenue collection at KWS (M = 3.84; SD = 1.13). Specifically, there was an agreement that the management fully supports the use of electronic payment system (M = 4.01), provides adequate budget to support electronic payment system rollout (M = 3.51) and is also aware of the strengths and shortcomings of the electronic payment system (M = 3.84). Additionally, it was indicated that there exist clear reporting structures in the revenue collection division (M =3.99). Overall, it implies that electronic payment system has affected operations at KWS to a high extent.

4.4.5 Kenya Wildlife Service Revenue Collection Performance

The study described the revenue collection of KWS based on both secondary and primary data. In regard to the primary data, the study had collected information on revenue collection on a 5-point Likert scale (strongly disagree to strongly agree). Descriptive statistics that included standard deviations and means were used to analyze the responses. Table 9 presents the findings.

TABLE 9

Kenya Wildlife Service Revenue Collection Performance

Statement	Mean	Standard Deviation
Revenue collection has increased since information management system were adopted	3.99	0.96
Revenue collection costs have decreased since the introduction of information management systems	3.53	1.07
There is an improvement in revenue collection efficiency since information management system was installed	3.94	1.05
Customer satisfaction has improved after adopting the information management system	3.89	0.91
Average	**3.84**	**1.00**

Source (Author, 2022)

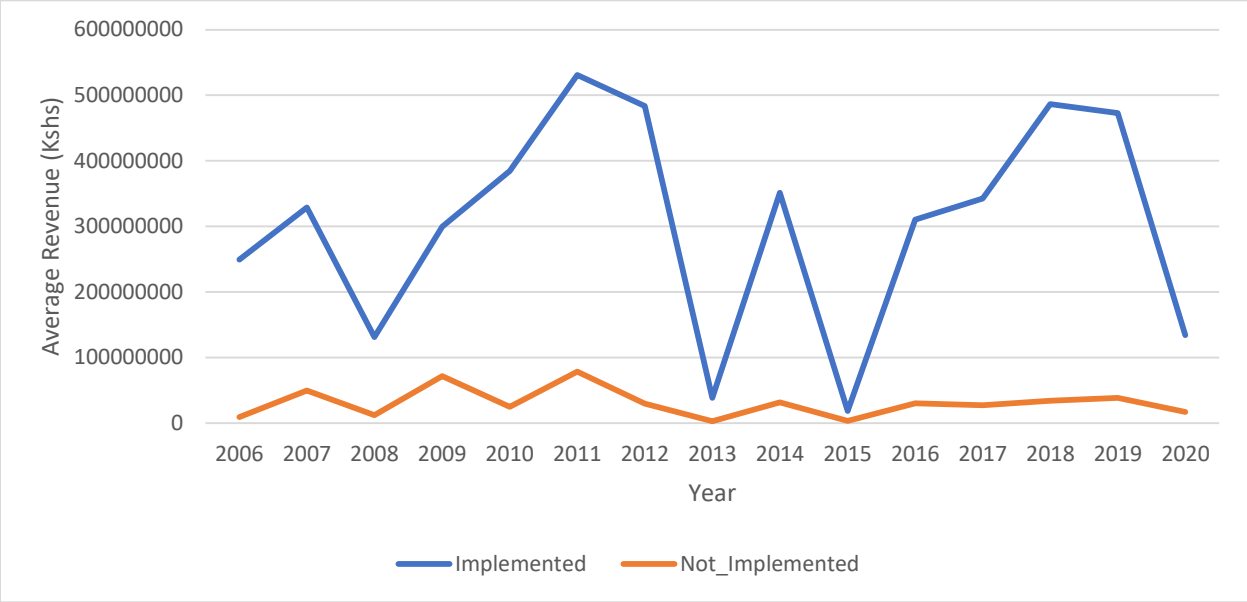
Overall, the respondents rated the revenue collection of KWS terminals as good (M = 3.84: SD = 1.00). Specifically, it was demonstrated that revenue collection has increased since information management systems were adopted (M = 3.99), costs have decreased since the introduction of information management systems (M = 3.53), there is an improvement in operational efficiency since information management system were adopted (M = 3.94) and that customer satisfaction has improved after adopting the information management systems (M = 3.89).

Generally, the findings imply that information management systems have enhanced KWS revenue collection. In addition, the study used secondary data on revenue spanning 15 years

(2006 to 2020) to establish the revenue trends for both the parks that have implemented and those that have not implemented information management system. Figure 7 compares the revenue trends whereby the annual average revenue between the parks which have implemented electronic payment systems and those that had not.

FIGURE 7

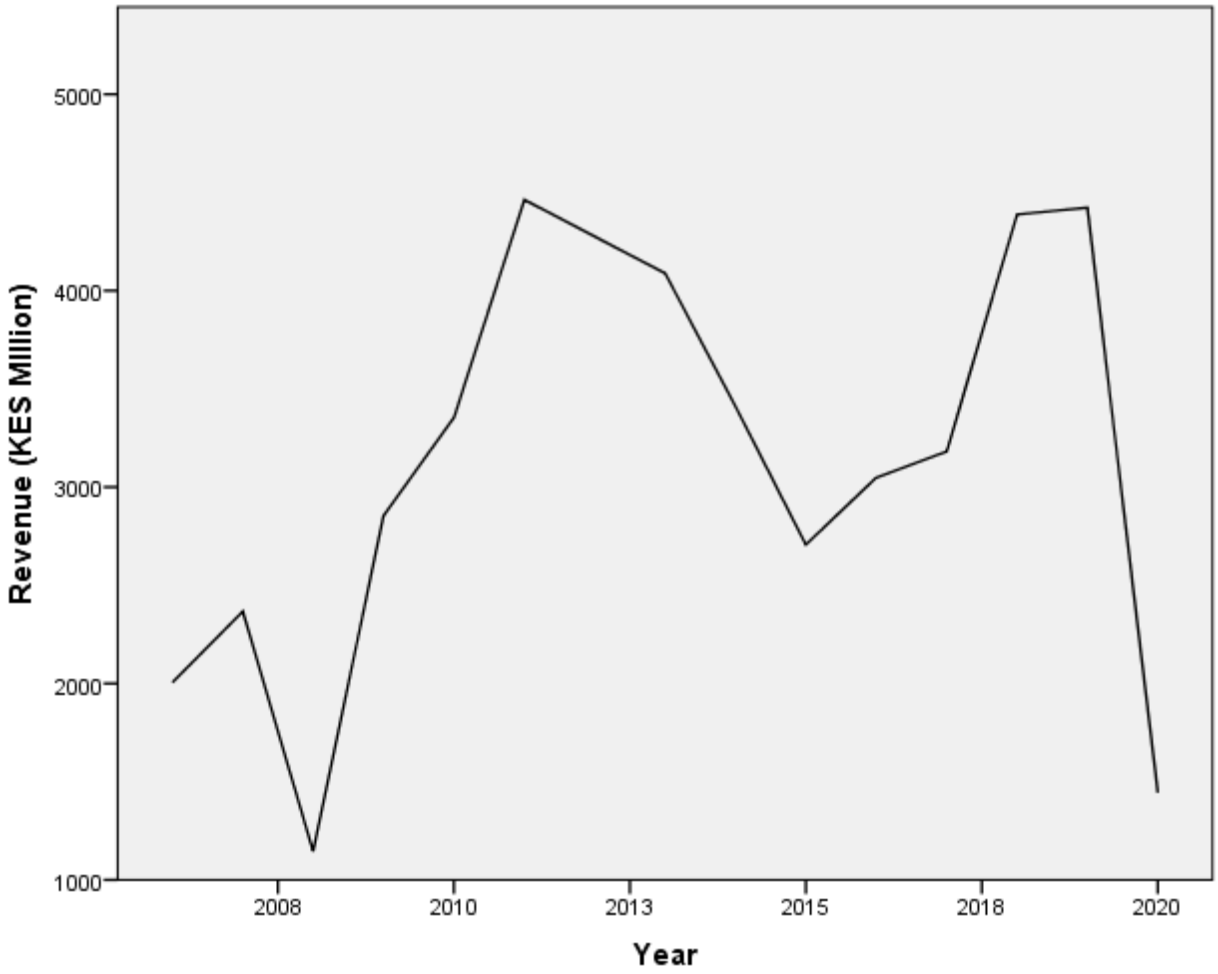
Revenue of the KWS Terminal Stations



Source (Author, 2022)

The results in Figure 7 indicate that the average annual revenue for the parks which had implemented electronic payment systems remained above that of those which had not for the last 15 years. The highest annual revenue for parks was experienced in the year 2011 and 2018. There was a dip in the revenues for parks in the election years of 2008 and 2013. Overall, it can be implied that the revenue performance was unsteady (rising and decreasing between the years). The trend of total revenues of KWS for the years is provided in the Figure 8.

FIGURE 8
Total Revenue Trend of KWS (2006 – 2020)



Source (Author, 2022)

Figure 8 indicates that revenues of KWS peaked in 2011, 2018 and 2019. Troughs were observed in the years following general elections and in 2020 after the advent of COVID-19.

4.5 Diagnostic Tests

Diagnostic tests were conducted before fitting the ordinary least square regression model that was applied in testing the research hypotheses. The tests were normality test, linearity test, multi-collinearity, Heteroscedasticity test and autocorrelation test. The subsections that follow present the results of these tests.

4.5.1 Normality Test

The assumption of a classical linear regression model demands that the data must take a bell shape which is a representation of normality. Data which is not normally distributed would always give spurious results and would not be suitable for parametric tests. As a result, the study tested this through Smirnov-Kolmogorov test as well as Q-Q plots. The Q-Q plots should form an oval shape to indicate normal distribution. In the Smirnov-Kolmogorov test, the null hypothesis is that the regression residuals are normally distributed while the alternative hypothesis indicates that the residuals are not normally distributed.

A significance value greater than 0.05 indicated that the data is normally distributed since the null hypothesis was not to be rejected. The results for the Kolmogorov-Smirnov (K-S) test are presented in Table 10. The results were not significant (Sig = 1.002 > 0.05). Thus, the study accepted the null hypothesis that the regression residuals are normally distributed. The data on the dependent variable was therefore normally distributed implying that normality assumption would not be violated if a multiple regression model was adopted.

TABLE 10

Kolmogorov-Smirnov (K-S) test of Normality

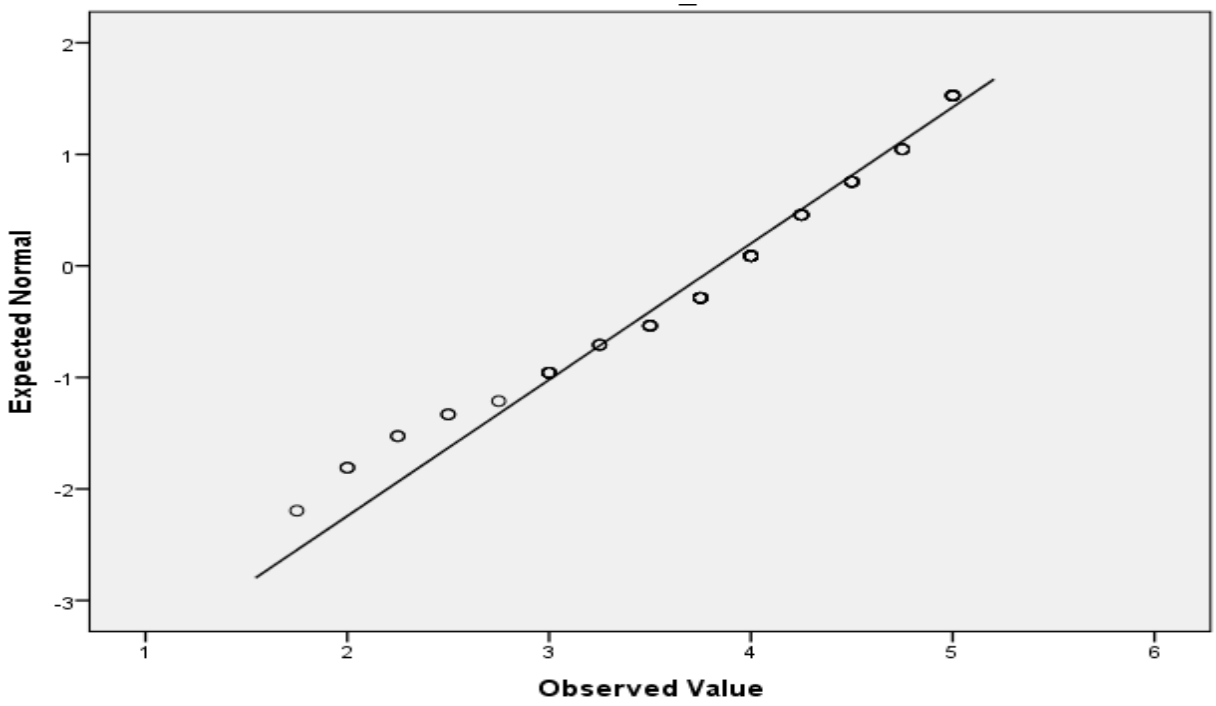
Tests of Normality						
	Kolmogorov-Smirnov			**Shapiro-Wilk**		
	Statistic	df	Sig.	Statistic	df	Sig.
Performance of KWS	1.137	64	1.002	1.946	64	1.005
Lilliefors Significance Correction						

Source (Author, 2022)

The results were confirmed through a normal Q-Q plot as shown in Figure 4.3. The results indicate that the observations on performance of KWS were along the line of best fit with no outliers which indicate that the data was normally distributed hence suitable to use in a regression model.

FIGURE 9

Normal Q-Q Plot



Source (Author, 2022)

4.5.2 Multi-collinearity Test

Multi-collinearity demonstrates a scenario where the predictor variables are highly related with one another. High multi-collinearity gives rise to spurious results. Spurious results cannot be relied on to predict a relationship between the study predictors and response variable. The study tested for multi-collinearity using Variance Inflation Factor (VIF) method where VIF values below 5 were considered acceptable. The findings for the VIF values presented in Table 11

indicated that all the independent variables had VIF values below 5 implying that there was no problem of multi-collinearity.

TABLE 11

Variance Inflation Factor (VIF) Test of Multi-collinearity

	Collinearity Statistics	
	Tolerance	**VIF**
Human resource management system	0.849	1.178
CRM System	0.645	1.551
Internal Control System	0.324	3.086
Electronic payment system	0.361	2.773
Dependent Variable: Revenue collection of KWS		

Source (Author, 2022)

4.5.3 Heteroscedasticity

Heteroscedasticity shows whether error terms are independent and the variance is constant. In this test, Breusch Pagan method was used whereby significance value of the probability chi square greater than 0.05 indicates absence of heteroscedasticity. The results presented in Table 12 indicated that the Prob > Chi^2 value was greater than 0.05 (0.098 > 0.05) implying that the null hypothesis of constant variance was not rejected. Therefore, the data was suitable to run an OLS regression without violating this assumption.

TABLE 12

Breusch Pagan Test of Heteroscedasticity

Breusch-Pagan test for heteroscedasticity	
Ho: Constant variance	
Variables: Performance of KWS	
Chi^2 (1)	5.463
Prob > Chi^2	0.098

Source (Author, 2022)

4.5.4 Autocorrelation

Another assumption of OLS is that the error terms in the regression should not be correlated (Absence of autocorrelation). For autocorrelation, there was a need for the error term of the regression not to be correlated. The study used Durbin Watson test of autocorrelation whereby a value above 2 indicated presence of serial autocorrelation. A value between 1.5 and 2.0 indicates that the data is free from autocorrelation. The results are presented in Table 13. The results indicate a DW value of 1.746 which is between 1.5 and 2.0 implies that the data did not have a problem of autocorrelation hence an OLS regression model was suitable.

TABLE 13

Durbin Watson Test of Autocorrelation

Type of Test	**Durbin-Watson**
DW value	1.746

Source (Author, 2022)

4.6 Regression Analysis

To establish the effect of customer relationship management system, employee capacity enhancement system, internal control system and management system on revenue collection at Kenya Wildlife Service, a multiple regression model was adopted. The estimation of the regression model has model summary, ANOVA and model coefficients. The results are presented and explained in the sub sections that follow.

4.6.1 Regression Model Summary

The model summary results presented in Table 14 were used to describe the coefficient of determination. Coefficient of determination also called R-square indicates the variation in the revenue collection at KWS attributable to information management systems.

TABLE 14

Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.882	.778	.763	.45806

Source (Author, 2022)

The results showed that the four predictors, that is electronic payment system, human resource management system, CRM system and Internal Control system had a strong correlation with revenue collection at Kenya Wildlife Service (R = 0.882). This implies that the four factors are strong predictors of revenue collection at Kenya Wildlife Service implying that adoption of information management system can improve revenue collection at Kenya Wildlife Service highly.

The R-square indicates the change in the dependent variable (revenue collection at Kenya Wildlife Service) explained by the four independent variables (electronic payment system, human resource management system, CRM system and Internal Control system) was 77.8%. The R-square value which is also called coefficient of determination was 0.778 in this study. This implies that up to 77.8 percent of the variation in revenue collection of at Kenya Wildlife Service is explained by the four factors. The remaining percentage is explained by other factors not included in this model.

4.6.2 Analysis of Variance (ANOVA)

In order to establish the significance of the regression model used, analysis of variance (ANOVA) was used. ANOVA indicates the deviation of the predicted regression model from the actual regression model. The ANOVA results are presented in Table 15.

TABLE 15

Analysis of Variance

Source of variation	Sum of Squares	df	Mean Square	F	Sig.
Regression	43.355	4	10.839	51.657	.000
Residual	12.379	59	.210		
Total	55.734	63			

Source (Author, 2022)

The F statistic value was significant (F = 51.657, P-Value = 0.000 < 0.05) which implies that the overall regression model to establish the effect of information management system on revenue collection at Kenya Wildlife Service was statistically significant. The model was thus suitable to make further generalizations.

4.6.3 Regression Model Coefficients

To establish the beta coefficients, constant and their significance, the regression coefficient results were established and presented in Table 16. The study established the model significance using both P values as well as critical t values. For the p-values, a variable had a significant effect on revenue collection at Kenya Wildlife Service if the value was less than 0.05 and critical t value was greater than absolute 1.96. In such a case, the null hypothesis was rejected.

TABLE 16

Regression Model Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	.001	.325		.004	.997
HRM system	.044	.081	.034	.546	.587
CRM system	.286	.082	.323	3.471	.001
Internal control system	.574	.093	.588	6.188	.000
Electronic payment system	.124	.060	.140	2.073	.043

Source (Author, 2022)

The Regression Equation was fitted as follows:

$Y = 0.001 + 0.286X_1 + 0.044X_2 + 0.574X_3 + 0.124X_4$ where Y = Revenue collection at KWS, X_1 = Customer Relationship Management System; X_2 = HRM system; X_3 = Internal controls System and X_4 = Electronic payment system. HRM system was not included in the model since it was not significant. The regression model indicates that other factors held constant at zero, revenue collection at Kenya Wildlife Service is at 0.001. However, with introduction of information management system, revenue collection at Kenya Wildlife Service improves significantly. The findings guided testing of the following hypotheses.

H_{01}: Customer Relationship Management does not significantly affect revenue collection at Kenya Wildlife Service.

The results in Table 4.17 indicate that Customer Relationship Management System has a positive and significant effect on the revenue collection at Kenya Wildlife Service (B = 0.286; t = 3.471 > 1.96, P-Value = 0.001 < 0.05). Since the p-value was less than 0.05, the null hypothesis was rejected and hence it was concluded that Customer Relationship Management System has a

positive and significant effect on revenue collection of Kenya Wildlife Service. This implies that a unit increase in customer relationship leads to 0.286 improvement in revenue collection at Kenya Wildlife Service. The study findings are consistent with that conducted by Zeynab *et al*. (2018) which established that well implemented CRM practices can enhance revenues and organizational efficiency. In addition, Soltani *et al* (2018) study established that technology can be used to improve the customer orientation which in turn leads to an overall improvement in revenues.

H_{02}: Human resource management system does not have a significant effect on revenue collection at Kenya Wildlife Service.

The results in Table 4.17 indicated that human resource management system has a positive but not significant effect on revenue collection at Kenya Wildlife Service (B = 0.044; t = 0.546 < 1.96, P-Value = 0.587 > 0.05). Since the p-value was greater than 0.05, the null hypothesis was accepted and hence it was concluded that human resource management system has no significant effect on revenue collection at Kenya Wildlife Service. This implies that adoption of human resource management system is not expected to significantly impact on revenue collection at Kenya Wildlife Service. The findings of this study are contradictory with that of a study by Mutsotso and Wanyama (2010) which found out that capacity building within an organization's employees can increase employee productivity, which in turn improves revenue collection, organizational efficiency and performance. The findings are also contradictory with Wassem et al. (2019) study which demonstrated that a manager's training and assistance of employees has a positive but slight impact on employee output as well as overall organizational performance.

H_{03}: Internal Control systems do not have a significant effect on revenue collection at Kenya Wildlife Service.

Table 4.17 indicates that internal control system has a positive and significant effect on revenue collection at Kenya Wildlife Service (B = 0.574; t = 6.188 > 1.96, P-Value = 0.000 < 0.05). Since the p-value is less than 0.05, we reject the null hypothesis and conclude that internal control system has a positive and significant effect on revenue collection of Kenya Wildlife Service. This implies that a unit increase in internal control system leads to an improvement in revenue collection at Kenya Wildlife Service by up to 0.574 units which is significant. The findings were similar to Mwachiro (2013) study which indicated that adoption of internal control systems can improve revenue and overall performance of an organization. The findings are also consistent with that of Caroline (2014) which indicated a positive relationship between internal controls and the revenue performance of manufacturing firms in Kenya.

H_{04}: Electronic payment system has no significant effect on revenue collection at Kenya Wildlife Service.

The results in Table 4.17 also indicates that electronic payment system has a positive and significant effect on revenue collection at Kenya Wildlife Service (B = 0.124; t = 2.073 > 1.96, = P-Value = 0.043 < 0.05). Since the p-value was less than 0.05, the null hypothesis was rejected and it was concluded that electronic payment system has a positive and significant effect on revenue collection at Kenya Wildlife Service. This implies that a unit increase in adoption of electronic payment system would lead to a significant improvement in revenue collection Kenya wildlife service by up to 0.124 units. The study findings are consistent with those of a study by Ahmad and Alnajjar (2009) study which established that adoption of electronic payment systems can significantly improve revenue collection and organizational performance. Similarly, Suhaimi

et al. (2016) concluded that adoption of electronic payment system significantly improves firm performance. The summary of hypotheses has been indicated in Table 17.

TABLE 17

Summary of Research Hypothesis

No.	Research Hypothesis	Beta Coefficient	P- Value and t-statistic	Decision	Conclusion
1.	**H_{01}:** Customer Relationship Management does not significantly affect revenue collection of Kenya Wildlife Service	B = 0.286	(P-Value = 0.001 < 0.05).	Reject null hypothesis	CRM has a significant influence on revenue collection of Kenya Wildlife Service.
2	**H_{02}:** Human resource management system does not have a significant effect on revenue collection of Kenya Wildlife Service	B = 0.044	(P-Value = 0.546 > 0.05)	Do not reject null hypothesis	Human resource management system has no significant influence on revenue collection of Kenya Wildlife Service.
3	**H_{03}:** Internal Control system does not have a significant effect on revenue collection of Kenya Wildlife Service	B = 0.574	(P-Value = 0.000 < 0.05).	Reject null hypothesis	Internal Control system has a significant effect on revenue collection of Kenya Wildlife Service
4	**H_{04}:** Electronic payment system does not affect the revenue collection of Kenya Wildlife Service	B = 0.124	(P-Value = 0.043 < 0.05)	Reject null hypothesis	Electronic payment system has a significant influence on revenue collection of Kenya Wildlife Service.

Source (Author, 2022)

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The purpose of this study was to establish the effect of information management system on revenue collection at Kenya Wildlife service. A summary of the study findings, conclusions, recommendations as well as areas for further research are all covered in this chapter.

5.2 Summary of the Findings

To achieve the study objectives, the study used primary data obtained from 64 respondents. Data was analysed using descriptive statistics, correlation analysis and multiple regression analysis. This section presents a summary of the findings per objective.

5.2.1 Customer Relationship Management System and Revenue Collection at KWS

The first objective of the study was to establish the effect of customer relationship management system on revenue collection of Kenya Wildlife Service. The descriptive findings indicated that at Kenya Wildlife Service, the use of customer relationship management system was moderate implying that customer relationship management had a moderate effect on revenue collection at Kenya Wildlife Service. Inferential findings indicated that Customer Relationship Management System has a positive and significant effect on revenue collection at Kenya Wildlife Service, implying that an increase in adoption of Customer Relationship Management System would lead to a significant improvement on the revenue collection at Kenya Wildlife Service.

5.2.2 Human resource management system and revenue collection at KWS

The second objective of the study was to assess the effect of human resource management system on revenue collection at Kenya Wildlife Service. Descriptive findings indicated that human resource management system at KWS was moderate which means that this information management system has affected employee capacity building at KWS moderately. It was also established that human resource management system has a positive but not significant effect on Kenya Wildlife Service revenue collection implying that adoption of information Human resource management system positively impacts revenue collection though in an insignificant way.

5.2.3 Internal Control System and Revenue Collection at KWS

The third objective of the study was to investigate the effect of internal control system on revenue collection at Kenya Wildlife Service. The descriptive findings showed that internal control at Kenya Wildlife Service has improved to a high extent indicating that information management system has affected revenue collection at Kenya Wildlife Service to a high extent. The findings also demonstrated that internal control system has a positive and significant effect on Kenya Wildlife Service revenue collection which shows that an increase in adoption of internal control system would lead to a significant improvement in revenue collection at Kenya Wildlife Service.

5.2.4 Electronic Payment System and revenue collection at KWS

The fourth objective of the study was to determine how electronic payment system affects revenue collection at Kenya Wildlife Service. The descriptive findings indicated that electronic payment system has enhanced overall revenue collection at Kenya Wildlife Service which shows

that the information management system has affected revenue collection at Kenya Wildlife Service to a moderate extent. Further, the regression findings showed that electronic payment system has a positive and significant effect on revenue collection at Kenya Wildlife Service which implies that an increase in adoption of electronic payment system would lead to a significant improvement in revenue collection at Kenya Wildlife Service.

5.3 Conclusions of the Study

The study concludes that at the Kenya Wildlife Service terminal stations, using customer relationship management was moderate but its impact on revenue collection was positive and significant. The study also concludes that application of human resource management system at Kenya Wildlife Service was moderate and its effect on revenue collection was positive but not significant.

Another conclusion was that internal control at Kenya Wildlife Service has improved to a high extent and that internal control system has affected revenue collection at Kenya Wildlife Service to a high extent. Regression results indicated that internal control systems were instrumental towards revenue collection at Kenya Wildlife Service. Additionally, the study concludes that electronic payments systems adopted by Kenya Wildlife Service were vital for revenue collection of the organization.

5.4 Recommendations for Policy Implication

Information management systems can be used in various organizations to promote customer service as well as enhancing employee performance towards revenue collection. The study hence recommends to management at KWS to apply information management systems to monitor and control financials which can ultimately improve performance. Since the adoption of human

resource management system at Kenya Wildlife Service was moderate and its effect on revenue collection was positive but not significant, the study recommends that the management of Kenya Wildlife Service improve on employees training on revenue collection in order to improve on their performance. Besides, management should ensure adequate employee engagement on the use of human resource management systems at KWS to ensure institutionalization and acceptance of the system at KWS.

The study findings have policy implications as it indicates the most basic task for any information management system is to generate data that is relevant to the organization's performance objectives. Regarding customer relationship management, policymakers at the ministry of tourism and wildlife and also at KWS should advocate for a customer relationship management system with a customer feedback mechanism, and which is developed after extensive research to establish the needs of customers. Besides, these policy makers should continually monitor the customer relationship management systems in place at KWS and ensure the issues pinpointed by customers are quickly rectified.

Regarding internal control system, the study has implications for management and policymakers at KWS ensure that the internal control system at KWS has mechanisms for regular and independent reconciliations of revenue accounts. Besides, the management should ensure that revenue collection employees are rotated regularly, and when any weaknesses in controls are established, effective mechanisms are executed to address the weaknesses. Besides, the policy makers should ensure that management at KWS regularly assess the internal control system and any corrective actions taken effectively and timely.

With regard to electronic payment system, the study implication is that there should be a link between the choice to be taken and the electronic payment system and KWS leaders employ.

Furthermore, management should fully support the use of electronic payment system in place and provide adequate budget to support Safari card rollout, maintenance and improvements. Further, management should continually monitor the strengths and shortcomings of the electronic payment system and take corrective action where necessary.

5.5 Limitations of the Study

The study focused on Kenya Wildlife Service as a whole but narrowed to the stations which have implemented information management system. For comparison purposes, other studies can investigate the same theme in a different context other than hospitality industry. Another limitation of the study was the COVID-19 challenge which made it difficult to collect data from some of the employees targeted but working from home. However, the researcher was persistent and dropped the questionnaires to be filled with the aid of the Human Resources office whenever the target respondents showed up. COVID-19 measures were similarly adhered to during the process hence a high response rate was attained.

5.6 Areas for further Study

The study recommends future studies to adopt a mixed-methodology approach including interviews in order to get the thoughts of the respondents in depth. That can reduce bias as well as solve the inherent limitations of adopting any of the two methods in isolation. Given that the results showed that up to 77.8 percent of the variation in revenue collection at Kenya Wildlife Service is explained by the four factors investigated in this study, the study recommends future studies to focus on establishing other determinants of revenue collection at Kenya Wildlife Service. Besides, another study is recommended to investigate the role of information management systems on revenue collection and financial performance of other government

agencies on entities since the findings from this study may not be generalizable to other entities due to the contextual differences between entities.

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APPENDICES

APPENDIX I: Questionnaire

Dear Respondent,

The aim of this questionnaire is to gather data on the effect of Information management systems on revenue collection of KWS. You are kindly requested to fill the questionnaire as accurately and honestly as possible. The details you provide will be kept strictly confidential and used only for the purposes of this report. On the questionnaire, do not include your name.

PART A: Background information

1. How long have your worked at KWS?
   - **a.** 0 -5 years ☐
   - **b.** 5 -10 Years ☐
   - **c.** 10-15 years ☐
   - **d.** Over 15 years ☐
2. Please indicate the department under which you work for in this organization?
   - **a.** Senior Manager (Grade 4 and above) ☐
   - **b.** Customer Service (CSO/CSS/CCA) ☐
   - **c.** Accountant ☐
   - **d.** Revenue collection Unit ☐
   - **e.** Any other (please indicate on this space).....
3. **Please indicate your Division**
   - **a.** Directors Division ☐
   - **b.** Parks and Reserves ☐
   - **c.** Devolution & Community ☐

d. Finance and Administration ☐

e. Corporate Service ☐

f. Security ☐

g. Strategy and Change ☐

h. Biodiversity and Research ☐

i. Species Management ☐

j. Any other.....

PART B:

4. Do you know that Information management system exists at KWS?
   Yes [ ]
   No [ ]

5. Do you think information management systems at KWS has been successful?
   Yes [ ]
   No [ ]

6 Have you been inducted on how to operate information management systems? Please explain your answer.

……

……

PART C:

7. Please indicate your level of agreement as to whether the following factors affect the revenue collection of KWS. Kindly indicate your level of agreement with the statements provided where 1= Strongly Disagree (SD), 2=Disagree (D) 3=Neutral (N), 4=Agree (A) and 5=Strongly Agree (SA).

Statement	**5**	**4**	**3**	**2**	**1**
Human resource management system					
There is adequate employee engagement on the use of the human resource management system at KWS					
Employees are inadequately trained on the revenue collection system					
Human resource management system has been accepted and easily used by employees at KWS					

Customer Relationship Management System					
The customer relationship management system has a customer feedback mechanism					
Customer complaints reduced after implementing the customer relationship management system					
Customer loyalty has increased after implementing the customer relationship management system					
The customers service time is shorter after implementing the customer relationship management system					
Internal control System					
Internal control system has mechanisms for regular and independent reconciliations of revenue accounts					
In this organization revenue collection employees are rotated regularly					
When any weaknesses in controls are established, effective mechanisms are executed to address the weaknesses					
Management regularly assesses the internal control system					
KWS has an independent revenue monitoring unit					
The system has clearly defined standard operating procedures					
Electronic payment system					
Management fully supports the use of electronic payment system (safari card)					
Management provided adequate budget to support Safari card rollout					
Management is aware of the strengths and shortcomings of the electronic payment system					
There exists clear reporting structures in the electronic payment system detachment					
Revenue collection at KWS					
Revenue collection has increased since information management systems were installed					
Costs have decreased since the introduction of information management systems					

There is an improvement in operational efficiency since information management system were adopted					
Customer satisfaction has improved after adopting the information management systems					

Thank you for your corporation

APPENDIX II: University Introduction Letter

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SCHOOL OF GRADUATE STUDIES AND RESEARCH

KCA/SGS/May. 21/1 28th May 2021

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: HUMPHREY K. MBEVI REG NO:13/00360

It is my distinct pleasure to introduce to you Mr. Humphrey Mbevi who is a student in our institution pursuing a Master of Science in Commerce at the College of Business.

Humphrey is conducting a research on a topic titled: ***"Effect of Safaricard Systems on Performance of Kenya Wildlife Service"*** which is part of the requirements of the program he is pursuing. The research as well as the data procured thereof shall be used for academic purposes only.

Any assistance accorded to him is highly appreciated.

In case of further inquiry, do not hesitate to contact the undersigned.

Yours faithfully,

Dr. Nyaribo Misuko
Dean, School of Graduate Studies & Research