INTEGRATED MANAGEMENT INFORMATION SYSTEMS APPLICATION AND OPERATIONAL PERFORMANCE IN KENYA POWER

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DECLARATION

This research project is my original work and has not been presented for a degree in any other university.

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This research project has been submitted for the examination with my approval as the university supervisor.

Signature…….. Date: ……..

Dr. Kate Litondo

DEDICATION

I dedicate this project to my late Dad (Rudolf) and Mum (Gertrude). They worked so hard to ensure I per sued my studies up to this level. Their support has been overwhelming and they were always there for me no matter how hard the situations would be. I also dedicate this work to my wife (Joan) and Son (Harvey). They have been my source of inspiration while I was working to complete this project. My brother (David) has also been very understanding and encouraged me a lot.

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I greatly thank God for helping me to have gone all this far. At times things were very difficult but God gave me the strength to carry on with the study.

Sincere appreciation also goes to my supervisor Dr. Litondo who put in a lot of efforts to improve my work as well as her many constructive criticisms which led to more quality work.

Through her I was able to learn a lot about research and my knowledge on the project scope really broadened. God bless you.

ABSTRACT

Integrated Management Information Systems is a goal-achiever information system through well-designed systems of and a better capability to transform one functional system into another. IMIS enables an organization to be able solve problems as well as visualize on difficult tasks with its proximity to the significance of information within the company or the surrounding environment. IMIS brings together all other components of a given business as one system for smooth running of events and operations. Therefore the integrated management information system brings together the implementation and operation of the organization systems in any given business environment. Kenya Power is entitled in electrical metering (postpaid and prepaid meters).It does do licensing to their subscribers and customers, billing of the electrical charges. Therefore, the stations are under very tight production schedules with limited timeliness to undertake their routine maintenance and repairs. Poor integrated management information system might lead to insufficient and poor data sharing across all processes and activities which leads to decreased productivity in organizations drastically. Therefore, study intended to evaluate the influence of integrated management information systems on the performance in Kenya Power. This research anchored on technology adoption theory, Schumpeterian theory of innovation, as well as change agency theory. A descriptive research design was administered in investigating the effects of IMIS on operational performance. The population targeted by this study was 1200 employees working in various departments at Kenya Power from which a sample of 138 was drawn by use of stratified sampling technique. Questionnaire with both open ended and close ended questions was used in collecting of primary data from our respondents. The study employed use of descriptive and inferential statistics to analyze data where correlation and regression analyses were conducted. The findings indicated that use of both systems have significance positive effect on operational performance. On the other hand, use of prepaid system seems to have a negative effect on the operational performance within Kenya Power. However, use of post-paid system alone seemed not to have significant effect on operational performance. The study recommends that there is need for management of Kenya Power to ensure integration of both prepaid and post-paid systems. This will ease the management and control of both systems which might also lead to reduction on cost of operations within Kenya Power.

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ABBREVIATION AND ACRONYMS

CAM	Computer Aid Manufacturing
CRM	Customer Relationship Management
ERC	Electricity Regulation Commission
FMS	Fleet Management System
IMI	Integrated management information
IMIS	Integrated Management Information System
IT	Information Technology
MIS	Management Information Systems
NCWSC	Nairobi Corporation of Water and Sewerage Company
NSE	Nairobi Securities Exchange
OPM	Operational performance management
SPSS	Statistical Package of Social Sciences
TPS	Transaction Processing System

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Information System can be described as a set of interrelated components that aid in data analysis towards quick decision-making so as to attain control measures in any given firm (Ifinedo, 2014). It also refers to linked instruments/tools fragments essential for information distribution such as components of a computer system with other information networking (Park & Lee, 2014). Management Information Systems (MIS) is a strategic and organized data analysis system process that is result-oriented in nature required for a particular management functioning (Galliers & Leidner, 2014). Therefore MIS commonly refers to the set of information management flow of events or steps used in assisting quick decision making. Subsequently MIS enriches an individual with good decision making tools useful to an organization management for work efficiency and effectiveness (Ockwell & Byrne, 2015). Integrated Management Information Systems (IMIS) is a goal-achiever information system through well-designed systems of and a better capability to transform one functional system into another (Kiplagat, Wang & Li, 2011). Therefore IMIS enables an organization to be able solve problems as well as visualize on difficult tasks with its proximity to the significance of information within the company or the surrounding environment (Prajogo & Olhager, 2012).

1.1.1 The Integrated Management Information System

Integrated Management Information System (IMIS) can be described as a group of interconnected mechanism which assist in processing, retrieval, collection, storage and distribution of information, to help in supporting decision making and organization

control (Eason, 2014). Galliers and Leidner (2014) defined Integrated Management Information System (IMIS) as the process of blending the interrelated tools of a given business to one combined system to necessitate ease operations and management within an institution. Krogh (2012) argued that IMIS brings together all other components of a given business as one system for smooth running of events and operations. The same scenario applies to other systems within a business environment such as Quality, Environmental, and Safety management systems which are conjoined to an IMS (Ward & Daniel, 2006). Therefore the integrated management information system brings together the implementation and operation of the organization systems in any given business environment (Ward, & Daniel, 2006).

Integration results from systems dimensions since trade-offs as well as adhesive decision making might be on the basis of information sharing as well as coordination. The whole system therefore needs to be optimized for better performance other than a string of optimized sub-systems (Ulsrud, Winther, Palit & Rohracher, 2015). The ability to produce more precise and timely information makes IMIS a significant system, looking at the whole outline of the interconnecting subsystems of the MIS. Essential and Proper integrated management information system as well as embracing of unified treasury operations helps the governments in developing advanced and effective regulatory mechanism over their assets and enhances openness thus curbing the disease of corruption and fraudulence amongst people (Pearlson, Saunders & Galletta, 2016).

Traditional information systems termed as “Silos” is a descriptive term used in literature by philosophers on the performance of a focused organizations whereby external

relationships are given less focus with little attention (Urquhart & Fernandez, 2016). IMIS therefore helps job allocations through communication effectiveness, teamwork and harmonization between the partakers and other interested parties, leading to improved systems with good features. The IMIS therefore influences the organization in good decision making as well as making its contribution to the overall performance (Powell & Dent Micallef, 1997; Zutshi and Sohal, 2015).

Gapp, Fisher and Kobayashi (2012) argued that that lack of procedures on the MIS integration is facing many organizations and leading to non-performance of organizations. Jørgensen, Remmen and Mellado, (2012) stated that some form of difficulties are experienced in determination of the policies are actually followed.

Widom (2015) explained that the existence of conflicts between the MIS statements and its communication as indicated by the top level managers. The reason is on the basis of sharing information quantity in the current systems, human resource and manager being difficult to sort and find the correct documents (Gable, 2014). Alavi and Leidner (2012) argued that describing MIS in uniformity is very hard and each of the functionally responsible managers creates contents differently.

1.1.2 Operational Performance

Operational performance management (OPM) is whereby the business units within a given organization are conjoined to ensure that they are working or performing as a single business to achieve the main set business goals for a better future (Brynjolfsson & Hitt, 2000). According to Krogh (2012) maintenance management are the activities of

planning, organizing, implementing, monitoring and controlling for sustainability of availability level, value system reliability and its components (assets) and its ability to operate to a certain standard level of quality. Therefore, the choice of the maintenance managerial practices applied impacts heavily on the performance of the firm.

The main measures of operational performance of a firm are reliability, maintainability, productivity, efficiency, availability and production per unit cost, among others (Siponen, Mahmood & Pahnila, 2014). Since Firm's maintenance costs are normally high application of best maintenance managerial practices can boost the operational performance of a firm. The maintenance management practices which offer better operational performance therefore need to be established in research (Laurini, 2014). Eason (2014) asserted that management support is the tipping board between operational success and failure. Organization should properly blend optimal maintenance management practices and management support for continuous improvement for it to survive in the current competitive operational arena (Ulsrud, Winther, Palit & Rohracher, 2015).

1.1.3 Kenya Power

The company is public and listed in the NSE (Nairobi Securities Exchange). It operates as a national electric supplier company in Kenya. Kenya Power is entitled in electrical metering (postpaid and prepaid meters).It does do licensing to their subscribers and customers, billing of the electrical charges. It is also an alarm response to emergency in case of electrical failure as well as customer relations queries and services. With the development in technology, Kenya Power has now become an optic fiber producing

company that have been connected all over the country this has been done so as to gap the power grip that has been on the rise recently (Krogh, 2012).

The major electricity producer in the Country with 25 Stations is KenGen. KenGen generates about 1240 Mw of the electrical power in the Country which is equivalent to about 75 % of the Country's power supply (KenGen website, 2014). The rest of the electrical power (25%) is produced by IPPs. These are Or Power, Tsavo Power, Rabai Power and Thika Power Company (ERC website, 2014). These stations and their capacities are as listed in Appendix 2. The stations are required to be running through out since there is electrical power supply shortfall in the country (Kenya investment Prospectus, 2013-2016).

Therefore, the stations are under very tight production schedules with limited timeliness to undertake their routine maintenance and repairs. The costs of this maintenance are normally high (Cross, 1998 & Al- Turki, 2011). Further, the spare parts needed for the repairs are mostly gotten from overseas. The procurement procedures and the distance from the source markets most of the times lead to delayed spares' deliveries. Therefore, these stations must adopt strategic maintenance management. Kenya Power has a number of management information systems and the major ones are Human Resource, Finance, Billing and Procurement among others.

1.2 Problem Statement

Poor integrated management information system leads to insufficient and poor data sharing across all processes and activities which leads to decreased productivity in organizations drastically (Eason, 2014). According to Ifinedo, (2014) the issue of barriers

to confidentiality of the organizations information, integrity, availability and accessibility to organization performance is still not quite addressed by the internal integration of the management system. The consolidation of information and voluminous data has in itself improved transparency and quick access to such information.

Various scholars have carried out a number of researches in the conceptual and contextual approaches. For instance, Selfano, Peninah and Sarah, (2014) carried out to determine how IFMIS affect cash management within the treasury of Eldoret West District, Kenya. They found out IFMIS affected public financial management positively. This research did not include test operational performance and was not power supply institutions. Another research carried out by Njonde and Kimanzi, (2014) to test the effect that IFMIS towards performance of public sector with focus on County Government of Nairobi, found out that reliability of a system is based on the accuracy, timeliness, completeness and consistency when collecting information. Mwangi (2014) conducted a study on maintenance management practices and operational performance in electricity producing stations in Kenya**.** The study concluded that, maintenance costs are higher in stations producing electricity. Nguu (2015) conducted a study to establish how ICT affect delivery of customer service within Nairobi city water and Sewerage Company and the findings show that ICT usage was to a very high extent in terms of customer communication, queries resolution, readability of meters, billings as well as the process of applying for new water connections.

Most of these studies have not given attention towards understanding the impact that integrated management information systems has on operational performance in Kenya

Power. Therefore the study's intention was to bridge the existing gap on establishing the impact of integrated management information systems on operational performance in Kenya Power.

1.3 Research Objectives

Generally, the objective of the study was to evaluate the influence of integrated management information systems on the performance in Kenya Power

Specifically to:

i. Establish extent to which Kenya Power is using IMIS
ii. Establish challenges of using the systems
iii. Establish the relationship between integrated management information systems and operational performance in Kenya Power

1.4 Value of the Research

The research has enabled us to have a better knowledge on the impact of IMIS Operations specifically within the Kenya Power setup. The study also helped us to focus on interventional strategies and coordinate the efforts facilitating effectiveness of integrated MIS to improve organizational management. The study has created a room for the available literature review on the influence of integrated MIS on the operational enactment in Kenya Power. Finally this study can assist the Kenya Power to evaluate the values on the impact of integrated MIS on organizational operation enactment.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter discussed the theoretical review, theory, empirical review part of the research topic as well the conceptual framework demonstrating the relationship between integrated management information systems impact on operational performance in Kenya Power.

2.2 Theoretical Review

The study was anchored on the following three theories:

2.2.1 Technology Adoption Theory

Technology adoption theory tends to explain on why, how and the degree to which new concepts of technology extend to, effective values individually and as a firm (Venkatesh, Morris, Davis, &Davis, 2013). Technology adoption theory sees acceptance of technology (innovation) as being conversed through networks intensely and within a given societal structure. Individuals are realized to possess diverse gradations of readiness to embrace innovation hence largely detected that the sample of the population implementing invention is distributed normally, sequentially periodically (Venkatesh, Morris, Davis, & Davis, 2013). Adoption of new technology in an organization leads to innovation on methods of production, development of new products, services provided in an organization marketing systems and accessing information on new markets for products, new products and better methods of production. Organizations adopt turnaround strategy to accommodate new technology. In case of utility firms, turnaround strategy makes firms to adopt new IT skills, increases the level of IMIS application, leads

to training on new technology, new transaction processing methods and encourages firms to embrace outsourcing. This theory explained integrated management information systems on the performance in Kenya Power where by the new trends in technology are being used in the company.

2.2.2 Schumpeterian Theory of Innovation

The theory stress that incomes has a role on free enterprise and the in the hunt for opportunities, original significance as well as spawning undertakings which would broaden or transform the globular flow of income via risk taking, proactiveness and innovativeness of leadership which objects at adopting proof for identity of chances through knowledgeable capital of financier to capitalize on probable profit and progression (Ngugi, 2013). Schumpeterian growth theory states afar from theory of economist by differentiating implicitly between physical and knowledgeable capital, between saving, which makes bodily investment grow as well as invention, which makes knowledgeable investment grow. It supposes that technological advancement results from modernizations done by some firms and organizations inspired by the profit making, and which includes “creative destruction”, as referred by Schumpeter. Each innovation is expected to create new processes or products that allow its initiator to have a viable advantage over its business competitors. This is achieved through execution of outdated prior innovation. In turn it is ordained to be rendered outdated by future innovations (Schumpeter, 1934).

Schumpeter, just like Swedberg (2013), outlined that the economic behavior is to some extent instinctive in nature and most likely be of high standard, while free enterprise

involves coming up with new ideas in different ways as the original way, innovation being a critical worth. As financial side focused on the exterior impacts over organizations, he assumed that transformation could occur from the inside, and then pass through a form of business stage to real change in the economy. New production function where the entrepreneur makes new combinations of already existing materials and forces, in terms of idea generation; such as the new goods introduction, introduction of a new production methods, new market opening, invasion of a new sources of input production and a new industry organization was made (Casson, 2012). For Schumpeter, the entrepreneur is inspired by the urge for authority and self-dependent, willingness to succeed and the satisfaction of doing things well (Ahmadi, 2012). This theory was in agreement with the integrated management information systems on the performance in Kenya Power. The company is involving technology in adopting innovative ways of providing services to customers.

2.2.3 Change Agency Theory

The change agency theory is of relevance to the understanding of innovation in the present linked to automatic project construction , whereby finances, managerial factors, information and technological constraints lean towards limiting free enterprise and innovativeness. Negotiators/mediators can either be external or internal (Donaldson, & Davis, 1991). Internally the institutional owners and other influential regions can performance the part of champs, advocates and inspirational leaders (Adams, 1994). Ross, (2008) state that technology streamlines as well minimizes tasks requiring labor-intensive skill and energy especially in industrial units, and other forms of property production

applied may increase productivity. The use of programmable robots for tasks like welding, spraying and handling of, materials has aided in surface cleaning especially when working with metallic instruments, also Computer Aid Manufacturing (CAM) minimizes costs thus improves quality hence bringing in the consistently finished quality products. Unexploited technology necessities enrich us with skills necessary for problem solving thus easing the capability to interpret the obtained results which is likely to direct us to the broadening gap between experienced and non-experienced workers (Leslie, 2005). This theory supported integrated management information systems on the performance in Kenya Power whereby the IMIS is expected to enrich employees with skills necessary in problem solving.

2.3 Integrated Management Information Systems and Organisations

IMIS as a diverse set of information possessions structured for the assembling, processing, maintenance, custom, sharing, and information communication and excellence service in work place (Devaraj, Krajewski, & Wei, 2007). Ifinedo (2014) argued that technology modernization as the adjustment of facts transformation and the information role may easily improve on the enactment of the work as well as increasing the gratification of the systems operators. Usage of information in making decision has become the primary means towards a successful organization.

Integrated management information (IMI) is essential for the achievements of every business and is a spirited tactical asset, the podium on which organizations pass information not only within but also externally to other organizations (Ulsrud, Winther, Palit, & Rohracher, 2015). Increased dependence on IMI and other technology brings

about novel sets of elementary requirements which are treated with a lot confidentiality and integrity. Integration of MIS has fastened the efficiency of services and in return has designed the manner in which services are provided to clients (Eberhard, Rosnes, Shkaratan, & Vennemo, 2011).

The Management Information System has become a dynamic component of any business that is successful and is regarded as major and well-designed areas just like any other useful part of a business organization such as advertising, investment, invention as well as the Human Resource (Park & Lee, 2014). MIS is essential since most businesses have a necessity towards information on the responsibilities which they perform on a daily basis (lffs, Ockwell, & Byrne, 2015). IMIS is therefore a problem solving tool, providing opportunities for increased productivity, quality and automating the system. An automated system would assist the management appreciate the aids of the effective management of the Information System with the correct system which leads to good performance as an alternative (Kiplagat, Wang & Li, 2011). Subsequently IMIS facilitate the tracing and observing processes as well as controlling the structure for the mining of the correct facts via a well-outlined application. The feedback for the required report for the interrelated information across the MIS catalog relies on it and the data management system intricacy for joined tasks and the variances amongst data sources (Brynjolfsson, & Hitt, 2000). Elegant information system in an organization is practically made straight to serve the business expectations. Knowledge shortages concerning the IMS would bring about a challenge to the effective eradication of ridges and hindrances in the whole system (Siponen, Mahmood, & Pahnila, 2014).

2.3.1 Challenges of using the systems

According to Zutshi and Sohal, (2015) the energy sector and organization is facing challenge of achieving consensus on IMIS. Fisher and Kobayashi (2012) argue that due to the lack of program integration, the management information system faces many challenges and leads to non-compliance with the organization functions. Currently, there is no clear incentive to comply with the Integrated Management Information System.

Jorgensen, Remmen and Mellado (2012) reported that there is a description of all the detailed processes that are very focused on when determining whether the policy is effective or not, when the routine procedure differs from the way they are actually to be done. Male (2015), stated the management information system is connected by senior management, the control system, whose focus should be on the target example, but it actually focuses on a contradiction in financial control. Internal and external management information systems are also a major challenge, because of the current system, where staff and management are difficult to reorder information and find the right amount of file information.

Gable (2014) pointed out that the MIS problems come around in the process of providing and inputting data and keeping information updated. Companies generate various data related to expenses, sales, payments, revenue, as well as other business backgrounds. The marketing department usually has other databases. The company's correct management information system tends to utilize the inputted data directly or rely on imported data with the same formats. Standardized methods of describing content in MS are very difficult, and administrators manage and create content in different ways functionally.

2.3.2 Management Information Systems and Operational Performance

According to Owuor (2004), IMIS can be applied in any of these activities to enhance customer value. For example, with regard to infrastructure, since the bulk of the work in the accounting function is made up of daily transactions, an IMIS based transaction processing system (TPS) can be used to improve accuracy and speed up the processing of transactions. According to Knod and Richard (1991), in quality management, the major task is concerned with process control, inspection and early warnings and process improvement. Without adequate and timely information, it would be impossible to ensure quality of goods or services. In such a case therefore, a good information system is a vital tool for the quality management function. According to Rittenberg et al. (1994), these tools assist the auditor in testing the effectiveness of control procedures, especially the control procedures that are embedded within computer programs, testing the processing leading to the recorded accounting balances, reading computer files and performing manipulations on those files to assist in evaluating the year end account balances and assisting in planning, administering, documenting and conducting an audit.

Kotler (2002) emphasizes that equipped with laptop computers, sales representatives can now access information about prospects and customers, hence provide immediate response as well as sales reports. In this way, use ICT based reports has helped the sales and marketing managers able to make orders, sales, analyze prices, costs, achieve inventory levels as well as able to make and amend account receivables and payables. So as to achieve their objectives, hence the importance of ICT in the sales and marketing function. Organizations nowadays store such logistical information on centralized

databases accessible throughout the organization and activities previously separated within organizations have been integrated into a total logistics construct. Moreover, this information is shared with suppliers and customers using ICT, further external integration has resulted in organizations focusing on the total supply chain as a new frontier in their quest to find a competitive advantage. ICT's role in logistics can therefore not be ignored. By the implementation of the NCWSC's strategic business plan 2007/8 - 2009/10, the company implemented the SPMS and a Fleet Management System (FMS) to improve its logistics.

According to Kamau (2006), customer service involves answering the phones, channeling potential buyers to sales people, answering questions, handling complaints, documenting complaints, calming agitated customers, compensating them, follow up on issues, remedies and offering before and after sales support. In all these areas, MIS if well applied would be of great value to NCWSC in influencing customer service. As Mbote (2003) established, MIS can be utilized to improve customer service by extending services to customers over the Internet. In this way, water companies can provide services such as online application for water and sewer services as well as bill presentation. As Gillett (1976) asserts, MIS plays an essential part in the research field and the development project appraisal. For companies engaged in the provision of water and sewerage services, MIS can be used to research on new and better methods of monitoring and managing the water levels in the dams and reservoirs as well as in the transmission and distribution networks and water flows. Geographic Information Systems (GIS) can be used to identify and trace different types of assets such as gate valves, pressure valves, water meters and water pumps.

2.4 Empirical Literature

Several field researches have been done by different scholars in relation to the current study. Yohannis (2016) researched on effective strategic approaches adopted by University of Nairobi ICT unit on ICT information equipment maintenance, discovered that the institution is aware of the significant role of the maintaining the MIS equipment so as to provide services that are of worth to the institution and time bounded. The conclusion was that there is a consolidated policy of maintenance that guides the ICT central facility laborers within the university as well as those in different campuses. Nevertheless, sluggishness in quick response to addressing the ICT equipment failure and malfunctioning should be prioritized

Banks should recognize the deliberate role played by CRM as well as the augmented importance credited to CRM in the future. They should recognize the assortment of experience and necessities of different customers. Moreover, banks should hire skilled personnel to deal with the system efficiently especially when the system is complex (Bitutu, 2014). This study was on commercial banks in Kenya as a case study on customer relationship management system (CRM) by Laurila (2017). The study therefore established developing computerized maintenance management system and implementation of the prototype was evaluated by conducting functional testing and a technical review.

Nguu (2015) conducted a study to establish how ICT affects delivery of customer service within Nairobi city water and Sewerage Company and the findings show that ICT usage was to a very high extent in terms of customer communication, queries resolution,

readability of meters, billings as well as the process of applying for new water connections. Another research carried out by Njonde and Kimanzi, (2014) to test the effect that IFMIS towards performance of public sector with focus on County Government of Nairobi, found out that reliability of a system is based on the accuracy, timeliness, completeness and consistency when collecting information.

Mwangi (2014) conducted a study on maintenance management practices and operational performance in electricity producing stations in Kenya**.** The study concluded that, maintenance costs are higher in stations producing electricity. Selfano, Peninah and Sarah, (2014) carried out to determine how IFMIS affect cash management within the treasury of Eldoret West District, Kenya. They found out IFMIS affected public financial management positively. This research did not include test operational performance and was not power supply institutions.

2.5 Summary of Literature Review

A reliable system should be time-bounded, reliable (accurate and complete) and effective information gathering. A Structure supporting IMIS should be ruin-free, uncorrupted, denial to unauthorized access and full of confidentiality for cash efficiency management. Therefore chances of failure in cash management can be decreased by how flexible the local IMIS design is.

2.6 Conceptual Framework

The study variables were conceptualized through the framework displayed in Figure 2.1.

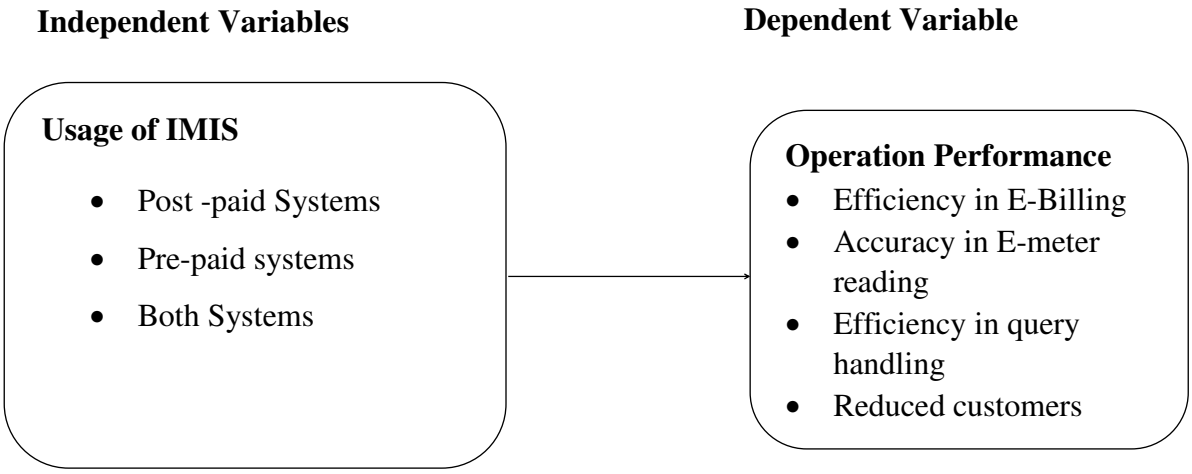


Figure 2.1: Conceptual Model

The model illustrates the relationship between independent variable which in this case was usage of IMIS which was represented by post-paid systems, pre-paid systems and both systems. On other hand, Operational Performance was the dependent variable of the study and this was measured in terms of effectiveness realized through in e-billing, accuracy in e-meter reading, efficiency in query handling as well as reduced customers complain.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter focused on the methodological steps to be employed in obtaining essential research data for study achievement. It was categorized into the design of the research, the target population, the research study assumptions, sampling frame and sampling technique for the data collection and analysis, instruments for data collection, procedures for data collection, processing and data analysis, instrumental research and administering of questionnaires

3.2 Research Design

A study design can be described as a principal plan that systematically describes steps or procedure used in the analysis of any given data (Sekaran & Roger, 2011). It can also be defined as to constitute a blue print for data collection, measurement and Cooper and Schindler, (2006) argue that study design constitutes the blue print for the whole data analysis procedure running from collection of the data all the way to generating of result for the achievement of the study objectives. A study design was meant to answer the research questions as well as hypothesis testing (Kothari, 2004).

A descriptive research design was administered in investigating the effects of IMIS on operational performance, Kenya Power being the case study. In that case, quantitative data was used in our study. The targeted population characteristics, current practices, conditions or needs of the current society made descriptive data to be more precise in our research.

3.3 Target Population

Mugenda and Mugenda, (2003) defined the population target to be totality of individuals with similarity in characteristics of which the researcher has interest studying. Therefore the population targeted by this study was the employees in various departments at Kenya Power as displayed below: the Finance department, the IT department, HR team as well as the operation department from Kenya Power Head Quarters Nairobi. It was to study's assumption and believes that the sample out of population of study was experienced in our area of study in Nairobi County. This is as displayed in Table 3.1

Table 3.1: Targeted research Population

Departments	**No. of employees**	**Percentage**
IT Dept.	75	6%
Finance Dept.	25	3%
HR Dept.	100	8%
Operation Dept.	1000	83%
Total	**1200**	**100%**

Source: Kenya Power (2017)

3.4 Sample and sampling techniques

The researcher defines a sample size as a subset of an identified population of study that possesses similar properties as the actual population. A well-represented and adequate subset of the entire population is termed to be a good sample. Simple random sampling technique was used to do sample selection to avoid biasedness as all units have equal chance of inclusion., Simple random sampling techniques representation of guarantees inclusion of minor sets which are termed to be of less important by other unit selection techniques hence omitted during selection (Mugenda & Mugenda, 2003).

An ideal sample size was therefore obtained using Fishers (1925) as it was of significance to population of size 1200 or more.

$$n = \frac{z^2 \times p \times q}{d^2}$$ (Fisher *et al.,* 1991)

Where:

n = sample size

z = 1.96 the tabulated value from a normal distribution at α= 5%, hence 95% confidence which was p = 10% this is the percentage of respondents to be included in our survey from different targeted department at Kenya Power. It is with our assumption that the selected respondents are knowledgeable on our study topic.

q = 1 - p

d = an allowable margin of error set at 5% = 0.05, the default alpha

$$n = \frac{1.96^2 \times 0.1 \times (1-0.1)}{0.05^2} = 138$$

n=138

The number of employees from specific departments was as shown below:

Table 3.2: Sample Size

Units	Percentage	Number of workers
IT Dept.	6%	8
Finance Dept.	3%	4
HR Dept.	8%	11
Operation Dept.	83%	115
Total	**100%**	**138**

Source: Author (2018)

3.5 Data collection instruments and procedures

A data collection instrument (questionnaire) comprised of open ended and close ended questions was used in collecting of data from our respondents. Likert-type format was in variable coding for on reasonable interval Kiess and Bloomquist (2012), for easy research variables testing. Questionnaire was more effective especially on open-ended questions where a respondent was allowed to think and give his/her own views/opinions other than the given choices (Dempsey, 2013).

3.6 Data Collection Procedures

Primary data was picked in this research. Primary data first hand data that involves a researcher applying study instruments such as reviews, experimentations, case studies as well as questionnaires. The researcher preferred questionnaire to other research tools for efficiency in response scaling. According to Boslaugh (2007) secondary data is information collected by a person for other reasons other than research activities.

Research books, magazines (newspapers) and the internet were used as reference materials.

3.7 Data Analysis and Presentation

Data analysis and presentation aided in achieving research objectives as well as answering research questions. Data sorting, classification, coding and tabulating eased the analysis. Categorization and summarizing of data helped researcher to obtain data as per study intentions. The research employed assistance of SPSS version 25 was then utilized for analysis since it was found to be user-friendly and most suitable for analysis (Martin & Acuna, 2002).

Frequency tables, percentages, bar charts and pie charts were used to represent the results as a way to output analysis. Frequency of occurrence across measures of attributes formed the focus of study's interest. A multiple linear regression equation was fitted to display the interrelationship between predictor constructs and predicted constructs.

A regressed equation used was as follows:

$$OP = \alpha + \beta_1 PoP + \beta_2 PrP + \beta_3 BS + Ɛ$$

That is; OP means Operational Performance; α stands for constant out when the all the independent factors are equals to zero; β_1, β_2, and β_3 are the coefficients independent variables that determines the change in dependent variable with any unit change in predictor variables; PoP represents post-paid systems; PrP is for pre-paid system; BS is a representation of both systems; while Ɛ was the error term.

CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter covered data presentation, interpretation and discussion of the findings. The aim of the study was to examine the relationship between integrated management information systems application and operational performance in Kenya Power. The study's goal was achieved through analysis of the primary data gathered based on concepts under study. Therefore this chapter is comprised of the following sub-sections: response rate, demographic information, extent of using integrated management information system, challenges of using integrated management information system, Operational Performance of integrated management information system, influence of integrated management information system on Operational Performance as well as inferential results which comprised of correlation and regression analysis.

4.2 Response Rate

The findings on response rate are as given in Table 4.1.

Table 4.1: Distribution of Response Rate

Responses	**Frequency (n)**	**Frequency (%)**
Responded	100	72
Not responded	38	28
Total	**138**	**100**

Source: Author (2018)

The anticipation of the study was to collect primary data from one hundred and thirty eight (138) employees from various departments of Kenya Power which comprised of the

Finance department, the IT department, HR team as well as the operation department residing from Kenya Power Head Quarters Nairobi. Nonetheless, out of the expectation, only one hundred (100) of them were able to respond and return back the research questionnaire. For that reason, it translated to an overwhelming response rate of 72 percent. This could therefore imply that, the remaining 28 percent of the target respondents either did not answer or did not return their questionnaires for inclusion or that the questionnaires returned were found to have some anomalies. Another most likely reason which might have led to a response rate less than 100 percent would be due to the busy schedules experienced at their place of work and the shortest time given to respond to questionnaire. However, the response rate reported by this study was considered excellent for analysis as advocated by Mugenda and Mugenda (2012) that a response rate ranging from 70 percent and above is excellent for analysis.

4.3 Demographic Information

This sub-section is comprised of demographic information which was meant to examine the age brackets of the respondents, highest educational achievement, as well as systems used in provision of services to customers.

4.3.1 Age of the Respondents

One of the items addressed under demographic information was determination of the respondents' age as indicated in Table 4.2. This was categorized in various reasonable age brackets which ranged from between 18 – over 47 years which was arranged in a descending order on the basis of frequency and percentage measures.

Table 4.2: Age Brackets of the Respondents

Age in Years	Frequency (n)	Percent (%)
28 – 32 years	22	22.0
33 – 37 years	22	22.0
23 – 27 years	18	18.0
38 – 42 years	16	16.0
43 – 47 years	14	14.0
Over 47 years	8	8.0
18 – 22 years	0	0.0
Total	**100**	**100**

Source: Author (2018)

It can be deduced that majority of the employees who responded to study questionnaire were in the age bracket of between 28 – 32 years and 33 – 37 years each having a representation of 22 percent. This was followed by the employees in the age group ranging from 23 – 27 years which was represented by 18 percent. Those who fell in the age brackets of between 38 – 42 years were represented by 16 percent. In addition, about fourteen (14) of the respondents (14%) were found to belong in the age set of between 43 and 47 years. The age group of over 47 years gave a representation of 8%. Ultimately, none of the respondents existed in the age bracket of 18 – 22 years. These results have

indication that the employees of Kenya Power are comprised of mixed age groups and thus, a sign of good representation of all ages.

4.3.2 Highest Education Achievements of Nurses

On the question requiring the respondents to state their highest education achievements, the study provided the results as shown in Table 4.3.

Table 4.3: Highest Level of Education

Educational Level	Frequency	Percent
Bachelor's Degree level	50	50.0
Certificate/Diploma level	32	32.0
Masters Degree level	16	16.0
Doctoral Degree level	2	2.0
Total	**100**	**100**

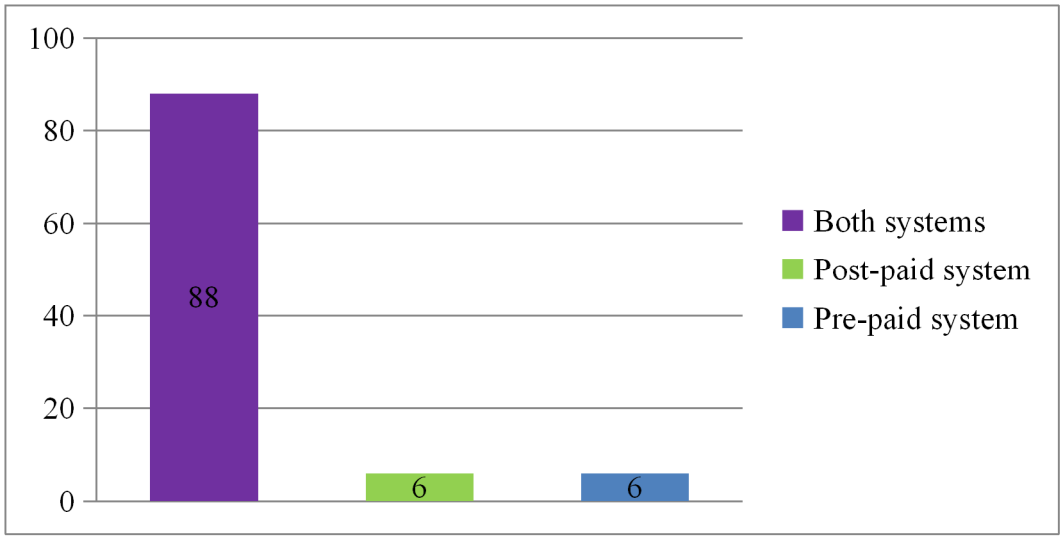
Source: Author (2018)

From the findings given, it can be seen that majority of the respondents with a representation of 50% had attained bachelors' degree as their highest educational achievement. About 32 percent of the respondents had certificates/diplomas diplomas as their highest educational achievement. Approximately 16 percent were found to have acquired masters' degree while only two (2) respondents were found to have attained doctoral degree. The results imply that the employees working with the Kenya Power had achieved prerequisite education levels to enable them handle their respective duties efficiently.

4.3.2 System Utilized in Serving Customers

The research required the respondents to indicate the system which they use to serve customers at their place of work and the results are as provided in Figure 4.1.

Figure 4.1: System Used to Serve Customers



Source: Author (2018)

It can be construed that overwhelming majority (88%) of the respondents who filled and returned their questionnaires for analysis were using both prepaid and postpaid systems to serve customers. On the other hand, those who were found to be relying on either prepaid system alone or postpaid, each had a representation of 6% respectively. This could therefore indicate that employees of Kenya Power are comprised of mixed genders. This could imply that most of the departments at the Kenya Power integrate both systems in serving customers.

4.4 Extent of Using Integrated Management Information System

The study as well required the respondents to indicate the extent to which integrated management information system was utilized at Kenya Power as per objective one. This was done based on a likert scale measurement where 1 stood for strongly disagree, 2 meant disagree, 3 was for moderate, 4 translated to agree, and 5 represented strongly agree.

Table 4.4: Using Integrated Management Information System

Usage	N	Minimum	Maximum	Mean	Std. Deviation
IMIS quickening bill delivery	100	2.000	5.000	4.34000	0.713789
IMIS being used in refund of meter deposits	100	2.000	5.000	4.02000	0.765150
Indicate the extent to which you are using the Integrated Management Information system	100	3.000	5.000	4.02000	0.651029
IMIS being used in communicating distribution information to customers	100	2.000	5.000	3.72000	0.877093
IMIS reducing the time taken to make new electricity connections	100	2.000	5.000	3.62000	1.080404
Overall Mean				**3.944**	

Source: Author (2018)

From the responses displayed in Table 4.4, it can be construed that majority of respondents represented by a mean of 4.34000 and a standard deviation of 0.713789 agreed that IMIS had quickened bills delivery. The results further revealed that employees of Kenya Power agreed to statement that IMIS was being used in refund of meter deposits (Mean = 4.02000, Standard deviation = 0.765150). Similarly, those who agreed to be using the integrated management information system had a mean of 4.02000 accompanied by a standard deviation of 0.651029. On the other hand, respondents moderately agreed that IMIS was being used in communicating distribution information to customers (Mean = 3.72000, Standard deviation of 0.877093). The study as well established that respondents agreed moderately to the statement that IMIS had reduced the time taken to make new electricity connections (Mean = 3.62000, Standard deviation of 1.080404).

With an overall mean of 3.944, it indicates that employees of Kenya Power use IMIS to a great extent. This could therefore imply that Kenya Power was using Integrated Management Information System in order to reduce the time taken to make new electricity connections, quicken the bills deliveries, and refund meter deposits.

4.5 Challenges of Using Integrated Management Information System

Objective two of this study focused on the challenges faced in usage of Integrated Management Information System. This was examine based on likert scale of 1 – 5 where 1 was for strongly disagree, 2 reflected disagree, 3 meant moderately agree, 4 was for agree, and 5 stood for strongly agree. The findings of the study are as provided in Table 4.5.

Table 4.5: Challenges of Using Integrated Management Information System

Challenges	N	Minimum	Maximum	Mean	Std. Deviation
Sometimes there is lack of IMIS due to system breakdowns	100	2.000	5.000	4.50000	.758787
Cost of implementing IMIS is considered to be high	100	2.000	5.000	4.50000	.758787
Lack of policies on the IMIS integration	100	2.000	5.000	3.82000	.936143
The organization has not integrated all the management information systems	100	2.000	5.000	3.74000	.799242
There are errors in meter reading	100	2.000	5.000	3.60000	.852803
There are errors in billing management	100	2.000	5.000	3.54000	.783929
Overall Mean				**3.95**	

Source: Author (2018)

To a very high extent, respondents strongly agreed that sometimes there is lack of IMIS due to system breakdowns at Kenya Power (Mean = 4.50000 and Standard deviation of 0.758787). Another key challenge was that cost of implementation of IMIS is very high (Mean = 4.50000 and Standard deviation = 0.758787). This was followed by those who moderately agreed that lack of proper policies on the IMIS integration was a challenge (Mean = 3.82000, Standard deviation = 0.936143). It was established that Kenya Power

had a challenge of fully integrating all the management information systems in its operations (Mean = 3.74000, Standard deviation of 0.799242). Other challenges which were found to affect usage of Integrated Management Information System to a moderate extent included; errors in meter reading, and errors in billing management as represented by mean values of 3.60000, and 3.54000 respectively. Moreover, the respondents mentioned weak policies, system failure, poor data storage, and limited personnel skills as constraints to proper usage of IMIS

The responses on challenges reported an overall mean of 3.95 which could be an indication that employees of Kenya Power were finding difficulty to use IMIS. Majorly, the key challenges hindering usage of this integrated system comprise of breakdowns of Integrated Management Information System, cost of implanting IMIS being very high, as well as lack of policies on the IMIS integration

4.6 Operational Performance of Integrated Management Information System

On the question which required respondents to indicate the extent at which they agreed with the statements related to IMIS and performance of Kenya Power, the findings are as provided in Table 4.6. The responses were given based on likert scale of 1 – 5 where 1 was for strongly disagree, 2 reflected disagree, 3 meant moderately agree, 4 was for agree, and 5 stood for strongly agree. From the output given, it can be deduced that employees of Kenya Power who participated in this study agreed that IMIS assisted in easing query solutions (Mean = 4.39583, Standard deviation of 0.760598). IMIS was also found to help in easing process of handling complaint within Kenya Power (Mean = 4.24490,

Standard deviation of 0.746969). Likewise, IMIS was found to increase accuracy in meter reading (Mean = 4.24490, Standard deviation = 0.689557).

Table 4.6: Operational Performance of Integrated Management Information System

Performance	N	Minimum	Maximum	Mean	Std. Deviation
IMIS easing query solutions	96	2.000	5.000	4.39583	.760598
IMIS easing process of handling complaint	98	3.000	5.000	4.24490	.746969
IMIS increasing accuracy in meter reading	98	3.000	5.000	4.24490	.689557
IMIS enhancing quick meter testing	98	2.000	5.000	4.22449	.739610
IMIS improving customer billing management	98	2.000	5.000	4.16327	.769173
IMIS being used in communication distribution of information to customers	98	2.000	5.000	3.59184	.993139
Overall Mean				**4.14421**	

Source: Author (2018)

Another key role played by IMIS at Kenya Power was that it helped in enhancing quick meter testing (Mean = 4.22449, Standard deviation = 0.739610). Furthermore, the respondents agreed with the statement that IMIS improved customer billing management

since it provided a mean value of 4.16327 and Standard deviation of 0.769173. Nevertheless, IMIS was being used in communication distribution of information to customers to a moderate extent (Mean = 3.59184, Standard deviation = 0.993139).

An overall mean of 4.14421 means that IMIS influenced performance at Kenya Power to a great extent. The performance was realized mostly through IMIS easing query solutions; IMIS easing process of handling complaint; IMIS increasing accuracy in meter reading; IMIS enhancing quick meter testing; and IMIS improving customer billing management.

4.7 Influence of IMIS on Operational Performance

The study sought to determine the impact of IMIS Operational Performance and the upshots are illustrated in Table 4.7. It can be revealed that Kenya Power reported a minimum of one complain and a maximum of 300 complaints in the past one month. On average the company recorded about 108 complaints in the past one month. The minimum number of billing errors registered in the past one month was just one and the maximum being 150 errors. The company registered an average of 74 billing errors in the last one month.

The study also established that the minimum number of in the past one month was 2 while the maximum was 100. There was an average of 59 errors made in reading of Kenya Power meters. Furthermore, the research ascertained that the minimum time taken to respond to queries was 24 hours while the maximum time taken in responding to queries was two days (48 hours). On average employees of Kenya Power were found to take about 30 hours to respond to customer queries. An overall mean value of 67.69155

could be interpreted to mean that Integrated Management Information System impacted the overall performance of Kenya Power to about 67.6%.

Table 4.7: Influence of IMIS on Operational Performance

Aspects	N	Minimum	Maximum	Mean	Std. Deviation
Number of complaints received from customers in the past one month	80	1.000	300.000	108.40000	60.185704
Number of billing errors registered in the past one month	78	1.000	150.000	73.97436	34.796990
Number of errors in reading of meters in the past one month	70	2.000	100.000	58.51429	28.799528
Duration taken to respond to queries (hours)	98	24.000	48.000	29.87755	10.373703
Overall Mean				**67.69155**	

Source: Author (2018)

4.8 Correlation Results

A Pearson correlation analysis was carried out to determine the strength and direction of the association between the study variables. The findings of the study on correlation are as given in Table 4.8. To establish whether the correlation statistics between the study variables were significant, the study relied on the p – values where a recommended α or alpha of 0.05 indicate significance and the opposite indicate insignificant correlation (Kendall & Gibbons, 1990; Krijnen, 2004).

From the findings given in Table 4.8, it can be deduced that only use of both systems was found to have a positive association towards the operational performance of Kenya Power. The findings show that a unit increase in both systems is associated with an increase in chances of enhancing operational performance of Kenya Power by a unit value of 0.345 with a significance value of 0.014.

Table 4.8: Correlation Analysis

		Operational Performance	Postpaid system	Prepaid system	Both systems
Operational Performance	Pearson Correlation	1	-.422**	-.499**	.345*
	Sig. (2-tailed)		.002	.000	.014
	N	100	100	100	100
Postpaid system	Pearson Correlation	-.422**	1	.418**	.024
	Sig. (2-tailed)	.002		.000	.811
	N	100	100	100	100
Prepaid system	Pearson Correlation	-.499**	.418**	1	-.042
	Sig. (2-tailed)	.000	.000		.678
	N	100	100	100	100
Both systems	Pearson Correlation	.345*	.024	-.042	1
	Sig. (2-tailed)	.014	.811	.678	
	N	100	100	100	100

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

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

Source: Author (2018)

On the opposite, post-paid system relates negatively towards operational performance since a unit increase in the usage of this system alone tend to decrease operational performance by 42.2% (significance value of 0.002). Furthermore, the results show that use of prepaid system alone correlates negatively with operational performance given a coefficient value of -0.499 and a significance value of 0.000. Therefore an indication that integration of both systems could lead to efficiency in operational performance while using the systems individually, seem to have a negative relationship towards operational performance.

4.9 Regression Results

The study further required to estimate the effect of independent variables which were prepaid system, post-paid system, and both systems on the dependent variable which in this study was operational performance. This was tested using regression model below:

$$OP = \alpha + \beta_1 PoP + \beta_2 PrP + \beta_3 BS + Ɛ$$

Where OP meant Operational Performance; α stood for constant out when the all the independent factors are equals to zero; β_1, β_2, and β_3 are the coefficients independent variables that determines the change in dependent variable with any unit change in predictor variables; PoP represented post-paid systems; PrP was for pre-paid system; BS was a representation of both systems; while Ɛ was the error term.

4.9.1 Model Summary

The summary results given in Table 4.9 indicates that the regression model provided a correlation R value of 0.619 and an R squared value of 0.383. This indicates that use of prepaid, postpaid and a combination of the two jointly can explain 38.3% of the

operational performance at Kenya Power. The rest can be explained by other factors not included in the model.

Table 4.9: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.619[a]	0.383	0.342	87.262400

a. Predictors: (Constant), Both systems, Postpaid system, Prepaid system

Source: Author (2018)

4.9.2 ANOVA

The output of ANOVA shown in Table 4.10 below gave a regression sum square of 217148.505 and a residual sum square of 350277.415 with mean squares of 72382.835 for regression and 7614.726 for residual. With an F – statistics of 9.506 and a strong significant value of 0.000, the model shows that the variables used in this study were acceptable and fit to determine operational performance of firms.

Table 4.10: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	217148.505	3	72382.835	9.506	0.000[b]
	Residual	350277.415	96	7614.726		
	Total	567425.920	99			

a. Dependent Variable: Operational Performance

b. Predictors: (Constant), Both systems, Postpaid system, Prepaid system

Source: Author (2018)

4.9.3 Regression Coefficients

Moreover, the model gave estimations on the effect of individual aspects of independent variables under investigation and the findings of regression coefficients are as illustrated in Table 4.11.

Table 4.11: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	607.311	118.390		5.130	0.000	369.005	845.617
	Postpaid system	-10.130	5.920	-.254	-1.711	0.094	-22.045	1.786
	Prepaid system	-11.429	5.352	-.317	-2.135	0.038	-22.203	-.655
	Both systems	54.394	18.868	.339	2.883	0.006	16.416	92.373

a. Dependent Variable: Operational Performance

Source: Author (2018)

The estimations on coefficients revealed that only the prepaid system and used of both systems have significance effect on operational performance. The study established that use of prepaid system alone tend to affect operational performance within Kenya Power negatively since this variable provided an acceptable beta value of -11.429 accompanied by a strong t – value of 2.135 supported by significant value (p – value) of less than 0.5. On the opposite, use of both systems (prepaid and postpaid) were found to have a positive

effect on the operational performance at the Kenya Power. However, use of post-paid system seem not to have significant effect on operational performance as it provided a beta value of -10.130 (t – value of 1.711) with unacceptable significant value of 0.094 (>0.05).

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter consists of a summary of the study findings, conclusion based on the findings provided in chapter four, and recommendations of the study and suggestion for the further studies were highlighted.

5.2 Summary of the Findings

The general objective of this research was to evaluate the influence of IMIS on the performance in Kenya Power. Specifically, the study inquire to know the extent to which Kenya Power is using integrated management information systems; establish challenges of using the systems; and establish the relationship between integrated management information systems and operational performance in Kenya Power. Therefore, the study summarizes the findings as follows:

The study reported a response rate of 72 percent where majority of the employees of Kenya Power who responded to the study questionnaire were found to be in the age bracket of between 28 – 32 years and 33 – 37 years. A half of the respondents had attained bachelors' degree as their highest educational achievement. An overwhelming majority (88%) of the respondents who filled and returned their questionnaires for analysis were found to be using both prepaid and postpaid systems to serve customers.

The extent of use of Integrated Management Information System had an overall mean of 3.944, an indication that employees of Kenya Power use IMIS to a great extent. This system was utilized help Kenya Power to reduce the time taken to make new electricity

connections, quicken the bills deliveries, and refund meter deposits. However, there seem to challenges experienced at Kenya Power in usage of IMIS. Majorly, the key challenges hindering usage of this integrated system comprised of breakdowns of Integrated Management Information System, cost of implanting IMIS being very high, as well as lack of policies on the IMIS integration

The use of IMIS enabled Kenya Power to realize its operational performance mostly through IMIS easing query solutions; IMIS easing process of handling complaint; IMIS increasing accuracy in meter reading; IMIS enhancing quick meter testing; and IMIS improving customer billing management. It was established that on average the company recorded about 108 complaints in the past one month. Kenya Power registered an average of 74 billing errors in the last one month. There was an average of 59 errors made in reading of Kenya Power meters. On average employees of Kenya Power were found to take about 30 hours to respond to customer queries.

The correlation results revealed that only usage of both systems was found to have a positive association towards the operational performance of Kenya Power. On the opposite, use of post-paid system alone was found to relate negatively towards operational performance. Likewise, the results show that use of prepaid system alone correlates negatively with operational performance.

The regression findings indicated that use of prepaid, postpaid and a combination of the two jointly can explain 38.3% of the operational performance at Kenya Power. The model produced an F – statistics of 9.506 and a strong significant value of 0.000, which meant that the variables used in this study were acceptable and fit to determine

operational performance of firms. The estimations on coefficients revealed that only the prepaid system and used of both systems have significance effect on operational performance, although prepaid system seem to have a negative effect on the operational performance within Kenya Power. However, use of post-paid system alone seemed not to have significant effect on operational performance.

5.3 Conclusion

Based on the major findings highlighted in this study, it can be concluded that there exist a significant and positive relationship among use of both systems on performance of Kenya Power. It can be reasoned that an integration of both prepaid and post-paid systems within Kenya Power can work well in the company effort to offer efficient and effective services to their customers since the services offered tend to rotate around the two systems.

It was also established that use of prepaid alone, strongly influence operational performance negatively. This revelation could be true since prepaid system is self operated by customers since they are normally fitted within their premises. The customers have the option of whether to use the system of not and therefore a number of them are found fixed but not utilized well. There is also the issue of prepaid systems being vandalized easily since most of them are fixed inside houses where clients have control on them with limited safety measures.

5.4 Recommendations for Policy and Practice

Use of both systems jointly was found to be an issue of importance as far as operational performance is concern. Therefore, there is need for management of Kenya Power to

ensure integration of both prepaid and post-paid systems. This will ease the management and control of both systems which might also lead to reduction on cost of operations within Kenya Power.

Prepaid system was found to relate to operational performance negatively. This research recommends that this system should be conjoined with that of prepaid for more efficiency and effectiveness. Furthermore, the study found out that post-paid systems have insignificant effect on operational performance. Thus, there is need for Kenya Power to update and improve the system to make sure that it serves the customers well.

5.5 Suggestions for Further Study

The focus of this study was to evaluate the influence of integrated management information systems on the performance in Kenya Power. There is need for a similar study to be done in other power institutions both public and private to establish whether the findings will be similar.

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APPENDICES

Appendix 1: Questionnaires

SECTION A: BIO DATA

1....Name of the organization.....

2. What is your age (please tick in the appropriate box)

18 – 22 ( )

23 – 27 ( )

28 – 32 ( )

33 – 37 ( )

38 – 42 ( )

43 – 47 ( )

Over 47 years ( )

3. What is your highest education achievement? (Please tick in the appropriate box)

O/A-level ( )

Certificate/Diploma level ( )

Bachelor's Degree level ( )

Masters Degree level ( )

Doctoral Degree level ( )

4....Indicate the system you are using to provide service to customers;

Post-paid system ☐

Pre-paid system ☐

Both systems ☐

Section B: Post –The Extent to which IMIS is used.

5. To what extent do you agree with the following statements on impact of integrated management information systems on operational performance in Kenya Power? Please indicate in a scale of 1-5, either, 1-Strongly disagree, 2-Disagree, 3-Neutral, 4- Agree, 5-Strongly agree.

No	Factors	1	2	3	4	5
a.	Indicate the extent to which you are using the Integrated Management Information system					
b.	IMIS has made bill delivery faster					
c.	IMIS has reduced the time taken to make new electricity connections					
d.	IMIS is used in communicating distribution information to customers					
e.	IMIS is used in refund of meter deposits					

Section C: Challenges of IMIS

6. To what extent do you agree with the following challenges of integrated management information systems on operational performance in Kenya Power? Please indicate in a scale of 1-5, either, 1-Strongly disagree, 2-Disagree, 3-Neutral, 4- Agree, 5-Strongly agree.

No	Factors	1	2	3	4	5
a.	The organization has not integrated all the management information systems					
b.	Lack of policies on the IMIS integration					
c.	Cost of implantation of IMIS is very high					
d.	Sometimes there is lack of IMIS due to system breakdowns					
e.	There are errors in meter reading					
f.	There are errors in billing management					

7. Any other challenges (Please Specify)

1. ……

2. ……

3. ……

Section D: Operational Performance

8. To what extent do you agree with the following statements impact of integrated management information systems on operational performance in Kenya Power? Please indicate in a scale of 1-5, either, 1-Strongly disagree, 2-Disagree, 3-Neutral, 4- Agree, 5-Strongly agree.

No	Factors	1	2	3	4	5
a.	Has IMIS improved customer billing management?					
b.	Has IMIS increased the meter reading accuracy?					
c.	Is IMIS used in communicating distribution information to customers?					
d.	Has IMIS made meter testing faster?					
e.	Has IMIS eased complaint handling?					
f.	Has IMIS has eased query resolving?					

9. Indicate (in figures) how integrated management information systems impact operational performance in Kenya Power?

No	Factors	Indicate the figures
a.	How many billing errors were there in the last month?	
b.	How many errors were there in the reading of meters last month?	
c.	How long does it take to respond to queries?	
d.	How many complains did you receive from customers last month?	

THE END

Appendix 1I: List of Kenya Power branches in Nairobi

1. Stima Plaza, Parklands
2. Electricity House, CBD
3. Kenya Power Eastleigh Offices
4. Komarock Power Substation
5. Kenya Power Customer Care, Sarit Centre
6. Kenya Power Ruaraka Complex
7. Ruai Kenya Power Office
8. Kenya Power, Kileleshwa Substation
9. Cathedral Kenya Power Substation
10. Kenya Power & Lighting Co. Likoni 66/11KV Substation