MANAGEMENT INFORMATION SYSTEMS CAPABILITIES AND PERFORMANCE OF TEACHER SERVICE COMMISSION OF KENYA

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DECLARATION

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

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This research project has been submitted with my approval as Kenyatta University Supervisor.

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DEDICATION

I dedicate this research work to my family. A special feeling of gratitude to my loving parents, who have been a source of my strength throughout my studies. Their words of encouragement has made sure that I give it all it takes to complete my studies.

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I would like to express my heartfelt gratitude to all those who contributed to the realization of this work.

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May the Almighty God bless you All.

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ABBREVIATIONS AND ACRONYMS

DBMS	Database Management System
DFID	Department for International Development (DFID
EDMS	Electronic Data Management System
EE	Effort Expectancy
EFA	Education For All
FC	Facilitating Conditions
GoK	Government of Kenya
HRMIS	Human Resources Management Information System
ICT	Information and Communication Technology
IFMIS	Integrated Financial Management Information System
IPPD	Integrated Personal Payroll Data System
IT	Information Technology
MPO	Monthly Pay Order
MTPs	Medium Term Plans
NACOSTI	National Commission for Science, Technology and Innovation
PE	Performance Expectancy
RBV	Resource Based View
SEM	Structural equation modeling
SI	Social Influence
SPSS	Statistical Package for Social Sciences
TAM	Technology Acceptance Model
T-PAY	TSC payslip portal
TPB	Theory of Planned Behaviour

TRA	Theory of Reasoned Action
TSC	Teachers Service Commission
UNDP	United Nations Development Programme
UPE	Universal Primary Education
UTAUT	Unified Theory of Acceptance and Use Of Technology

OPERATIONAL DEFINITION OF TERMS

Communication Capabilities: means communication technologies such as, e-mails, bulk sms, video conferencing, and target communication which enhances commucation either internally (within TSC) or externally (outside TSC, may be with teachers and other stakeholders).

Data Management Capabilities: this means capability to collect, digitally store and use data securely, as well as ability to organize data through Electronic Data Management System (EDMS), digitization of records and databases.

Human Resources Management (HRM) Capabilities: means human resources information system that aids in execution and management of human resources activities and processes electronically. This includes recruitment process of teachers, transfer/promotions of teachers, online appraisal, pension processing, among other HR activities.

Management Information System (MIS) Capabilities: this is computer system or software that includes, communication systems, HRM systems, accounting systems and data management systems which aids in management of teachers data and information in TSC.

Accounting Capabilities:	this entails online payments services by TSC to teachers includes payments of salaries, third parties deductions and access to payslip online.
Performance:	this means quality of services, efficiency and effectiveness of processes and activitities in the organisation. Efficiency is the ability to accomplish an activity or process with least amount of wasted time, money, and effort or competency while effectiveness is the degree to which an activity or process is accomplished successfully, producing the desired results. Quality of services means the overall performance of a systems or service, as seen by the end users of the system/service.

ABSTRACT

Teachers Service Commission (TSC) has previously experienced performance challenges in delivery and execution of its activities, especially when most activities were carried out manually. There were also challenges in human resource management especially in recruitment,transfers, promotions, salary processing and delivering of pay slips to hundreds of thousands of teachers, as these activities were mainly carried out manually and involved keeping lots of paper files as well as incurring cost like postage and buying of papers. This affected the efficieny of TSC and its performance. The need for TSC to become more efficient operationally and more responsive towards its stakeholders needs in service delivery has seen increased automation of services through adoption of Management information Systems (MIS) in the institution. This study sought to establish the influence of MIS capabilities on performance of the institution. The objective of this study was therefore to determine the influence of MIS capabilities on the performance of TSC of Kenya. The specific objectives were to establish the influence of communication capabilities, accounting capabilities, human resource management capabilities and data management capabilities on performance of TSC. The study was anchored on Unified Theory of Acceptance and Use of Technology, Resource Based view theory, and Theory of Planned Behavior. The study adopted a descriptive research design. The target population consisted of 1,300 staff in various departments in TSC headquarters, Nairobi. The study employed stratified random sampling technique for purpose of choosing a sample size of 130. The study used primary data which was collected with the help of the questionnaire. The questionnaire had both closed an open-ended question. A pilot test was carried out to ensure that the questions in the questionnaire were thoroughly reviewed to ensure clarity and eliminated any form of ambiguity. The quantitative data was analyzed using descriptive and inferential analysis while information from open ended questions was analysed using thematic content analysis and presented alongside the quantitative data. The study found out that communication capabilities, accounting information systems, human resource management systems, and electronic data management system have a spistive and significant influence on performance of TSC. The study concluded that communication capabilities influenced performance of TSC in terms of speedy delivery of information and efficiency. The study also concludes that accounting capabilities has a positive influence on performance of TSC. It can also be concluded that human resource management capabilities has a positive and significant influence on performance of TSC. The study recommended that TSC should continually adopt and implement management information systems in service delivery. The top management should continually support the adoption and implementation of MIS through budget allocation and also ensure proper orientation to the staff at all levels to ensure they have proper and adequate knowledge to use of MIS effectively. The study will be of benefit to the management and staff of TSC; to other public institutions in Kenya who wants to adopt ICT in delivery of services; to the government of Kenya as the policy maker; and to researchers. It is suggested that a similar study be conducted in other institutions for comparison of results. It should also explore other variables other than the ones studied in this study.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Across the world organisations are keen to improve service delivery and the overall performance of their organisations. Adoption and integration of automated services has mainly been made possible in order to create and deliver services, which have an impact on effective service delivery to the citizens and also enhances organization performance (Bourgeois, 2014). The rapid development of Management Information Systems (MIS) has led to drastic change in the nature of how services are delivered by organizations. Automation of services in both public and private organizations has offered a faster and better means of communication around the globe (Bresnahan & Yiu, 2017). This has in return facilitated efficiency in storage, retrieval, processing and exchange of data and utilization through systems intergration of information among its users right from individuals, groups, businesses, organizations an even governments (Bourgeois, 2014).

In Bangladesh, Islam *et al.* (2015) indicates that the government has adopted MIS to improve delivery of public service. The Bangladesh Government initiated 'Access to Information (a2i)' Programme with support from UNDP. Under the a2i Programme some initiatives i.e. e-tendering, e-purjee, online MPO distribution, and district e-services, have successfully implemented to adopt MIS to improve the public service delivery to the citizens.

In India the Right to Information Act gives citizens quicker access to land records and basic services such as water and ration cards. In East Africa the

Open Budget Initiative helps governments make the legislative process more transparent. In Malaysia citizens can obtain a wide range of government information by texting a short code. In Afghanistan, the government with the support of World Bank has integrated government services with mainstream mobile applications to expand and improve public service delivery (World Bank, 2012).

In Nigeria, Onobrakpeya, Nana and Odu (2018) shows that modern firms in the Nigerian economy are making vital investments in ICT to align business strategies, support innovative functional operations and provide extensive enterprise networks. The deployment of MIS is increasing with many firms using it in office automation, such as electronic mail, telecommunicating, word processing and teleconferencing. Other areas of MIS application are: in business management, computerized database management system (DBMS) and management information system are now making commerce and industry pleasant and ensuring decision making (Abubakar, Nasir & Haruna, 2013).

In Libya, Bezweek and Egbu (2010) established that information technology facilitates communication and collaboration on communication behaviour in public sector organizations in Libya. The authors indicated that today, face-to-face communications have been replaced, to a large extent, by E-mail; thus increasing the speed of decision-making. It was also found that information technology have significant effects on organisational structure, communication processes, management and functioning of most organisations.

Management information systems have increasingly been used as a strategic tool to more efficiently support any government's priorities and program delivery (World Bank, 2012). ICTs if well embraced have the ability to revolutionize public service management and transform public service delivery. It can simplify administrative procedures and share services (such as citizen authentication and payment systems); can help reduce costs, adopt common standards for information exchanges, and perform organization functions more efficiently (with faster response time and fewer errors) (World Bank, 2012). Automated service delivery has also become an integral component in public institutions following the government's insistence on the need to promote transparency and increase efficiency in service delivery as well as enhance organizational performance (Hasan, 2016).

1.1.1 Organisational Perfomance

Use of management information systems in delivery of services can improve performance of an organization through improved efficiency, quality and coverage of service delivery, better monitoring and evaluation, and more efficient service delivery (DFID, 2018). Vester Haldrup (2018) also indicated that digitisation of services can directly and indirectly lead to can improve performance of an organization by: lowering the cost of delivery; improving the quality of services and strengthening and responsive. Herbert (2019) assert that use of MIS in staff recruitment, performance review, management, and monitoring in public institutions can address nepotistic practices, can lead to efficiency savings on the salary bill, can improve staff and institutional performance, and can increase transparency and trust in institutions.

This study therefore sought to determine the influence MIS capabilities on performance of Teacher service commission Kenya. This study measured performance using non-financial measures. The financial measures included costs of operations while non-financial performance measures included improved efficiency, quality services, timeliness of service delivery and customer satisfaction.

1.1.2 Management Information System (MIS) Capabilities

A management information system (MIS) help to build new and better service delivery (Bekkers & Zouridis, 2009) by rising transparency and efficiency, and enhancing the coordination of public sector procedures and management (Dasgupta & Gupta, 2009). The advent of MIS has seen introduction of an array of management information systems for delivery of services in the public sector where citizens are able to acquire and access services (e-government services) 24x7 from anywhere through multiple channels at their convenience (Hasan, 2016). Internet technology advancement has brought about a revolutionary changed into the expectations of the people to obtain quality service. E-government has dramatically changed the relationship of government with the citizens with better service delivery (Islam *et al.*, 2015).

MIS is the key factor to facilitate and attain efficient decision making in an organization. Becta (2015) describes an information system as "a system consisting of the network of all communication channels used within an organization". In their study, Laudon and Laudon (2013) indicate that MIS may imply as "information systems focusing on their use in business and management". MIS also concentrate on the information in the context of: electronic data processing which carries out transaction processing functions and records

detailed factual data; and management reporting systems which scrutinize the operational activities of an organization, providing summaries, information and feedback to management (Karim, 2011).

In the context of this study MIS capabilities means use of computer system or software that includes, communication systems, HRM systems, accounting systems and data management systems which aids in management of data and information in organizations.

In the public sector MIS is greatly being adopted to improve service delivery and organizational performance. Some MIS systems facilitate communication within and outside the organization. This involves digitization of communication technologies (electronic mail, teleconferencing, telecommuting) (Onobrakpeya, Nana, & Odu, 2018). In this study communication capabilities means communication technologies such as, e-mails, bulk sms, video conferencing, and target communication which enhances commucation either internally or externally with other stakeholders.

MIS capabilities also transmitting data and information electronically (Onobrakpeya et al. 2018; Chen, Gillenson & Sherrell, 2002); computerized database management system (DBMS) and information systems (Abubakar, Nasir & Haruna, 2013). In this study data management capabilities means capability to collect, digitally store and use data securely, as well as ability to organize data through Electronic Data Management System (EDMS), digitization of records and databases.

MIS may also include tools used to support processes such as accounting and finance systems and management reporting systems. This includes payment/accounting systems

(e-payment services)/ revenue collection systems (Treiblmaier et al. 2006); e-tendering (Islam *et al.* 2015); which replaces the traditional paper/manual information to internet enabled digitalized information (Giri & Shakya, 2018), among others. In this study accounting capabilities entails online payments services by an organization to its employees which includes payments of salaries, third parties deductions and access to payslip online.

Information systems have also made it possible for organizations to have a dedicated tool which helps in organizing the complete recruitment and selection process. Recruitment management system greatly enhances the performance of recruitment process and delivers efficiency to the organization (Silva & Lima, 2018). Human resources management system (HRIS) also allows budget control, tracking and screening, skills matching, appraisals, feedback, manpower planning, succession planning, skills monitoring, and training needs analysis (Kavanagh, Thite & Hohnson, 2012). In this study HRM capabilities entails information system that aids in execution and management of human resources activities and processes electronically. This includes recruitment process, transfer/promotions, online appraisal, pension processing, among other HR activities.

Through MIS organizations are able to deliver services effectively, as it enhances; quick availability of services, timeliness, dependability, reliability, and ability to deliver services in an efficient and cheap fashion to the ever changing needs of the users. Operations are faster and smoother and thus results are achieved faster and more efficiently (Mebrate, 2010). It is therefore essential for public institutions to enhance

delivery of services to the citizens that it serves and subsequaently improve organization performance.

In Kenya, the government has continually faced increased pressure to be effective and efficient in service delivery. As a result, the Government of Kenya has recognised the importance of MIS in service delivery. The government is moving towards becoming more efficient operationally through adoption of MIS and thus set up measures to initiate major steps to promote its use (GoK, 2018). Service delivery in public institutions has for a long time been marred by delays, corruption, fraud, poor information management as the files were manually maintained making information retrieval difficult. Even now the delivery of services by public institutions has not been effective (Mugambi, 2014). Consequently, the government through the ministry of ICT has focused on automating its operations in order to curb those inefficiencies. According to Malenje, Otanga and Wabwoba (2014), investment in ICT and MIS resources is no longer an option for organizations in these modern times. Organizations should make good use of these resources to contribute effectively in business processes and yield improved service delivery to clients.

Several public institutions have developed online systems geared towards improving the efficiency and effectiveness of service delivery, which enhances organistion performance. These systems include: the re-engineered Integrated Financial Management Information System (IFMIS), County Revenue Collection Systems, application of public service jobs online, status tracking of indentification cards and passports, public examination results and candidate selection into secondary schools, digitized education content in twelve subjects in secondary school level;

online submission of tax returns, online custom declaration, electronic reporting of corruption, and a business licensing e-registry among others. These are geared towards ensuring quality, speed, dignity, convenience and efficiency in service delivery (GoK, 2018).

In addition, the Kenyan Government has underscored universal access to ICTs as a major objective of Vision 2030. ICT is one of the foundations for economic development in the Medium Term Plans (MTPs) of Vision 2030. As a foundation of the Medium Term Plans (MTPs), ICT would be concerned with: a) upgrading the national ICT infrastructure; improving public service delivery; developing the ICT industry; and upgrading ICT capacity. The public sector has been challenged to make its contribution of enhancing public service delivery through ICT (GoK, 2014). Thus, this study therefore seeks to establish the extent of service delivery automation in Public Institutions and how it influences the performance of these institutions. The study will focus on Teachers Service Commission (TSC) of Kenya.

1.1.3 Teachers Service Commission

The Teachers Service Commission (TSC) of Kenya is an Independent Commission established under the Constitution of Kenya to manage human resource within the education sector. The Functions and Mandate of the commission are outlined Under Article 237(2) of the constitution. The Commission is mandated to perform the following functions: register trained teachers; recruit and employ registered teachers; assign teachers employed by the Commission for service in any public school or institution; promote and transfer teachers; exercise disciplinary control over teachers; terminate the employment of teachers; review the standards of education

and training of persons entering the teaching service; review the demand for and supply of teachers; and advise the national government on matters relating to the teaching profession.

Teachers Service Commission (TSC) plays a major role in supporting the effort of the Government in implementing the policies that relate to the Vision 2030, Universal Primary Education (UPE) and subsequently, Education For All (EFA). The institution has adopted Management Information System (MIS) in a bid to digitalise their services in order to provide quick and efficient service to its customers. Through MIS the following System have been implemented in the Commission: 1). Integrated Personal Payroll Data (IPPD) System - this system is used for payment of salaries and effecting the third party deductions. Through these system teachers are paid timely; 2). TSC Website and Mail – this act as a communication channel to all the clients on various issues for example vacant post on teacher recruitment, pension status and study leaves, results of interviews and promotion, circulars and general information and more so the online services; 3). Human Resouce Management Information System (HRMIS) – which is basically a human resource management information system to manage most of the HR activities, 4). Teachers Online portal - this entails the online teacher registration, Teacher Management Information System, and promotions through interviews, wealth declaration, Promotion, E-recruitment etc; 5). TPAY- this is the system that enable teachers to access their payslip online as well as sending their payslip online to third parties like banks; 6). TPAD Teacher Appraisal system - this is where teachers are appraised online basing on various standards, learners progress, lesson attendance and professional development 7) Electronic Data Management System

(EDMS) for digitalizing and storing of teachers files and other documents. This shows that TSC has greatly adopted ICT and automated its services in order to improve information flow; enhance payments, recruitment, and appraisal and generally improve service delivery and organization performance.

As part of its strategy, TSC Strategic Plan (2015-2019) sought to execute reforms and innovations so as to realign the TSC processes and systems in provision of teaching services and service delivery. This five year plan sought to provide an outline of the reform road-map of TSC and also provide a basis for performance planning, implementation and evaluation (TSC Handbook, 2015). This has seen adoption and use of MIS in delivery of services at TSC.

This study focused on TSC as the case sudy due to the institution's effort to automate its process in order to enhance organizational performance, and improve service delivery. In addition, TSC as one of the public institution had been keen to enhance its service delivery as outlined in its recent strategic plans. TSC therefore formed a good case study to establish the extent to which automation has enhcanced its performance, as one of the public institutions.

1.2 Statement of the Problem

Enhanced organizational performance and improved service delivery has been a key focus of TSC as outlined in previous strategic plans (2005–2010) and the Transitional plan (2011-2013), (2015-2019) Strategic Plan and 2019 – 2023 Strategic Plan. In the Strategic Plan for the period 2015-2019 the organization sought to carry out reforms and innovations in provision of teaching services and service delivery. In the 2019

– 2023 Strategic Plan, TSC give a clear road map on how it sought to automate the core processes in the organization. It aims to transform all manual processes into electronic platforms. The organization has also come under increased pressure to automate all its functions, though adoption of MIS, to enhance its performance which has only seen them partially automate their services. A review of the previous strategic plans prior to 2015 had shown that automation of teacher management processes was key for the organization to achieve enhanced service delivery and organizational performance (TSC Strategic Plan, 2015; TSC Strategic Plan, 2019).

TSC had previously experienced performance challenges in delivery and execution of its activities, especially when most activities were carried out manually. There were also challenges in human resource management especially in recruitment, transfers, promotions, salary processing and delivering of pay slips to hundreds of thousands of teachers, as these activities were mainly carried out manually and involved keeping lots of paper files and incurring postage cost. Other than increasing the costs of operations, most teachers were forced to travel long distances and spend a lot of time in TSC offices, seeking services. This had a ripple effect on educational outcomes, as some teachers were away from school and it also led to distatisfaction among teachers.

The need for TSC to become more efficient operationally and more responsive towards its stakeholders needs in service delivery has seen increased automation of services through MIS in the institution. Teachers' files have now been converted into digital form and are accessible easily through an Electronic Document Management System (EDMS) (TSC, 2015). With increased adoption MIS and automation of services in the TSC; there

was need to establish the extent the MIS by TSC has influenced the performance of the institution in terms of efficiency and effectiveness in delivery of services.

A number of researchers had conducted studies on different aspects of automation both locally and internationally. For instance, locally, Mugambi (2013) investigated the effects of E-Government strategy on service delivery in the government ministries in Kenya. The study established that the implementation of e-government was not effective in all ministries; and recommended for need to promote and enhanced delivery of E-government services. Conversely, Karuga (2010) did a survey of impact of automation on business value creation in Kenya banking sector. The study concluded that automating most of the business functions has a positive effect on banking industry. The above reviewed studies had been conducted in different organisations who operations are different from that of TSC and the findings could not be generalizable in TSC. In addition, the variables studied by these studies were different from the ones that this study sought to investigate. This showed existence of both contextual and conceptual gaps.

No notable study had focused specifically on effects that MIS capabilities have on performance of public institutions in Kenya, and more so in TSC. There was need to investigate how MIS capabilities has enhanced performance of TSC. This study therefore sought to fill that gap with a focus on TSC as a public government body to find out how the MIS capabilities (communication capabilities, accounting capabilities, human resource management capabilities and data management capabilities) have influenced performance of TSC.

1.3 Objectives of the Study

1.3.1 General Objective

The study sought to determine the influence Management Information Systems (MIS) capabilities on performance of Teacher Service Commission (TSC) Kenya.

1.3.2 Specific Objectives

The study sought to;

i. Examine the influence of communication capabilities on performance of Teachers Service Commission of Kenya
ii. Establish the effect of accounting capabilities on performance of Teachers Service Commission of Kenya.
iii. Determine the effect of human resource management capabilities and performance of Teachers Service Commission of Kenya
iv. Evaluate the influence of data management capabilities on performance of Teachers Service Commission of Kenya.

1.4 Research Questions

The study sought to answer the following research questions:

i. What is the influence of communication capabilities on performance of Teachers Service Commission of Kenya?
ii. What is the effect of accounting capabilities on performance of Teachers Service Commission of Kenya?
iii. What is the effect of Human Resource Management capabilities and performance of Teachers Service Commission of Kenya?

iv. What is the influence of data management capabilities on performance of Teachers Service Commission of Kenya?

1.5 Significance of the Study

The study would be of benefit to the staff of TSC since the research gave a clear picture on how use of management information systems to deliver services influenced performance of the institution. The study would give practical recommendations which would help in making informed decision in matters regarding adoption and implementation of MIS in the future in a bid to improve service delivery and performance of the organization.

The study would also enlighten other public institutions in Kenya on how they can utilize MIS capabilities in delivery of services in order to improve their performance. This would also help the government in achieve one of the aspects of the Vision 2030, which is improving public service delivery through ICT.

The study may also be of value to the government of Kenya as the policy maker, as it would inform future policies on MIS and service delivery especially in public instutions. The study may trigger policy formulation on adoption and use of management information systems in delivery of services in public institutions.

To researchers and scholars, the findings would contribute to the extension of existing knowledge on MIS and performance of organizations. The study would also be a source of reference for future researchers and may form as a basis upon which further studies are carried in the future.

1.6 Scope of the Study

This research was conducted at the Teachers Service Commission (TSC) of Kenya. The focus on TSC was based on the institution's effort to automate its process in order to enhance organizational performance, and improve service delivery. In addition, TSC as one of the public institution had been keen to enhance its service delivery as outlined in its recent strategic plans. TSC therefore formed a good case study to establish the extent to which automation has enhcanced its performance, as one of the public institutions.

The study was anchored on Unified Theory of Acceptance and Use of Technology, Resource Based Theory and Theory of Planned Behavior. The study population was staff at the TSC headquarters in Nairobi. The unit of observation was both the management staff and support staff in the various departments of TSC. The study was conducted for a period of three months.

1.7 Limitations of the Study

The following limitations arose while carrying out the study. First, this study will rely on staff from TSC as the respondents of the study. Dues to restrictions in the organization on giving information to third parties without cosent; the researcher faced the problem of limited access to the respondents. This was made worse by the Covid 19 pandemic which restricted physical contact. Due to this limitation, the researcher first sought permission from the management, to carry out the study in the institution. The researcher explained to the respondents the purpose of the study and how it may benefit their institution.

Another challenge the study experienced was limited time and the busy schedule of the respodents. The respondents were TSC staff in the headquarters, who are normally busy

as their work involves offering services to large number of teachers. Most of them could therefore not manage to answer to the questionaire immediately it was presented to them. To counter this challenge and in compliance with the covid 19 restrictions, the researcher sent the questionnaire through google forms, and online google platform whereby the respondents answered and submitted the questionnaire and answer the questions online at their own free time, and without any physical contact.

Another challenge was that the a few research participants mwere unwilling to cooperate, to answer the questionnaire. To address this problem, the researcher made the staff aware of the study that was being conducted, and further explained to the respondents on the purpose of the study and how it could benefit their organization. The researcher also assured the respondents of the confidentiality of the information they give.

1.8 Organization of the Study

The organization of this thesis is as follows. Chapter 1 introduces the background of the study and covers the statement of the problem. It gives an overview on service delivery automation in public institutions at global, regional and local level The chapters also outlines the objectives of the study, the research questions, significance of the study, scope and limitations of the study.

Chapter 2 is focusing on reviewing other related studies, and show how this research work is distinguished from other works. This chapter also reviews the theoretical underpinnings that inform the study and further maps out the variables of the study as presented under the conceptual framework.

Chapter 3 provides the research methodology that will be used in the study. It details the study design, the target population, sampling procedure and sample size. It also covers the research instrument to be used for data collection, pilot study and data analysis technique.

Chapter four presents and discusses the study findings as analysed from the data collected from the field while chapter five presents a summary of the findings, conclusion and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review which covers past literature of relevance to the study. In this section, the study discusses theories that the study was anchored on and further discusses other authors work and findings as guided by the research objectives. This helps to identify the existing empirical evidences on the problem under research; and also help map out the knowledge gaps that remains unfilled. The chapter ends with a presentation of the conceptual framework, which presents the hypothesized relationship between variables in the study.

2.2 Theoretical Literature Review

This study was anchored on three theories: unified theory of acceptance and use of technology, Resource Based View (RBV) theory and Theory of planned behavior. These theories were selected because of their explanations on ICT use, and service delivery in a technologically defined environment.

2.2.1 Unified Theory of Acceptance and Use of Technology

The unified theory of acceptance and use of technology (UTAUT) is a technology acceptance model formulated by Venkatesh *et al.* (2003). UTAUT explains the extent of acceptance of the use of information technology. These theories assess if the user will accept the new technologies and also the user's ability to deal with it. The Technology Acceptance Model helps managers and decision makers to assess the success of the introduction of technology to the organization, and motivate users to accept the systems (Venkatesh,

Morris, Davis & Davis, 2003). UTAUT has been used and applied by many aspects to ascertain; the user's attitudes towards accepting ICT solution.

UTAUT consists of four main concepts, Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). These four main concepts are independent variables which influence dependent variables, behaviorals and usage. Gender, age, experience, and volunteers of system use have indirectly influenced the dependent variables via the four main concepts. Behavioral intention is seen as a critical predictor of technology use (Venkatesh *et al.*, 2003).

Performance expectancy is the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh *et al.*, 2003). Performance expectancy is hypothesized to moderate the influence on behavioral intention by gender and age. Effort expectancy is the degree of ease associated with the use of the system (Venkatesh *et al.*, 2003). Effort expectancy hypothesized to moderate the influence on behavioral intention by gender and age, and experience. Social influence is the degree to which an individual perceives that important others believe he or she should use the new system (Venkatesh *et al.*, 2003). Social influence, hypothesized to moderate the influence on behavioral intention by gender and age, and experience, and volunteers of system. Lastly, there is facilitating conditions, which is the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system (Venkatesh*et al.*, 2003).

This theory helps understand individual factors that influence acceptance and use of information technology. The theory has distilled the critical factors and contingencies related to the prediction of behavioral intention to use a technology and technology use primarily in organizational context. This is critical in guiding public institutions such as TSC on how to deal with factors that can affect user's attitudes towards use of MIS in the organisation. This theory supports the communication capabilities and accounting capabilities variables.

2.2.2 Resource Based View Theory

Resource Based View (RBV) theory is a competitive advantage theory developed by Wernerfelt in 1980s. The fundamental principle of the resource based theory is that resources can be a basis of an organisation's competitive advantage (Wernerfelt, 1984). Wernerfelt notes that the bundles of valuable resources at the organization's disposal are key determinants of an organisation's competitive advantage. Proponents of the resource based theory argue that the resources of the organization form the foundation of the firm's strategy and not the environment (Feurer & Chaharbaghi, 1994).

Firms' resources could be tangible or intangible. Hitt *et al.* (2005) revealed that resources can be categorized into three classes: physical, human and organizational capital which incorporates capital equipment, the skills of individual employees, patents, finances and talented management staff. Yin (2009) describes capabilities as intermediary outputs between resources and competitive advantage. According to Hitt *et al.* (2005) an organization's unique resources and capabilities provide the basis for strategy. An integration and most appropriate configuration of

firm's resources and capabilities with inside knowledge helps firms achieve operational and strategic objectives (Kay, 2010).

Porter (1985) notes each firm has unique and specialised characteristics which should be improved or advanced continually to enhance competitive advantage. An organisation's resources are not easily duplicated hence making it convenient for individual firms to uniquely outdo their competitors and avoid imitation. For a firm to achieve competitive advantage, its internal resources should be valuable, rare, imperfectly imitable and non-substitutable. The management therefore need to organise their firms in a suitable way that will help them exploit their resources in a bid to achieve competitive advantage (Barney, 1991).

The theory therefore emphasizes on the importance of internal resources of the firm as the source of improved performance. The theory helps understand how ICT as a resource in the organization can be utilized to help in achievement of various benefits, in a bid to achieve superior performance. The theory also highlights how financial resources, human capital (ICT skills among employees), ICT infrastructure, when used and configured effectively can enable the firm to effectively utilise ICT tools and provide distinct performance. This theory supports the human resource management capabilities and data management capabilities variables.

2.2.3 DeLone and McLean Information Success Model

DeLone and Mclean's model is viewed as a comprehensive IS assessment model (DeLone & McLean 1992; Seddon, 1997). DeLone and McLean reviewed the existing definitions of IS success and their corresponding measures, in order

to provide a general and comprehensive definition of IS success that covers different perspectives of evaluating information systems; that was based on a review and integration of 180 research studies. In that study a comprehensive classification was introduced that provided six major categories of information systems success. The six major categories of IS success include (1) system quality, (2) information quality, (3) use, (4) user satisfaction, (5) individual impact, and (6) organizational impact (DeLone & McLean, 1992). Each of these variables is a composite of numerous and diverse constructs and measures. DeLone and McLean argue that when measuring IS success, researchers should systematically combine measures from their six IS success categories. They also stress the need for additional research to test the model and for the selection of each IS success dimension (DeLone, & McLean, 2002).

DeLone and McLean present their results in terms of an IS Success Model as follows: System quality and information quality impact both use and user satisfaction. The amount of use can affect user satisfaction positively or negatively. Use and user satisfaction are direct antecedents of individual impact which results in impact on the organization (DeLone & McLean, 2016).

Several articles have been published which directly or indirectly validate, challenge, critique or extend the model itself. For instance, Al-Mamary (2019) applied the model to measure information systems success in Yemen; Yakubu and Dasuki (2018) used the model to assess eLearning systems success in Nigeria while Zaied (2012) applied the DeLone and McLean model to evaluate information system in Public Sector. However, researchers such as

Myers, Kappelman and Prybutok (1997) have proposed modification to DeLone and McLean's IS success model to include service quality. The changes in the reformulated IS Success Model are largely changes in degree, not in the scope of the variables that comprise the model (DeLone & McLean, 2016).

This is an IS assessment model which argues that a successful IS should guarantee system quality, information quality, use, user satisfaction, individual impact, and organizational impact. This model will therefore be applied in the context of this study to assess/measure the performance of MIS in TSC. It was therefore applied to measure the dependent variable.

2.3 Empirical Literature Review

2.3.1 Communication Capabilities and Performance

Previous research work showed that Azeez and Yaakub (2019) examined the relationship between Management Information System (MIS) and organisational performance at Missan Oil Company in Iraq. The quantitative method approach was adopted using a questionnaire-survey and structural equation modeling (SEM). The study results show that MIS indicators (information quality, user satisfaction and net benefits) are directly linked with the organisational performance.

Onobrakpeya, Nana and Odu (2018) examined the effect of information and communication technology on service delivery in the Nigerian manufacturing industry. Cross-sectional survey research design method was adopted. The study sample consisted of 225 employees from six private listed manufacturing companies in

Lagos State Nigeria and stratified random sampling method was applied at selecting the sample. Both correlation and multiple regression analysis were conducted to analyse the results. Findings showed that information and communication technologies such a electronic mail, teleconferencing and telecommuting have a positive effect on service delivery. The study therefore concluded that teleconferencing systems, collectively with changes in corporate policies and support, can result in reductions in travel and its related costs. Among internet users, email is considered as the most significant application on the internet that support employees means of communication. It was recommended that employees have to acquire skills on how to use technologies in order to offer efficient services.

Alene (2018) conducted a study on the role of management information system in enhancing effectiveness and performance of Debre Markos city administration revenue authority, Ethiopia. The population comprised of 76 staff members and used census method. The researcher used descriptive research design. The study used both primary and secondary source of data, whereby a questionnaire and interview was used to collect primary data. Data was analyzed using descriptive method. The findings indicate that networking of communication channels used within the organization enhances delivery of information to the right users. It was concluded that MIS plays a vital role for good decision making through providing relevant, accurate and consistent information to the managers, hence improved performance.

Bett, Obura and Oginda (2018) investigated the relationship between Information Systems (IS) capabilities and performance of firms in the telecommunications

industry in Kenya. It was guided by Resource-Based Theory. Correlational and survey research designs were used. The population of the study was 523 staff comprising of management and operational level managers from the business and IT sections in each firm. Primary data was collected using structured questionnaire and an interview schedule, and later analysed using both descriptive and inferential statistics. The study concluded that there was significant relationship between information systems capabilities and firm performance. It was recommended that firms in the telecommunications industry in Kenya should invest in the development of market based information systems capabilities since they have significant influence on their performance.

Yaghoubi and Sargazi (2014) evaluated the effect of office automation on organizational excellence in Zahedan University of Medical Sciences. Descriptive-survey was used. Research population was 212 employees and sample size was estimated 135 persons. Data collection was done through a questionnaire and data analysed with the aid of SPSS software. Results show that using office automation has great effect on communication, and subsequently on organizational excellence in "people", "process, products, and services", "customer results", "people results", "society results", and "key performance results". Generally, the use of improved communication tools among other aspects enhanced organizational performance. Results also show that there is a significant difference between before and after the application of office automation. According to results, office automation had the greatest effect on "key performance results".

Allameh et al. (2011) investigated the effect of Information Communication Technology dimensions on work force productivity of Mobarekeh steel complexion in Isfahan. The population of the study was all managers and staff members working in different areas related to Information communication technology of Mobarekeh steel complex. A questionnaire was used to collect data. The findings indicated that office automation, internet and intranet had increased communication in the organisation hence increased human resource productivity. The study concluded that the dimensions of Information Communication Technology (MIS, internet, office automation and internet) affect human resource productivity and subsequently the performance of Mobarekeh Steel complex in Isfahan.

2.3.2 Accounting Capabilities and Performance

A review of previous studies showed that Bani-Hani et al. (2019) investigated the impact of MIS on organization performance of Jordanian universities. The target population comprised of all the business faculties' deans and departments' heads in Jordanian universities, state and private. Data was collcted through questionnaires and analysed through spearman correlation coefficient and simple regression. The findings indicated that there is a significant positive relationship between MIS and organizations performance; which implies that the higher the management information systems, the higher the organizations performance. The study established that MIS enhanced transaction processing system which is a computerized system that performs and records the daily routine transactions.

The study concluded that the management information systems had a significant impact on organizations performance (effectiveness and efficiency).

Domfeh, Kusi, Nyarkun and Hunsaker (2018) conducted a study to assess the impact of an Accounting MIS- Sales Force Automation system on quality service delivery and sales reporting among micro and small-sized enterprises in Kumasi Metropolis in the Ashanti Region in Ghana. Through descriptive survey design, 97 managers of micro and small-sized enterprises purposively were selected and surveyed through self-administration of structure questionnaires. Both descriptive statistics and inferential statistics data analysis techniques were used to determine the research findings. It was found that Sales Force Automation applications significantly and positively predict variance in quality service delivery in the selling function of the firms. There was also a statistically significant but moderate positive correlation between the use of sales force automation and quality service delivery. It was also established that the use of Sales Force Automation applications significantly and positively predict variance in sales reporting in the selling function of the firms. There was also a statistically significant high positive correlation between the use of sales force automation system and sales reporting. It was recommended that organisations should integrate Sales Force Automation system to support their traditional selling function. Application developers were advised to create special IT applications purposely for meeting the special need of organisations in their selling activities in developing countries.

Kemboi (2018) assessed the effects of automation of processes through information systems on performance of commercial banks in Kenya with particular reference to National Bank of Kenya. The study employed descriptive research design and stratified sampling technique was used to obtain the sample. Data analysis was carried out using descriptive and inferential techniques. Results obtained showed that the bank continuously automated its systems as new technologies emerged. The bank automated its core systems such as ATMs, mobile banking and internet banking. The bank customers accessed these systems and utilized them to carry out their personal transactions. The study concluded that by adopting automated systems, both customer service level and customer relationship improves for the better leading to organization performance.

Islam *et al.* (2015) examined the extent to which management information systems (Information (A2I) Programme) enhanced public service delivery in Bangladesh. Four e-government services (e-tendering, e-purjee, and district e-services, online MPO distributions) were analyzed to assess the impacts of MIS adoption in public sectors. The result shows that, MIS adoption in public sectors improved the public service delivery and reduced corruption in public sectors by providing citizen access and transparency that ensure accountability. The study proposed for adoption of management information systems in the public sectors.

Bhatnagar (2014) examined the role of Information and Communication Technology in improving public service delivery and governance. The paper reviewed cases on the use of ICTs in the management of delivery of public services in health, education, and cases on electronic delivery of government services, such as providing

certificates and licenses to rural populations. The paper established that methods of service delivery have not changed for decades, making them inefficient and corrupt. There is sufficient evidence that well-designed e-governance projects with process reforms that target enhanced transparency and accountability reduce discretion vested with civil servants, enhance efficiency, and can lower corruption. It concluded that ICT can increase the efficiency, speed, and transparency in deliver of services and, as well as assist in the generation and dissemination of knowledge.

2.3.3 Human Resource Management Information Capabilities and Performance

Human resource management information systems (HRMIS) aid in execution and management of human resources activities and processes electronically. This includes performing recruitment process activities (E-recruitment), transfer requests, Pension claim processing, keeping data / information on professional development of staff, payroll management, among other HR activities. This study seeks to establish the relationship between HRMIS capabilities and performance of institutions.

A review of empirical studies shows that Ogohi (2019) conducted a study to determine e-recruitment and its effects on organizational performance in Nigerian Banking Sector. This was a qualitative research conducted in two selected Nigerian commercial banks. Primary data was analyzed using regression analysis and Pearson moment product coefficient) techniques with the aid of Statistical Package for Social Science (SPSS). The study established that e-recruitment is a key component of human resource management and thus a building block of an organisation's performance and success. The study concluded that automating the recruitment and selection process by integrating e-recruitment software with the existing recruiting

activities provides more competent, cost-effective procedures for human resource hiring managers and line managers. Carrying out recruitment with the support of e-recruitment software ensure that organizations are efficient in identifying and retaining talented individuals hence improved performance.

Oyelana and Thakhathi (2017) investigated how utilization of ICT impacted on employee's performance in the local government organizations in South Africa. The study revealed that government organizations should endeavor to organize adequate IT training and workshops that would facilitate effective employees' intuitive of skills and utilization in order to provide qualitative service delivery. The study established how ICT improves the performance of employees. However, this study was conducted on local government organizations in South Africa, which makes the context of the study different from that of the proposed study.

The above findings are in agreement with those of Uppin (2017) who also found out that recruitment and human resource automation helps in increase of access of information within the organization. There is a timely availability of information to carry on the work process due to automation. From the study it can be observed that automation of recruitment and human resource processes enhances organizational benefits within organizations, and increase the quality of HR delivery.

Wangai and Ngugi (2014) also examined how information technology influences performance of stock brokerage firms in Kenya. Specifically, the study reviews four variables, that is; automation of IT skills, IT policy, IT infrastructure

and information security. The study established that automation of IT skills had a positive influence on performance of stock brokerage firms in Kenya. The study further revealed that a well-established IT infrastructure contributes to a positive performance on stock brokerage firms in Kenya. This study was limited to stock brokerage firms in Kenya while the proposed study is in the public sector. The study also did not look at how MIS enhances HRM and the subsequent influence on the performance of the firm, and therefore the results cannot be generalized in this study.

Holm (2011) examined whether the introduction of e-recruitment has an impact on the process and underlying tasks, subtasks and activities of recruitment. Three big companies with well established e-recruitment practices were included in the study. The case studies were conducted in Denmark in 2008-2009 using qualitative research methods. The findings indicate that e-recruitment had a noticeable effect on the overall recruitment process in the studied organizations. It was established that e-recruitment has led to a number of performance outcomes, which includes reduced costs of job advertising, improved recruitment lead times, ease of communication with candidates, reduce corruption and exposure to a wider candidate pool.

2.3.4 Data Management Capabilities and Performance

A review of previous studies shows that Azeez and Yaakub (2019) examined the relationship between Management Information System (MIS) and organisational performance at Missan Oil Company in Iraq. The study employed quantitative method approach and data collected through questionnaires. Structural equation

modeling (SEM) was utilised to analyse the final data. The study established that the system in the organization was largely used to process data from collection to processing and transforming it into significant information to help in decision-making. The MIS indicators (information quality, user satisfaction and net benefits) were found to have a direct linked with the organisational performance. The study conluded that use of appropriate MIS can enhance organisational performance.

Ijeoma (2018) examined how management of information system has assisted in service delivery in Nigeria universities. The study population was 1,928, out of which a sample size of 332 were utilized using Freund and William's formula. Data collection instrument was the questionnaire and the survey method was adopted for the study. Chi-square was used to test the hypothesis with the aid of SPSS. The results revealed that MIS had assisted in service delivery to a high extent hence, and had assisted in reducing paper work to a large extent, hence increased organization productivity, effectiveness, increased customer satisfaction, and efficiency of the work. The information system helped store documents, communication records and operational data which helped the senior management to make strategic decisions. The study recommended that proper orientation should be given to managers at all levels as well as in-service training for secretaries to ensure proper and adequate use of MIS facilities in generating and disseminating information for better decisions.

Young-Harry, Oparanma and Ejo-Orusa (2018) investigated management information system and organizational performance of Seven-Up Bottling Company in Aba and Port Harcourt. One hundred and seventeen respondents were sampled for the study. Descriptive statistics and Spearman's rank correlation were used for data analysis and hypothesis testing. The study findings reveal that there is a positive significant relationship between management information system and organizational performance of Seven Up bottling company in Aba and Port Harcourt. This finding implies that when an organization is MIS oriented in their day to day activities, it will be faster and easier for them to retrieve information and such information could be utilized for organizational performance to be more successful. The study concluded that information system collects data, organizes people, procedures, databases and devices used to provide routine information that will assist managers in making effective and efficient decisions that will improve both individual and organizational performances, plays a vital role in realizing the objectives of an organization.

Khresat (2015) investigated the relationship between management information system and organizational performance in Jordan. The population comprised of 100 employees based on (10) branches of companies in Amman city, who were selected randomly. The study found that employees in Jordanian telecommunication companies have positive attitudes towards management information system (MIS); and that since it aided in managing data, organizing, retrieving of the information which help the organization to provide services faster. This did not only support data processing systems but it also

enhanced decision support systems. Study also reveals that employees in Jordanian telecommunication companies have positive attitudes towards databases because Managerial system in Jordanian telecommunication companies has databases. The results established that there is a statistical significant relationship between management information system and organizational performance in telecommunication companies in Jordan.

Al-Gharaibeh and Malkawi (2013) concucted a study to identify the impact of management information systems (MIS) on the performance of governmental organizations, Jordanian Ministry of Planning – case study, a sample consisted of 77 employees in the ministry. Both secondary and primary data were collected and analysed through descriptive techniques, coefficient of correlation and multiple regression analysis. The study revealed that MIS plays a role in managing the data, organizing, retrieving of the information which help the organization to provide services faster, and market more accurate and easier, which affect also the level of performance.

Mithas, Ramasubbu and Sambamurthy (2011) examined how information technology (IT) capabilities contribute to firm performance. This study developed a conceptual model linking IT-enabled information management capability with three important organizational capabilities (customer management capability, process management capability, and performance management capability). To test the conceptual model, the study used archival data set that contains actual scores from multidimensional and high-quality assessments of firms and intraorganizational units of a conglomerate business group that had adopted a model of performance

excellence for organizational transformation based on the Baldrige criteria. It was found out that information management capability plays an important role in developing other firm capabilities for customer management, process management, and performance management. In turn, these capabilities favorably influence customer, financial, human resources, and organizational effectiveness measures of firm performance.

2.4 Summary of Literature and Knowledge Gaps

Review of previous studies showed that a number of studies have been conducted internationally, regionally and locally. These studies however have been conducted in different organisations whose operations are differentr from that of TSC and the findings may not be generalizable in that context. In addition, the variables studies by these studies were differen from the ones that this proposed study seeks to study. This shows existence of both contextual and conceptual gaps. The knowledge gaps are presented in Table 2.1 below.

Table 2.1: Summary of Literature Research Gaps

Author	Year	Topic	Findings	Research gap
Bani-Hani et al.	2019	The impact of Management Information Systems on organizations performance: field study at Jordanian Universities.	The study established that MIS enhanced computerized system helped to perform and record the daily routine transactions; and this had a significant impact on organizations performance.	Study was conducted on Jordanian Universities and the findings cannot be generalised into the case of public institutions in Kenya.

Ogohi	2019	Impact of E-Recruitment on organisational performance.	The study established that automating the recruitment and selection process is a key component of HRM and thus a building block of an organisation's performance and success.	The study was conducted on Nigerian Banking Sector, and looked at e-recruitment system; but did not look at the other MIS capabilities, hence does not fill the identified gaps.
Azeez and Yaakub	2019	The impact of management information systems on organisational performance with total quality management as the mediator.	Study established that the system was largely used to process data from collection to processing and transforming it into significant information to help in decision-making, which enhanced organisational performance.	The study findings are in the context of an Oil Company in Iraq and therefore cannot be generalised into the case of TSC in Kenya.
Onobrakpeya, et al.	2018	Improving service delivery through information and communication Technology in the Nigerian manufacturing industry.	Communication technologies such as electronic mail, teleconferencing and telecommuting have a positive effect on service delivery, hence improved organization performance.	The study was conducted on Nigerian manufacturing firms and a public institution as it is the case for this study. The study also focused on service delivery as dependent variable and not performance which is the focus of this study.
Alene	2018	The role of management information system in improving	Networking of communication channels used within the organization	This study was conducted in the context of organisations in Ethiopia and not

		organizational performance and effectiveness in case of Debremarkos City Administration Revenue Authority, Ethiopia.	enhances delivery of information to the right users, hence improved performance.	in Kenyan. In addition, the variables studied are different from those addressed by this study.
Domfeh, et. al.	2018	The Impact of Sales Force Automation System on Quality Service Delivery and Sales Reporting among Micro and Small-Sized Enterprises in Kumasi Metropolis, Ghana.	There was also a statistically significant high positive correlation between the use of sales force automation system and sales reporting, and quality service delivery.	This study was conducted on SMEs in different sectors in Ghana whose operations are different from that of a public institution, which is the focus for this study.
Kemboi	2018	Effects of Automation on Performance of Commercial Banks in Kenya: A Case of National Bank of Kenya.	The bank's automated systems improves both customer service and customer relationship leading to organization performance.	This looked at automation in the banking sector while the focus of this study is public institutions, and specifically TSC. In addition, the study did not look at all the variables that this study also seeks to research on.
Ijeoma	2018	Importance of management information system in service delivery and paper work in Nigeria University.	The results revealed that MIS had assisted in service delivery to a high extent hence, and had assisted in reducing paper work to a large extent, hence	The study was conducted on a Nigerian University, and did not study all the variables that this study seeks to study, and the findings cannot be generalised into the case of TSC in

			increased organization productivity, effectiveness, increased customer satisfaction, and efficiency of the work.	Kenya.
Young-Harry, et al.	2018	Management information system and organizational performance of Seven-Up Bottling Company in Aba and Port Harcourt.	Findings show that MIS facilitates faster and easier retrieval of information that assists managers in making effective and efficient decisions that will improve both individual and organizational performances.	The context and the concept of this study is different, and therefore cannot be generalised into the Kenyan context.
Oyelana and Thakhathi	2017	The impact of effective utilization of ICT in enhancing and improving employees' performance in the local government organizations in South Africa.	The study established how ICT improves the performance of employees.	This study however was conducted on local government organizations in South Africa, which makes the context of the study different from that of the proposed study.
Islam *et al.*	2015	Information and Communication Technology (ICT) for Enhancing Public Service Delivery: A study on Access to Information (A2I) Programme and other Initiatives	The result shows that MIS adoption in public sectors improved the public service delivery.	This study was conducted in Bangladesh and focused on different variables, and therefore its findings may not be generalised to this study.

		from Bangladesh Government.		
Khresat	2015	The effect of management information system on organizational performance: Applied study on Jordanian telecommunication companies.	MIS aided in managing data, organizing, retrieving of the information which help the organization to provide services faster and also enhanced decision support systems.	The study was conducted on Jordanian telecommunication companies, and the findings may not be generalised to Kenyan context.
Yaghoubi and Sargazi	2014	Investigating the effect of office automation on organizational excellence.	Results show that using office automation has great effect on communication, and subsequently on organizational excellence	This study was conducted in a learning institution in Iran and not in a public institution as it is the case for this study. Therefore the findings cannot be generalized in Kenyan context. Also the variables studied are different from those addressed by this study.
Wangai and Ngugi	2014	Influence of Information Technology on Performance of Stock Brokerage Firms in Kenya.	The study revealed that a well-established IT infrastructure contributes to a positive performance on stock brokerage firms in Kenya.	This study was limited to stock brokerage firms in Kenya while the proposed study is in the public sector. The study also did not look at how MIS enhances HRM and the subsequent effect on the performance of the firm, and therefore the findings cannot be

				generalized in this study.
Allameh et al.	2011	An assessment of the effect of information communication technology on human resource productivity of mobarekeh steel complex in Isfahan (IRAN).	Office automation, internet and intranet had increased communication in the organisation hence increased performance.	The study was conducted in Iran, and the variables studies are diffrrent. The findings therefore may not be generalised into Kenyan context.
Holm	2011	The effect of E-recruitment on the Recruitment Process: Evidence from case studies of three Danish MNCs.	It was established that e-recruitment systems has led to a number of performance outcomes in an organization.	Study was conducted on Danish MNCs and does not address the various MIS capabilities that this study seeks to address, and therefore does not fill the gaps.

2.5 Conceptual Framework

In this study, the conceptual framework illustrates the interaction between independent variables (communication capabilities, accounting capabilities, human resource management capabilities, data management capabilities) and the dependent variable (performance) in the study.

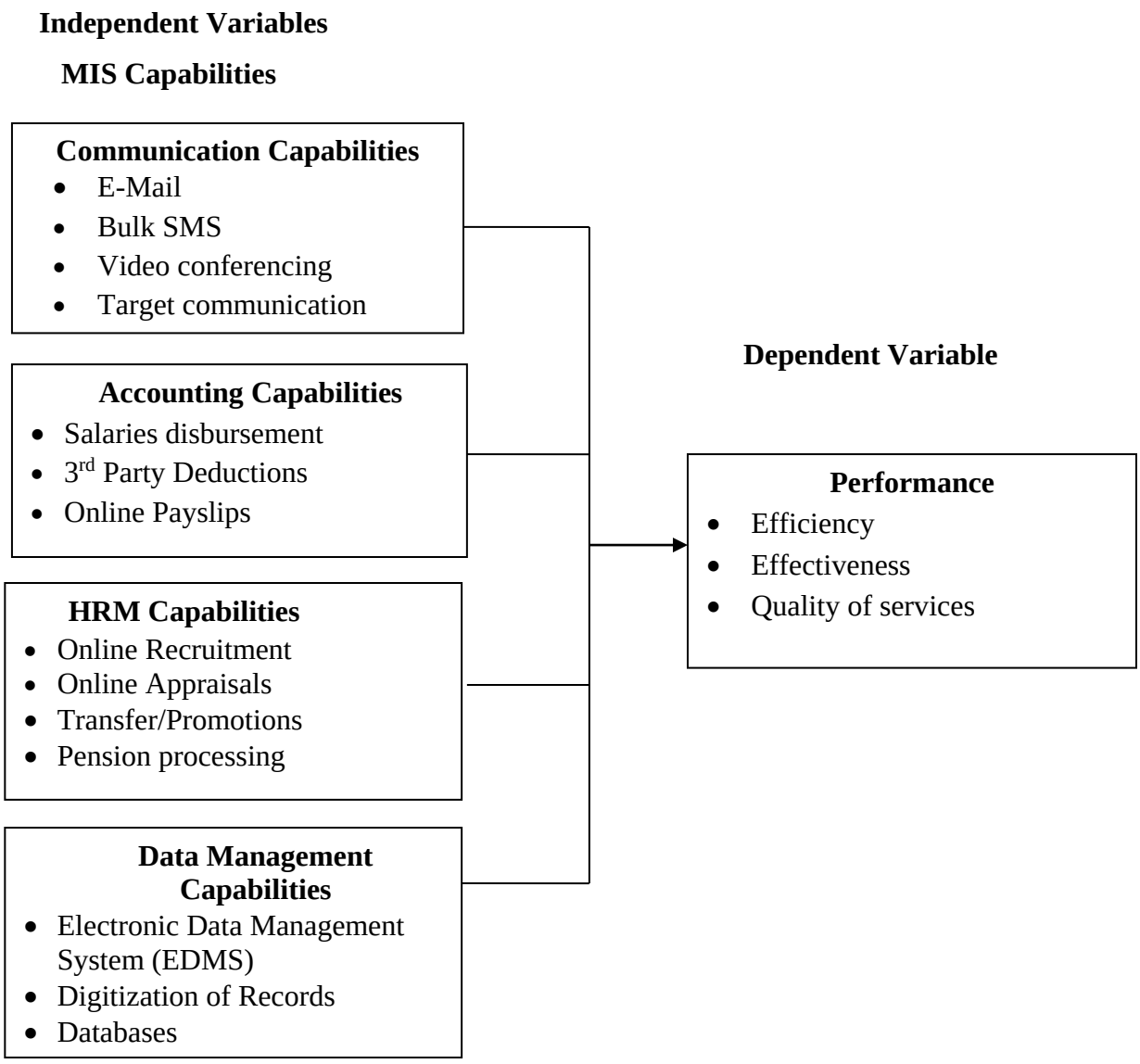

Figure 2.1: Conceptual Framework

Source: Author (2021)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology that was used in the study. It provides details of the study design, the target population, sampling procedure and sample size. It also discusses the research instrument to be used for data collection, pilot study and data analysis techniques used.

3.2 Research Design

The study adopted a descriptive research design. Descriptive research is used to obtain information concerning the current status of the phenomena to describe "what exists" with respect to variables or conditions in a situation. The methods involved range from the survey which describes the status quo, to the correlation study which investigates the relationship between variables (Burns, 2008).

The descriptive design was therefore be appropriate for this study since it facilitated collection of large amount of data for detailed analysis. The approach also is appropriate since it also facilitated use of the questionnaire guide to collect both qualitative and quantitative data. The research design also enabled the researcher look at the problem at hand thoroughly, define it, clarify it and obtain the necessary information that enabled the researcher determine the influence MIS capabilities on performance of Teacher service commission Kenya.

3.3 Target Population

The target population was Teacher service commission (TSC). The unit of observation consisted of 1,300 staff in various departments in TSC headquarters, Nairobi. This comprised of 497 management staff and 803 support staff.

3.4 Sampling Technique and Sample Size

Sampling as the selection of individuals from within a population to generate some knowledge about the whole population especially for the purpose of making predictions based on statistical inferences (Black, 2004). Sample size is the number of items to be investigated which are selected from the entire population, in an attempt to make conclusions about the whole population (Zikmund et al., 2010).

3.4.1 Sample Size

The sampling frame was 1300 staff at the TSC. The population was grouped into population into stratas/ sub-populations. From each sub-populations or stratum, a 10% sample was taken as informed by Mugenda (2008) who indicates that when the population is less than 1000 a 30% sample should be taken while when the population is 1000 and over, a 10% sample should be taken. In this case, a 10% sample was taken to give a sample size of 130 subjects as shown in Table 3.1.

Table 3.1: Sample Size

Staff Level	Total Population	Sampling %	Sample Size
Management Staff	497	10%	50
Support staff	803	10%	80
Total	**1300**		**130**

3.4.2 Sampling Technique

The study employed stratified random sampling technique. With the stratified random sample, there was equal chance (probability) of selecting each unit from within a particular stratum (group) of the population when creating the sample. Stratified random sampling technique was appropriate for this study since it reduced the potential for human bias in the selection of cases to be included in the sample. It also improved the representation of particular strata (groups) within the population, as well as ensuring that these strata are not over-represented (Nguyen *et al.*, 2019). As a result, the stratified random sample provided a sample that was highly representative of the population being studied.

3.5 Data Collection Instrument

The study relied on primary data collected with the help of the questionnaire. The questionnaire was administered to targeted staff at TSC. The questionnaire had both closed an open-ended question. Closed questions contained both nominal scale and ordinal scale questions. Closed questions using ordinal scales were used to rank respondents' level of agreement to the questions asked. A five point (1- 5) likert scale was used where 1 is strongly disagree and 5 is strongly agree. The results were interpreted using mean scores where a mean score of 1-2.5 means that the respondents disagreed; mean scored of 2.6- 3.5 means the respondents were neutral while 3.6-5.0 means the respondents agreed to the statement.

The questionnaire was divided into five sections with each part having clear guidelines on how the respondents would fill them. Section one covered the general information about the respondents while section two to five answered questions on

the four study variables. The researcher finds the questionnaire as an appropriate tool for data collection for this study since it allowed collection of both subjective and objective data in a large sample of the study population in order to obtain results that are statistically significant, especially when resources are limited (Kombo & Tromp, 2009).

3.6 Validity and Reliability of the Questionnaire

Prior to administering the questionnaires to the respondents, the researcher ensured that the questions are thoroughly reviewed to ensure clarity and that any form of ambiguity is eliminated. This was made through pilot testing. Pilot testing was crucial since the researcher was able to know whether the respondents understands the questions asked or whether there are any ambiguous or sensitive questions to the respondents. Pilot testing therefore helped to determine the validity and reliability of the questionnaire. The researcher selected 20 members of staff in TSC randomly to take part in the pilot study. Mugenda (2008) assert that an adequate sample for pilot study should be between 1% to 10% of the actual sample size. After the pilot testing, the researcher made the necessary adjustments to the questionnaire, ready for the final data collection.

3.6.1 Validity of the Questionnaire

Validity is the extent to which an instrument, a survey, measures what it is supposed to measure: validity is an assessment of its accuracy (Saunders *et. al.*, 2012). Validity of the questionnaire was checked to ascertain whether in the view of the respondents, the questions measure what they were intended to measure. To accomplish this, the researcher sought the advice of experts and professionals

including the supervisor, to check whether the questions contained in the questionnaire cover all aspects and variables being measured.

3.6.2 Reliability of the Questionnaire

Reliability refers to the degree to which the results obtained by a measurement and procedure can be replicated (Wong, Ong & Kuek, 2012). Reliability importantly contributes to the validity of a questionnaire. In order to consider a result valid, the measurement procedure must first be reliable.

Reliability was conducted using Cronbach's alpha test. Cronbach's alpha determines the internal consistency or average correlation of items in a survey instrument to gauge reliability of the questionnaire. Cronbach's alpha ranges from 0 to 1, with r = 0.7 or greater considered as sufficiently reliable. The higher the score, the more reliable the data collection instrument is (Tavakol & Dennick, 2011).

3.7 Data Collection Procedure

First, the researcher got an introduction letter from the university which was used to apply for a permit from National Commission for Science, Technology and Innovation (NACOSTI), to authorize carrying out of the study. The researcher contacted TSC and requested for permission from the Human Resources manager to conduct the study. Once permission was granted, the researcher prepared a list of respondents for the study and later contacted the respective respondents. The respondents were briefed about the background of the study and the potential contribution of the study to the institution. The respondents were assured of anonymity and also assured that the data collected was purely to be used for academic purposes only.

The questionnaire was administered through online google forms and the respondents were given ample time to answer the questions. Follow-up reminders were sent by mail made through phone calls. A date was set when all the questionnaires were to be submitted.

3.8 Data Analysis and Presentation

After all the data was collected, the questionnaire were coded and entered into IBM Statistical Package for Social Sciences (SPSS) version 21.0. The data was analyzed using descriptive and inferential analysis. Descriptive Analysis included measures of central tendency as well as the measures of dispersion to get an overview of the sample and summarize the responses of the respondents. In Inferential statistics, Pearson correlation and regression analysis were carried out to determine the relationship between dependent variable and independent variables. The analysed data was presented in tables, pie charts, and bar charts. The open ended questions were analysed using content using thematic content analysis and presented alongside the quantitative data.

The regression model took the following form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon_i$$

Where: Y = Performance

X_1 = Communication Capabilities

X_2 = Accounting Capabilities

X_3 = Human Resource Management Capabilities

X_4 = Data Management Capabilities

β_0 = the intercept (value of EY when X = 0)

β_{1-n} = the regression coefficient

ε_i = error term

3.9 Ethical Considerations

In conducting the research, the researcher ensured there was voluntary consent and participation in the research by the research participants. No one person was forced to participate in the study, if they did not wish to. The respondents were not be forced or coerced to participate in the study. There was no victimization or any form of penalty associated with pulling out of the study.

Permission was sought from TSC management to conduct the study in the institution. Once permission was granted all participants were informed of the study and were assured of confidentiality of the data they provide. This avoided victimization of any respondent for participating in the research study. A permit and approval was also sought from the National Commission for Science, Technology and Innovation (NACOSTI). Findings of the study were shared with TSC for their use.

In order to increase freedom of respondents' participation, the researcher ensured there was high degree of confidentiality. The need to protect confidentiality arises from the realization of the fact that qualitative research is conversational in nature and hence it is important for the researchers to maintain a well-defined boundary of what they tell or ask the participants.

To enhance confidentiality, the data collection instrument (the questionnaire) was designed in a way that it did not capture or ask personal information such as the

respondent's name, phone number or any sensitive questions. This increased the degree of confidence amongst the respondents to give information freely.

The researcher explained to the respondents the purpose of the study and the significance of the study to the research participants and the organization at large. This ensured that the respondents selected had sufficient knowledge with regard to the subject matter of the research. This ensured that the respondents had a capacity to fully participate in the research. This reduced any discomfort on the respondents and encouraged them to participate in the study.

CHAPTER FOUR

REESARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents and discusses the study findings as analysed from the data collected through questionnaires. The purpose of this study was to determine the influence Management Information Systems (MIS) capabilities on performance of Teacher service commission, Kenya. The data from questionnaires was analysed through descriptive and inferential techniques, and presented in tables, charts and graphs and according to the study objectives.

4.2 Response Rate

A total of 130 questionnaires were administered to the staff at TSC headquarters in Nairobi. Out of this sample, a total of 118 questionnaires were successfully filled and returned for analysis.

Table 4.1: Response Rate

Response rate	**Frequency**	**Percentage**
Returned Questionnaires	118	90.8
Unreturned Questionnaires	12	9.2
Total	**130**	**100.0**

Source : Research data (2021)

The number of questionnaires returned represented a rate of 90.8% as shown above. Babbie and Earl (2009) indicates that 50% response rate was deemed adequate and one can proceed with data analysis while a response rate of 70% and above was deemed good. This response rate was therefore deemed to be adequate and good enough for the data analysis to continue to answer the study objectives.

4.3 Demographic Characteristics of the Respondents

This section presents data on the various demographic characteristics of the respondents. This covererd the respondents' gender, age of the respondents, designation/position and their occupation in the organization.

4.3.1 Gender Composition of the Respondents

This section presents information on gender composition of the respondents who took part in the study. The results are presented in Figure 4.1.

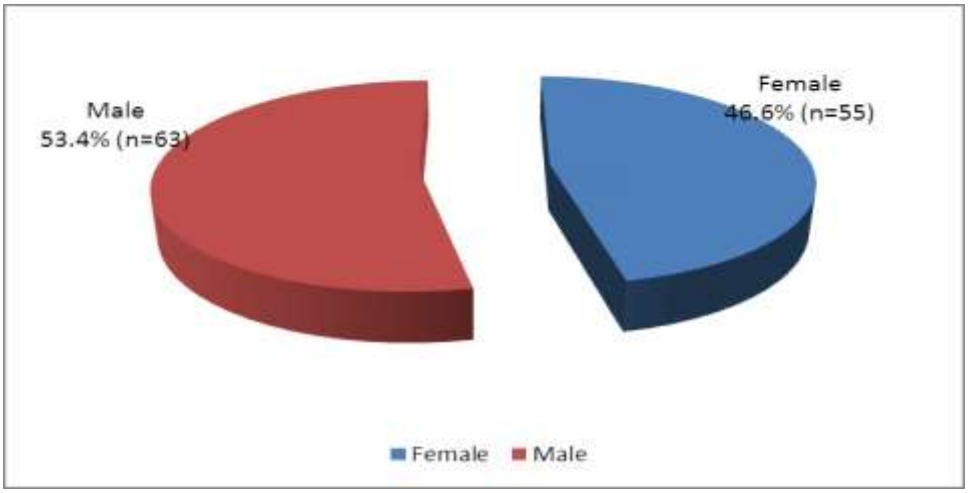

Figure 4.1: Gender Composition of the Respondents

Source : Research data (2021)

The findings in Figure 4.1 showed that majority of the respondents (53.4%) were male while 46.6% were female. The results implied that almost an equal number of male and female staff in TSC.

4.3.2 Distribution of Respondents by Age

The respondents were asked to indicate their age. The age of the respondents was captured in structured age brackets as shown in Figure 4.2.

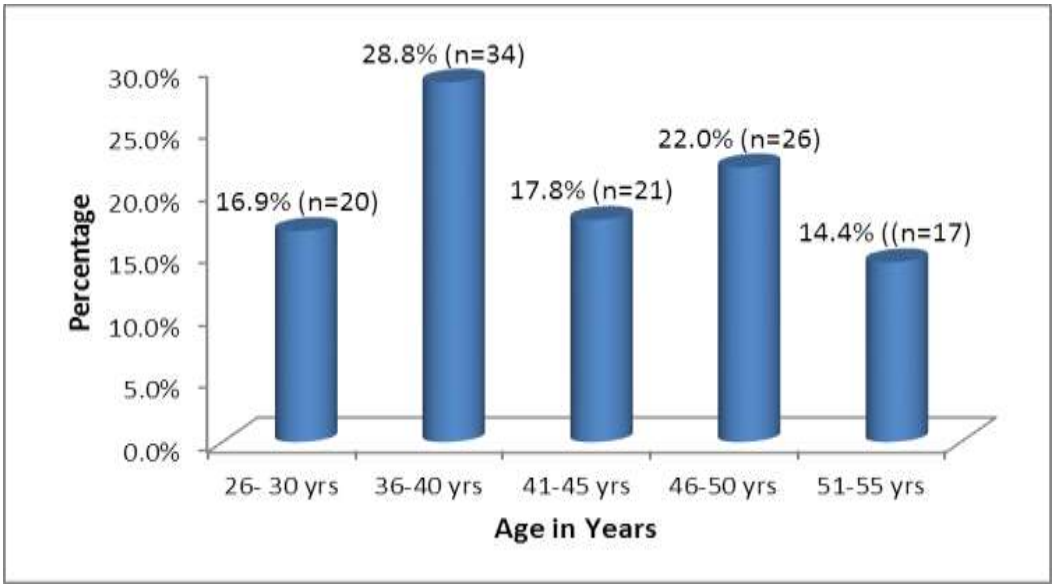

Figure 4.2: Distribution of Respondents by Age

Source : Research data (2021)

As shown in Figure 4.2 above, 28.8% of the respondents indicated that they were aged between 36-40 years while 22% were aged between 46-50 years. In addition, 17.8% of the respondents revealed that they were aged between 41-45 years; 16.9% were aged between 26-30 years while 14.4% indicated that they were aged between 50 -55years. From the findings, the composition of the respondents who participated in the study consists of both young and middle-aged employees.

4.3.4 Designation of the Respondents in TSC

The respondents were asked to indicate their designation/ position in TSC. The results are presented in Table 4.2.

Table 4.2: Designation in TSC

Designation/Position	Frequency	Percent
Assistant directors	5	4.2
ICT officers	15	12.7
Human Resource Officers	26	22.0
Office Adminstrators	12	10.2
Clerical Officers	24	20.3
Accountants and Finance Officers	14	11.9
Supply Chain Management Officers	3	2.5
Corporate Communication Officers	1	0.8
Records Management Officer	12	10.2
Customer Care Assistants	2	1.7
Principal Staffing Officers	4	3.4
Total	**118**	**100.0**

Source : Research data (2021)

The results in Table 4.2 shows that 22% of the respondents were human resource officers (in diferent levels) in TSC; 20.3% were Clerical Officers while 12.7% were ICT officers in the organization. A further 11.9% of the respondents revealed that they were accountants and finance officers while 10.2% were office adminstrators and records management officer respectively. In addition, 4.2% were assistant directors; 3.4% were principal staffing officers; 2.5% were supply chain management officers while 1.7% were customer care assistants. From the findings, it can be seen that the study was inclusive of all the staff and at all levels. This improves the credibility of the information given by the respondents.

4.3.5 Duration Worked in TSC

The study also enquired from the respondents on how long they had worked in TSC. The findings are presented in Figure 4.3.

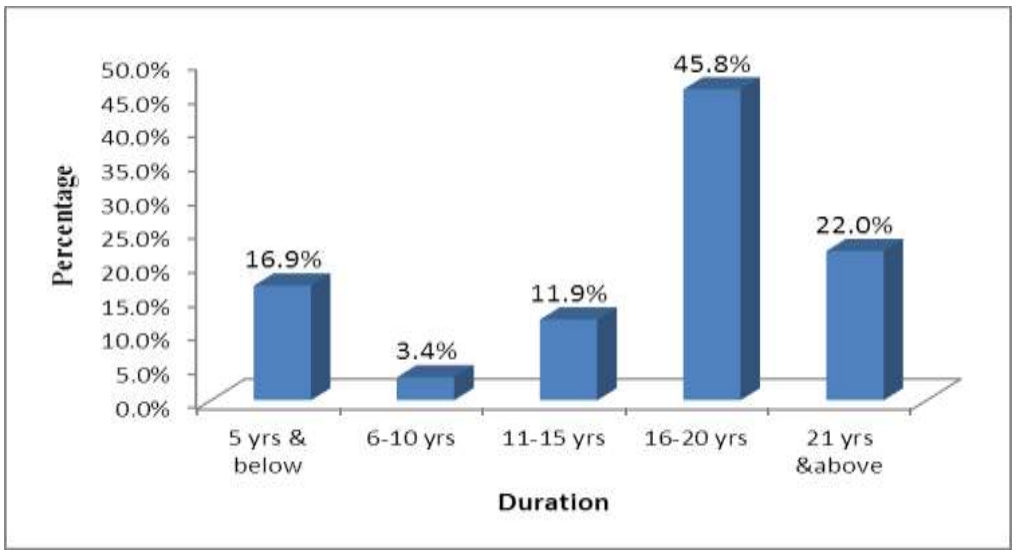

Figure 4.3: Duration Worked in TSC

Source : Research data (2021)

The findings in Figure 4.3 shows that 45.8% of the respondents had worked in TSc for duration of 16-20 years while 22% revealed that they had worked for a duration of 21 years and above. On the other hand, 16.9% reported that they had worked in TSc for a duration of 5 years and below; 11.9% for a duration of 11-15 years while 3.4% indicated that they had worked in the institution for duration of 6-10 years. This shows that majority of the respondents who particiopated in the study had worked in TSC for a long duration (for more than 10 years), and this improves the reliability of the information given by the respondents.

4.4 Communication Capabilities

This section addresses the first objective of the study which sought to examine the influence of communication capabilities on performance of TSC.

4.4.1 Communication Capabilities in TSC

To answer this objective, the respondents were first asked to indicate the extent to which they agreed with statements on communication capabilities in TSC. A five point likert scale (1 to 5) was used to interpret the results using mean scores and standard deviation. A mean score of 1-2.5 implies that the respondents disagreed; a mean score of 2.6- 3.5 means the respondents were neutral (neither disagreed nor agreed) while 3.6-5.0 means the respondents agreed to the statement. The findings are presented in Table 4.3.

Table 4.3: Communication Capabilities in TSC

Statements on Communication Capabilities	N	Mean	Std. Deviation
Use of electronic mails in communication has enhanced speedy delivery of information to clients.	118	4.00	1.352
Use of electronic Mails in communication has promoted reliable and safe delivery of messages.	118	3.78	1.262
Use of Short messeging system (bulk SMS) in communication has enhanced speedy delivery of information to teachers and other stakeholders.	118	4.00	1.444
Use of video conferencing in communication has facilitated timely feedback and responses.	118	3.88	0.997
Use of video conferencing in communication has broken down on distance and therefore meetings are done remotely.	118	3.86	1.316
Average		**3.90**	**1.274**

Source : Research data (2021)

The findings in Table 4.3 showed that the respondents agreed that use of electronic mails in communication had enhanced speedy delivery of information to clients (mean score =4.00); and that use of short messeging system (bulk SMS) in communication had enhanced speedy delivery of information to teachers and other stakeholders (mean score =4.00). They also agreed that use of video conferencing in communication had facilitated

timely feedback and responses (mean score = 3.88); and that use of video conferencing in communication had broken down on distance and therefore meetings were done remotely (mean score = 3.86). In addition, the respondents agreed that use of electronic mails in communication had promoted reliable and safe delivery of messeges as shown by a mean score of 3.78.

From the findings shows that use of communication channels such as electronic mails, bulk SMS and video conferencing had enhanced speedy delivery of information to clients, enhanced reliability and timely feedback/responses. These findings are in agreement with those of Onobrakpeya, Nana and Odu (2018) who showed that information and communication technologies such a electronic mail, teleconferencing and telecommuting had a positive effect on service delivery. The findings are also supportd by those of Alene (2018) who revealed that networking of communication channels in an organization enhanced delivery of information to the right users, hence improved performance.

The respondents further stated that there were other communication systems that had been put in place by TSC for communication purposes. They include IP Telephony, entry/exit online TMIS module and use of web applications that enable tracking of cases i.e teacher registration and the TSC website. The respondents also stated that there was use of whatsapp groups for sections and departments in organisation.

4.4.2 Extent Communication Capabilities Influence Performance of TSC

The respondents were also asked to indicate the extent to which communication capabilities influence performance in TSC. The findings are presented in Table 4.4.

Table 4.4: Extent Communication Capabilities Influence Performance of TSC

Extent	Frequency	Percent
Very great extent	42	35.6
Great extent	72	61.0
Moderate extent	4	3.4
Total	**118**	**100.0**

Source : Research data (2021)

As shown in Table 4.4, majority of the respondents (61%) reported that communication capabilities influence performance of TSC to a great extent while 35.6% indicated to a great extent. However, 3.4% of the respondents were of the opinion that communication capabilities influence performance of TSC to a moderate extent.

From the findings, it was established that communication capabilities influence performance of TSC to a great extent. These findings corroborates with those of Alene (2018) who reveaeled that communication channels or capabilities enhances delivery of information to the users hence improved performance. Allameh et al. (2011) in their study also established that Information Communication Technologies (such as MIS, internet, office automation and internet) enhanced human resource productivity and subsequently organization performance.

4.5 Accounting Capabilities

This section addresses the second objective of the study which sought to establish the effect of accounting capabilities on performance of TSC.

4.5.1 Accounting Information Systems in TSC

The respondents were asked to indicate the extent to which they agree with the statements on use accounting information systems by TSC to deliver services. The study

used a five point likert scale to interpret the results using mean scores and standard deviation. A mean score of 1-2.5 implies that the respondents disagreed; mean score of 2.6- 3.5 means the respondents were neutral while 3.6-5.0 implies that the respondents agreed to the statement. The results are presented in Table 4.5.

Table 4.5: Accounting Information Systems in TSC

Statements on Accounting Capabilities	**N**	**Mean**	**Std. Deviation**
Intergrated Personnel Payroll and Database (IPPD) facilitates efficient disbursement of salaries.	118	3.65	1.398
Automation of payroll process has enhanced accountability and integrity in TSC.	118	3.63	1.364
The IPPD has enhanced efficiency in third party deductions.	118	3.69	1.272
Intergrated Personnel Payroll and Database (IPPD) facilitates easy access to payslip online by teachers.	118	3.79	1.449
The accounting systems put in place have enhanced quick access/retrieval of salary records, incase of any dispute.	118	3.53	1.224
The accounting systems in place have reduced the work load and reduced manually maintained files in the organization.	118	3.24	1.265
The IPPD has promoted accuracy and reliability.	118	3.73	1.091
The IPPD has enhanced efficiency in report generation for quick decision making.	118	3.75	1.198
Average		**3.63**	**1.283**

Source : Research data (2021)

The results in Table 4.5 shows that the respondents agreed that the Intergrated Personnel Payroll and Database (IPPD) facilitated easy access to payslip online by teachers (mean score = 3.79); that the IPPD had enhanced efficiency in report generation for quick decision making (mean score = 3.75); and also agreed that the IPPD had promoted accuracy and reliability (mean score = 3.73). In addition, the respondents agreed that IPPD had enhanced efficiency in third party deductions (mean score = 3.69); that IPPD facilitated efficient disbursement of salaries (mean score = 3.65); and also agreed that

automation of payroll process had enhanced accountability and integrity in TSC (mean score = 3.63).

The respondents were however neutral when asked whether accounting systems put in place had enhanced quick access/retrieval of salary records, incase of any dispute (mean score = 3.53). They were also neutral on whether the accounting systems in place had reduced the work load and reduced manually maintained files in the organization (mean score = 3.24).

The findings above revealed that TSC used accounting information systems such as IPPD which facilitated efficient disbursement of salaries, enhanced accountability and integrity, and also enhanced efficiency in third party deductions. These results are in agreement with those of Bani-Hani et al. (2019) who found out that MIS enhanced transaction processing which had a had a significant impact on organizations performance (effectiveness and efficiency). Domfeh et al. (2018) also found out that automation enhanced quick reporting and organizational performance.

4.5.2 Extent Use of Accounting Information Systems Influence Performance of TSC

The study also sought to establish the extent to which use of accounting information systems influence performance of TSC. The results are presented in Table 4.6.

Table 4.6: Accounting Information Systems Influence on Performance of TSC

Extent	Frequency	Percent
Very great extent	43	36.4
Great extent	53	44.9
Moderate extent	22	18.6
Total	**118**	**100.0**

Source : Research data (2021)

As shown in Table 4.6 above, 44.9% of the respondents revealed that use of accounting information systems influence performance of TSC to a great extent while 36.4% indicated that it influences to a very great extent. Besides, 18.6% of the respondents reported that use of accounting information systems influence performance of TSC to a moderate extent.

From the findings most of the respondents revealed that use of accounting information systems influence performance of TSC to a great extent. These findings are in agreement with those of Domfeh, Kusi, Nyarkun and Hunsaker (2018) who found out that accounting system (a Sales Force Automation system) had a statistically significant and positive correlation with performance.

4.6 Human Resource Management Capabilities

This section addresses the third objective of the study which sought to determine the relationship between human resource management capabilities and performance of TSC.

4.6.1 Use of Information Systems in Human resource Management in TSC

The respondents were asked to indicate the extent to which they agree with statements on use of information systems in human resource management in TSC. The study employed a five point (1-5) likert scale whereby results were interpreted using mean scores. A mean score of 1-2.5 means that the respondents disagreed; mean scored of 2.6-3.5 means the respondents were neutral while 3.6-5.0 means the respondents agreed to the statement. The findings are presented in Table 4.7.

Table 4.7: Use of HRMIS in TSC

Statements on HRMIS	N	Mean	Std. Deviation
HRMIS has enhanced teachers' recruitment through online application.	118	3.63	1.211
Teachers and prospective employees can access information on vacant positions online.	118	3.84	1.132
HRMIS has enhanced teachers' transfer through online application.	118	3.60	0.917
HRMIS facilitates quick decision making due to efficient and reliable online reports.	118	3.86	0.908
HRMIS facilitates quick processing of pension for teachers.	118	3.03	0.974
HRMIS has enhanced accessibility and availability to information on teacher's record through data capturing.	118	3.54	1.018
HRMIS has promoted accountability through audit trails.	118	3.90	0.946
HRMIS has simplified supervision hence increased work out put.	118	3.38	1.147
Average		**3.60**	**1.032**

Source : Research data (2021)

The results in Table 4.7 shows that the respondents agreed that HRMIS had promoted accountability through audit trails (mean score =3.90); and that HRMIS facilitated quick decision making due to efficient and reliable online reports (mean score = 3.86). The respondents further agreed that teachers and prospective employees can access information on vacant positions online (mean score = 3.84); that HRMIS had enhanced teachers' recruitment through online application (mean score = 3.63); and also agreed that HRMIS had enhanced teachers' transfer through online application (mean score = 3.60).

The respondents were however neutral when asked whether HRMIS had enhanced accessibility and availability to information on teacher's record through data capturing (mean score = 3.54) and on whether HRMIS had simplified supervision and increased

work out put (mean score = 3.38). Moreover, the resopondents were nutral on whether HRMIS facilitated quick processing of pension for teachers (mean score = 3.03).

The findings indicate that HRMIS enhanced access information on vacant positions online and the overall recruitment process of teachers. These findings are in agreement with those of Uppin (2017) who also found out that recruitment and human resource automation helps in increase of access of information within the organization. The findings are also supported by Holm (2011) who revealed that HRMIS (specifically e-recruitment) enhanced the overall recruitment process and performance outcomes in the organization.

4.6.2 Extent to which HRM Capabilities Influence Performance of TSC

The study also sought to establish the extent to which use of information systems in human resource management influence performance of TSC. The findings are presented in Figure 4.4.

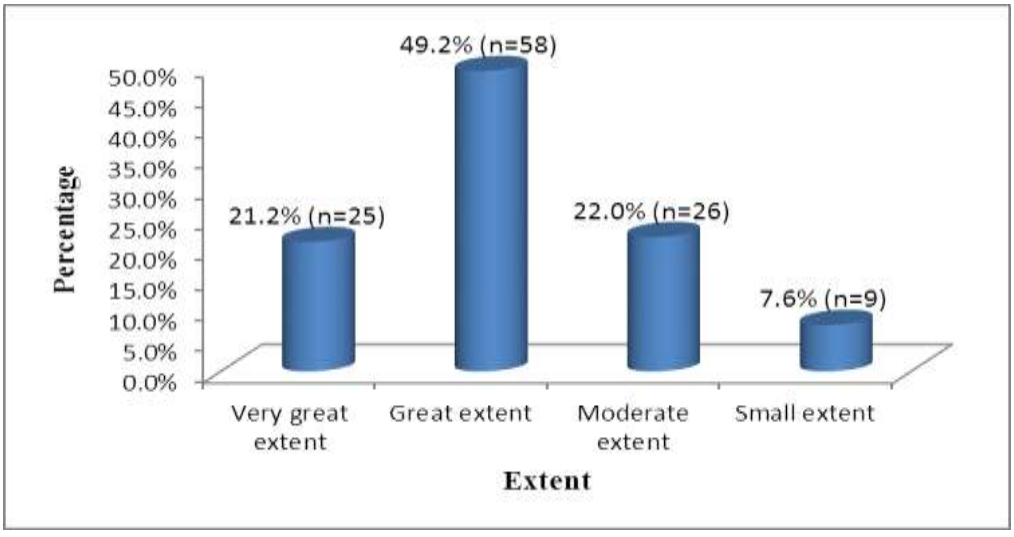

Figure 4.4: Extent to which HRM Capabilities Influence Performance of TSC

Source : Research data (2021)

As indicated in Figure 4.4 above, most of the respondents (49.2%) reported that use of information systems in human resource management influence performance of TSC to a great extent while 21.2% indicated it influences to a very great extent. On the other hand, 22% of the respondents revealed that use of information systems in human resource management influence performance of TSC to a moderate extent while 7.6% indicated to a small extent.

From the findings use of information systems in human resource management influence performance of TSC to a great extent. The findings are in line with those of Holm (2011) who revealed that HRMIS (and specifically e-recruitment) had an impact on recruitment process and performance outcomes in the organization. Ogohi (2019) also found out use of e-recruitment software and its effects on organizational performance.

4.7 Data Management Capabilities and Performance

This section addresses the fourth objective of the study which sought to evaluate the influence of data management capabilities on performance of TSC.

4.7.1 Data Management Capabilities in TSC

The respondents were asked to indicate the extent to which they agree with the statements on data management capabilities in TSC. A five point likert scale was used to interpret the results using mean scores and standard deviation. A mean score of 1-2.5 implies that the respondents disagreed; a mean score of 2.6- 3.5 means the respondents were neutral (neither disagreed nor agreed) while 3.6-5.0 means the respondents agreed to the statement. The findings are presented in Table 4.8.

Table 4.8: Data Management Capabilities in TSC

Data Management Capabilities	N	Mean	Std. Deviation
Electronic Data Management System (EDMS) provides a centralized, single source of data/information hence ensuring availability and easy sharing of data.	118	3.60	1.071
Use of EDMS in TSC has enabled many users to access/work on a digital file at the same time hence reducing the backlog effectively and efficiently.	118	3.32	1.169
EDMS has promoted conducive working environment to the employees through decongestion of office by dusty files in the work station.	118	3.52	1.068
Use of EDMS in TSC has enabled gathering of data from multiple online systems through integration.	118	3.41	1.119
Use of EDMS in TSC has helped analyze the information and data reports to aid in management decision-making.	118	3.41	1.149
Use of EDMS in TSC has enabled digitization of records, eliminating manual document maintenance.	118	3.52	1.044
Centralizing of data in databases enhances availability of data for quick decion making in the organization.	118	3.41	1.171
Automation of electronic digital file has enhanced accountability and integrity in TSC through audit trails.	118	3.42	1.150
EDMS has reduced paper work on internally generated process	118	3.47	1.052
EDMS has cut down on storage cost since the files are digitally stored	118	3.34	1.207
Average		**3.442**	**1.120**

Source : Research data (2021)

The results in Table 4.8 show that the respondents agreed that Electronic Data Management System (EDMS) provided a centralized, single source of data/information hence ensuring availability and easy sharing of data, as shown by a mean score of 3.60. The respondents were however neutral (neither agreed nor disagreed) on whether use of EDMS in TSC had enabled digitization of records, eliminating manual document maintenance; and on whether EDMS had promoted conducive working environment to the employees through decongestion of office by dusty files in the work station,as shown by a mean score of 3.52. The respondents were also neutral on whether EDMS had

reduced paper work on internally generated process (mean score = 3.47); and on whether automation of electronic digital file had enhanced accountability and integrity in TSC through audit trails (mean score = 3.42).

In addition, the respondents were neutral on whether use of EDMS in TSC had enabled gathering of data from multiple online systems through integration; whether use of EDMS in TSC had helped analyze the information and data reports to aid in management decision-making; and on whether centralizing of data in databases enhanced availability of data for quick decion making in the organization, as shown by a mean score of 3.41 respectively. Moeover, the respondents were neutral on whether EDMS had cut down on storage cost since the files are digitally stored (mean score = 3.34); and on whether use of EDMS in TSC had enabled many users to access/work on a digital file at the same time hence reducing the backlog effectively and efficiently (mean score = 3.32).

The findings above showed that EDMS provided a centralized, single source of data/information hence ensuring availability and easy sharing of data. It also enabled digitization of records, eliminating manual document maintenance; and also facilitated quick decion making in the organization. The findings are in agreement with those Khresat (2015) who revealed that MIS helped organization to provide services faster, support data processing systems and enhanced decision support systems. The results are also supported by Ijeoma (2018) who revealed that management of information system assisted in reducing paper work to a large extent, increased organization productivity, effectiveness, and efficiency of the work. It also helped the senior management to make strategic decisionsmore quickly.

4.7.2 Extent Use of EDMS Influence Performance of TSC

The study sought to determine the extent to which the use of electronic data management system influence performance of TSC. The findings are presented in Table 4.9.

Table 4.9: Extent Use of EDMS Influence Performance of TSC

Extent	Frequency	Percent
Very great extent	20	16.9
Great extent	40	33.9
Moderate extent	44	37.3
Small extent	5	4.2
Not at all	9	7.6
Total	**118**	**100.0**

Source : Research data (2021)

As shown in Table 4.9 above, 37.3% of the respondents revealed that use of electronic data management system influence performance of TSC to a moderate extent. On the other hand, 33.9% of the respondents reported that use of electronic data management system influence performance of TSC to a great extent while 16.9% indicated to a very great extent. However, 4.2% indixcated that use of electronic data management system influence performance of TSC to a small extent while 7.6% revealed that it did not influence performance at all.

From the findings above, electronic data management system influence performance of TSC. These findings are in agreement with those of Young-Harry, Oparanma and Ejo-Orusa (2018) who found a positive significant relationship between management information system and organizational performance. The findings are aslso supported by Khresat (2015) who found out that there is a statistical significant relationship between management information system and organizational performance.

4.8 Performance of TSC

In this section, the study sought to examine how MIS had enhanced the following performance aspects. The study used a 1-5 likert scale and results were interpreted using mean scores whereby, a mean score of 1-2.5 means that the respondents agreed to a small extent; 2.6-3.5 means moderate extent while 3.6-5.0 means the respondents agreed to a great extent. The findings are presented in Table 4.10.

Table 4.10: Performance of TSC

Statements on Performance	N	Mean	Std. Deviation
Use of management information systems has lowered the cost of service delivery (efficiency)	118	3.60	0.998
MIS adopted has reduced time taken to perform a task/ activities in TSC (efficiency).	118	3.63	0.913
Use of MIS has enhaced delivery of quality services to the satisfaction of teachers (effectiveness).	118	3.63	1.003
Use of MIS has produced the desired results in deliver of services by TSC (effectiveness).	118	3.50	0.959
MIS capabilities have improved the quality of services delivered by TSC.	118	3.63	0.932
Average		**3.60**	**0.961**

Source : Research data (2021)

The findings in Table 4.10 shows that the respondents indicated that adoption of MIS had reduced time taken to perform a task/ activities in TSC to a great extent; had enhaced delivery of quality services to the satisfaction of teachers to a great extent; and that MIS capabilities had improved the quality of services delivered by TSC to a great extent as shown by a mean score of 3.63 respectively. In addition the respondents revealed that use of management information systems had lowered the cost of service delivery to a great extent as shown by a mean score of 3.60. The respondents were however indicated that

the use of MIS had produced the desired results in deliver of services by TSC to a moderate extent as shown by a mean score of 3.50.

The above results coroborrotes wiith those of Mithas et al. (2011) who revealed that these capabilities favorably influence customer, financial, human resources, and organizational effectiveness measures of firm performance. Azeez and Yaakub (2019) in their study alsofound out that MIS enhanced information quality, user satisfaction and other benefits which are directly linked with the organisational performance. In addition, the findings ars supported by Al-Gharaibeh and Malkawi (2013) who revealed that MIS plays a role in managing the data, organizing, retrieving of the information which help the organization to provide services faster, and market more accurate and easier, which affect also the level of performance.

The respondents were further asked to indicate how else does use of MIS in TSC affect performance of the institution. The respondents stated that MIS had enhanced accountability/integrity due to audit trails, had created a central point of information, and had improved the safety of instititional records. The respondents also stated that use of MIS had enhanced feedback mechanisms, enhaced quick retrieval of information for decision making and enhanced service delivery. The online service delivery had reduced time of accessing a service, simplified processes, hence leading to customer satisfaction.

4.8.1 Areas TSC has Not Automated/ Adopted MIS

The study enquired from the respondents on the areas that the institution had not automated or adopted MIS. The respondents stated that systems such as clocking in and

out of staff in the workplace; county offices integration with headquarters amd integration with other stake holders like KNEC and universities was yet to be done. The respondents further stated that casualty return system was still in the implementation stage, and that EDMS was not yet fully implemented.

4.9 Inferential Statistics

Pearson correlation and multivariate regression analysis were conducted to determine strength and form of relationship between the study variables.

4.9.1 Correlation Analysis

Pearson correlation analysis was carried out to determine relationship between the study varibles. The results are presented in Table 4.11.

Table 4.11: Correlations Results

		Performance	Communication capabilities	Accounting Capabilities	HRM Capabilities	Data management Capabilities
Communication capabilities	Pearson Correlation	0.420**	1			
	Sig. (2-tailed)	0.000				
Accounting Capabilities	Pearson Correlation	0.318**	0.893**	1		
	Sig. (2-tailed)	0.000	0.000			
HRM Capabilities	Pearson Correlation	0.466**	0.721**	0.737**	1	
	Sig. (2-tailed)	0.000	0.000	0.000		
Data manageme	Pearson Correlat	0.543**	0.645**	0.546**	0.838**	1

nt Capabilities	ion					
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	
	N	118	118	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).						

Source : Research data (2021)

The correlation analysis results in Table 4.11 shows that there exists a moderate, positive and significant relationship between communication capabilities and and performance of TSC as shown by r = 0.420 and Sig ($p<0.001$). The findings further indicates that there is a moderate, positive and significant correlation between performance of TSC and accounting Capabilities ($r= 0.318$, Sig. $p<0.001$); HRM Capabilities ($r= 0.466$, $p<0.001$); data management capabilities ($r= 0.543$), $p<0.001$).

4.9.2 Model Summary

A regression analysis was conducted to establish the relationship between the MIS capabilities (communication capabilities, accounting capabilities, human resource management capabilities, data management capabilities) on performance of TSC, Kenya. The regression model adopted took the following form:

$$Y= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon_i$$

Where: Y is performance, X_1 is communication capabilities, X_2 is accounting capabilities, X_3 is human resource management capabilities, X_4 is data management capabilities, β_0 is the intercept (value of EY when X = 0), β_1- β_4 is the regression coefficient and ε_i is error term.

Table 4.12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.726[a]	0.527	0.510	0.61321
a. Predictors: (Constant), Communication capabilities, Accounting Capabilities, Human Resource Management Capabilities, Data management Capabilities				

Source : Research data (2021)

On the regression results presented in Table 4.12, the model summary presents adjusted R square value of 0.510 which meant that the independent variables/predictors (communication capabilities, accounting capabilities, human resource management capabilities, data management capabilities) in the model accounted for a variation of 51% of the dependent variable (Performance of TSC). It meant that the independent variables/predictors explained 51% of the dependent variable. The remaining percentage could be explained by other factors or variables not included in the study.

4.9.3 ANOVA

The ANOVA results in Table 4.13 showed how well the regression equation fits the data (i.e., predicts the dependent variable).

Table 4.13: ANOVA[a]

Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	47.306	4	11.826	31.451	0.000[b]
	Residual	42.491	113	.376		
	Total	**89.797**	**117**			
a. Dependent Variable: Performance b. Predictors: (Constant), Communication capabilities, Accounting Capabilities, Human Resource Management Capabilities, Data management Capabilities						

Source : Research data (2021)

The ANOVA results indicated the statistical significance of the regression model is P (sig.) = 0.001, which is less than 0.05. This meant that, the regression model statistically

significantly predicted the outcome variable (i.e., it is a good fit for the data). This implied that the regression model predicts the dependent variable significantly well.

4.9.4 Regression Coefficients

The regression coefficients results provided information that showed how the predictors informs the dependent variable, as well as determine whether the predictors contributed statistically significantly to the model.

Table 4.14: Regression Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.037	0.283		3.665	0.000
Communication capabilities	0.352	0.099	0.580	3.544	0.001
Accounting Capabilities	0.195	0.055	0.323	3.529	0.001
Human Resource Management Capabilities	0.734	0.097	0.793	7.554	0.000
Data management Capabilities	0.387	0.105	0.472	3.701	0.000

Source : Research data (2021)

The findings in Table 4.14 showed that there was a positive and statistically significant relationship between communication capabilities and performance of TSC as shown by the value of beta "B" which is 0.352 and the corresponding significant value (sig) is 0.001 (which is less than 0.05). This meant that a unit increase in communication capabilities would lead to an increase in performance of TSC. These findings are in agreement with those of Nana and Odu (2018) who showed that information and communication technologies such a electronic mail, teleconferencing and telecommuting had a positive effect on service delivery, and subsequently organization performance.

The study also showed that there was a positive and statistically significant relationship between accounting capabilities and performance of TSC (B = 0.195, p = 0.001 <0.05). This implied that accounting capabilities significantly and positively influenced performance of TSC. These findings are in agreement with those of Domfeh, Kusi, Nyarkun and Hunsaker (2018) who found out that accounting system had a statistically significant and positive correlation with performance.

In addition, the findings showed that there was a positive and statistically significant relationship between performance of TSC and human resource management capabilities (B = 0.734, p = 0.000<0.05). These findings are in agreement with those of Holm (2011) and Ogohi (2019) who revealed that HRMIS had an impact on recruitment process and organizational performance.

The findings also showed that data management capabilities (B = 0.387, p = 0.000<0.05) had a postitive and significant influence on performance of TSC. These findings are in line with those of Young-Harry et al. (2018) and Khresat (2015) who also found a positive significant relationship between management information system and organizational performance.

On overall, the findings showed that all the four predictors/variables (communication capabilities, accounting capabilities, human resource management capabilities, data management capabilities) had a postitive and significant influence on performance of TSC.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECCOMENDATIONS

5.1 Introduction

This chapter presents a summary of the findings as guided by the study objective, conclusion and suggests policy recommendations that can be adopted. At the end of this chapter, the researcher also suggests areas for further study.

5.2 Summary of Findings

The first objective of the study was to examine the influence of communication capabilities on performance of TSC. From the findings the regression results showed that there is a positive and statistically significant relationship between communication capabilities (B= 0.352, p= 0.001) and performance of TSC. The correlation analysis results show a moderate, positive and significant relationship between communication capabilities and performance of TSC. The findings also showed that the respondents agreed that use of electronic mails in communication had enhanced speedy delivery of information to clients; and that use of short messeging system (bulk SMS) in communication had enhanced speedy delivery of information to teachers and other stakeholders. The respondents also agreed that use of video conferencing in communication had facilitated timely feedback and responses; and that use of video conferencing in communication had broken down on distance and therefore meetings were done remotely. Moreover, the respondents agreed that use of electronic mails in communication had promoted reliable and safe delivery of messages. On overall, majority of the respondents revealed that communication capabilities influence performance of TSC to a great extent.

The section objective sought to establish the effect of accounting capabilities on performance of TSC. The regression results showed that there is a positive and statistically significant relationship between accounting capabilities (B = 0.195, p = 0.001) and performance of TSC. The correlation analysis results also showed a moderate, positive and significant relationship between accounting capabilities and performance of TSC. The findings show that the respondents agreed that the Intergrated Personnel Payroll and Database (IPPD) facilitated easy access to payslip online by teachers; that the IPPD had enhanced efficiency in report generation for quick decision making; and also agreed that the IPPD had promoted accuracy and reliability. In addition, the respondents agreed that IPPD had enhanced efficiency in third party deductions; that IPPD facilitated efficient disbursement of salaries; and also agreed that automation of payroll process had enhanced accountability and integrity in TSC. On overall, the respondents reported that use of accounting information systems influence performance of TSC to a great extent.

The third objective of the study was to determine the influence of human resource management capabilities on performance of TSC. The correlation analysis results show a moderate, positive and significant relationship between HRM capabilities and performance of TSC while regression results also revealed that there is a positive and statistically significant relationship between HRM capabilities (B = 0.734, p = 0.000) and performance of TSC. The findings further indicated that the respondents agreed that HRMIS had promoted accountability through audit trails; and that HRMIS facilitated quick decision making due to efficient and reliable real time reports. The respondents also agreed that teachers and prospective employees can access information on vacant positions online; that HRMIS had enhanced teachers' recruitment through online

application; and also agreed that HRMIS had enhanced teachers' transfer through online application. The respondents were however neutral on whether HRMIS had enhanced accessibility and availability to information on teacher's record through data capturing; and on whether HRMIS had simplified supervision and increased work out put. On overall, it was found out that use of information systems in human resource management influence performance of TSC to a great extent.

The fourth objective of the study was to evaluate the influence of data management capabilities on performance of TSC. From the findings, pearson correlation results showed a moderate, positive and significant relationship between data management capabilities and performance of TSC. The regression results also revealed that data management capabilities has a positive and statistically significant relationship ($B = 0.734$, $p = 0.000$) with performance of TSC. The respondents agreed that Electronic Data Management System (EDMS) provided a centralized, single source of data/information hence ensuring availability and easy sharing of data. The respondents were however neutral on whether use of EDMS in TSC had enabled digitization of records, eliminating manual document maintenance; and on whether EDMS had promoted conducive working environment to the employees through decongestion of office by dusty files in the work station. In addition, the respondents were neutral on whether EDMS had reduced paper work on internally generated process; and on whether automation of electronic digital file had enhanced accountability and integrity in TSC through audit trails. Moreover, the respondents were neutral on whether EDMS had cut down on storage cost since the files are digitally stored; and on whether use of EDMS in TSC had enabled many users to access/work on a digital file at the same time hence reducing the backlog effectively and

efficiently. On overall, most of the respondents revealed that use of electronic data management system influence performance of TSC to a moderate extent.

5.3 Conclusion

The study concluded that communication capabilities had a positive and significant influence performance of TSC to a great extent. The use of electronic mails and bulk SMS in communication enhanced speedy delivery of information internally and externally. Use of video conferencing in communication had facilitated timely feedback and responses. These communication capabilities influenced performance of TSC in terms of speedy delivery of information and efficiency.

The study concluded that accounting capabilities had a positive and significant influence on performance of TSC. The implementation of the Intergrated Personnel Payroll and Database (IPPD) system in TSC facilitated easy access to payslip online by teachers and facilitated efficient disbursement of salaries. The system also enhanced efficiency in third party deductions and enhanced accuracy, reliability accountability and integrity in TSC, hence improved organizational performance.

It can also be concluded that human resource management capabilities has a positive and significant influence on performance of TSC. TSC had adopted a Human Resource Management Information System where teachers and prospective employees can access information on vacant positions online; and which facilitated recruitment through online application, as well as teachers' transfer through online application. This promoted accountability through audit trails and facilitated quick decision making due to efficient and reliable online reports, hence improved performance.

The study also shows that concluded data management capabilities have a positive and significant association with performance of TSC. The use of EDMS in TSC provideds a centralized, single source of data/information hence ensuring availability and easy sharing of data. The data management also eliminated manual documentation which reduced on costs of operations. The system also reduced backlog of work and enhanced efficiency hence improved organization performance.

5.4 Recommendations

The study recommends that TSC should continually adopt and implement management information systems in service delivery. It has been established that adoption of MIS in executing various activities in the organization, such as in communication, accounting, human resource and data management, enhances efficiency, availability and quick decsion making. It also enhances accountability and reliability.

The study encourages the organization's top management should continually support the adoption and implementation of MIS through budget allocation and also make an effective contribution to system initiation all the way to implementation. In addition, proper orientation should be conducted in order to ensure that the staff at all levels have proper and adequate knowledge to use of MIS effectively, and facilitate effective service delivery and dissemination of information for better decision making process in the institution. Change management should be carried out before a new system is introduced to avoid user resistance.

The organization had not fully automated its process, while some systems like EDMS was not very adequately implemented. In this regard, the study recommends that the top

management should ensure there is increased automation of process, in order to achieve the benefits. In the adoption of the MIS, the management should consider or take into account any human factors, organizational factors, technological factors and environmental factors that could hinder effective adoption and implementation of the systems.

5.5 Suggestion for Further Study

It was established that the independent variables accounted for 51% of the variation of the depdent variable, hence 49% was explained by other factors that were not part of the study. The future study should explore on other variables other than the ones included in this study.

In addition, a similar study should also be conducted in other public institutions which are also automating their services, for comparison of results.

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APPENDICES

Appendix I: Letter of Introduction

Mary Waithera Wanyoike

Kenyatta University

Dear Respondent,

RE: DATA COLLECTION

I am a student at Kenyatta University pursuing a Master Degree in Business Administration (Management Information System option). As part of the requirement for the award of the Masters Degree, I am conducting an academic research study, entitled; '*Management Information Systems Capabilities and Performance of Teacher Service Commission of Kenya*. You have been chosen to participate in the study. You are therefore kindly requested to participate in the research study by answering the questions provided for you.

The information you provide will be treated confidential and at no time will your personal information be divulged.

Thanks in advance.

Mary Waithera Wanyoike

Appendix II: Questionnaire

Tick in the spaces provided or write on the space provided.

Section A: Demographic Information

1. Indicate your gender

Male [ ] Female [ ]

2. Kindly indicate your age?

25 years and below [ ] 26- 30 years [ ]

31-35 years [ ] 36-40 years [ ]

41-45 years [ ] 46-50 years [ ]

51-55 years [ ] 59- 60 years [ ]

60 years and above [ ]

3. Indicate your designation/position in TSC.....

4. For how long have you worked in TSC?

5 years and below [ ] 6-10 Years [ ]

11-15 Years [ ] 16-20 Years [ ]

21 years and above [ ]

Section B: Communication Capabilities and Performance

5. To what extent do you agree with the following statements on communication capabilities in TSC? Use a scale of 1 to 5 where 1 is strongly disagree, 2 is disagree, 3 is Neutral, 4 is agree and 5 is Strongly agree

Communication Capabilities	**1**	**2**	**3**	**4**	**5**
Use of electronic Mails in communication has enhanced speedy delivery of information to clients.					
Use of electronic Mails in communication has promoted reliable and safe delivery of messegs.					
Use of Short messeging system (bulk SMS) in communication has enhanced speedy delivery of information to teachers and other stakeholders.					
Use of video conferencing in communication has facilitated timely feedback and responses.					
Use of video conferencing in communication has broken down on distance and therefore meetings are done remotely.					
Use of target communication has improved communication in the organization which enhances decision making process.					
Use of TSC website has enhanced access to online services, adverts and information sharing through forms and downloads.					

6. Which other communication systems have been put in place by TSC?

……..... …….....

…….....

……

7. To what extent does communication capabilities influence performance of TSC?

Very great extent [ ] Great extent [ ] Moderate extent [ ]

Small extent [ ] Not at all [ ]

Section C: Accounting Capabilities and Performance

8. To what extent do you agree with statements on use accounting information systems by TSC to deliver the following services? Use a scale of 1 to 5 where 1 is strongly disagree, 2 is disagree, 3 is Neutral, 4 is agree and 5 is Strongly agree

Statements	1	2	3	4	5
Intergrated Personnel Payroll and Database (IPPD) facilitates efficient disbursement of salaries.					
Automation of payroll process has enhanced accountability and integrity in TSC.					
The IPPD has enhanced efficiency in third party deductions.					
Intergrated Personnel Payroll and Database (IPPD) facilitates easy access to payslip online by teachers.					
The accounting systems put in place have enhanced quick access/retrieval of salary records, incase of any dispute.					
The accounting systems in place have reduced the work load and reduced manually maintained files in the organization.					
The IPPD has promoted accuracy and reliability					
The IPPD has enhanced efficiency in report generation for quick decision making.					

9. To what extent does use of accounting information systems influence performance of TSC?

Very great extent [ ] Great extent [ ] Moderate extent [ ]

Small extent [ ] Not at all [ ]

Section D: (Human Resource Management Information System (HRMIS)

Capabilities and Performance

10. To what extent do you agree with statements use of information systems in human resource management in TSC? Use a scale of 1 to 5 where 1 is strongly disagree, 2 is disagree, 3 is Neutral, 4 is agree and 5 is Strongly agree

Statements	1	2	3	4	5
HRMIS has enhanced teachers' recruitment through online application.					
Teachers and prospective employees can access information on vacant positions online.					
HRMIS has enhanced teachers' transfer through online application.					
HRMIS facilitates quick decision making due to efficient and reliable online reports.					
HRMIS facilitates quick processing of pension for teachers.					
HRMIS has enhanced accessibility and availability to information on					

teacher's record through data capturing.					
HRMIS has promoted accountability through audit trails.					
HRMIS has simplified supervision hence increased work out put.					

11. To what extent does the use of information systems in human resource management influence performance of TSC?

Very great extent [ ] Great extent [ ] Moderate extent [ ]

Small extent [ ] Not at all [ ]

Section E: Data Management Capabilities and Performance

12. To what extent do you agree with the following statements on data management capabilities in TSC? Use a scale of 1-5 where 1 is strongly disagree, 2 is disagree, 3 is Neutral, 4 is agree and 5 is Strongly agree

Statements	**1**	**2**	**3**	**4**	**5**
Electronic Data Management System (EDMS) provides a centralized, single source of data/information hence ensuring availability and easy sharing of data.					
Use of EDMS in TSC has enabled many users to access/work on a digital file at the same time hence reducing the backlog effectively and efficiently.					
EDMS has promoted conducive working environment to the employees through decongestion of office by dusty files in the work station.					
Use of EDMS in TSC has enabled gathering of data from multiple online systems through integration.					
Use of EDMS in TSC has helped analyze the information and data reports to aid in management decision-making.					
Use of EDMS in TSC has enabled digitization of records, eliminating manual document maintenance.					
Centralizing of data in databases enhances availability of data for quick decion making in the organization.					
Automation of electronic digital file has enhanced accountability and integrity in TSC through audit trails.					
EDMS has reduced paper work on internally generated process					
EDMS has cut down on storage cost since the files are digitally stored					

13. To what extent does the use of electronic data management system influence performance of TSC?

Very great extent [ ] Great extent [ ] Moderate extent [ ]

Small extent [ ] Not at all [ ]

Section F: Performance of TSC

14. To what extent oes use of management information systems in service delivery in TSC enhanced the following performance aspects? Use a scale of 1 to 5 where 1 is very great extent, 2 is great extent, 3 is moderate extent, 4 is small extent and 5 is not at all

Statements on Performance Measures	**1**	**2**	**3**	**4**	**5**
Use of management information systems has lowered the cost of service delivery (efficiency)					
MIS adopted has reduced time taken to perform a task/ activities in TSC (efficiency)					
Use of MIS has enhaced delivery of quality services to the satisfaction of teachers (effectiveness).					
Use of MIS has produced the desired results in deliver of services by TSC (effectiveness).					
MIS capabilities have improved the quality of services delivered by TSC.					

15. How else does use of MIS in TSC affect performance of the institution?

……

……

……

16. Which areas has the institution not automated or adopted MIS and why?

……

……

THANK YOU

Appendix III: Approval of Research From Kenyatta University

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 4150

Internal Memo

FROM: Dean, Graduate School DATE: 7th June, 2021

TO: Mary Waithera Wanyoike
C/o Management Science Dept.

REF: D53/CTY/OL/32654/2016

SUBJECT: APPROVAL OF RESEARCH PROJECT PROPOSAL

This is to inform you that Graduate School Board at its meeting of 2nd June, 2021 approved your Research Project Proposal for the MBA Degree Entitled, **"Management Information Systems Capabilities and Performance of Teacher Service Commission of Kenya".**

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking and Progress Report Forms per semester. The forms are available at the University's Website under Graduate School webpage downloads.

Thank you.

JACKSON LUVUSI
FOR: DEAN, GRADUATE SCHOOL

KENYATTA UNIVERSITY OFFICE OF THE GRADUATE SCHOOL P.O. BOX 43844-00100 NAIROBI 07 JUN 2021

c.c. Chairman, Management Science Department.

Supervisors:

1. Dr. David Nzuki
C/o Department of Management Science
Kenyatta University

JL/enj

Appendix IV: Research Authorization From Kenyatta University

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: D53/CTY/OL/32654/2016

DATE: 7th June, 2021

Director General,
National Commission for Science, Technology
and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

SUBJECT: RESEARCH AUTHORIZATION FOR MARY WAITHERA WANYOIKE– REG. NO. D53/CTY/ OL/32654/2016

I write to introduce Ms Mary Waithera Wanyoike who is a Postgraduate Student of this University. She is registered for MBA degree programme in the Department of Management Science.

Ms Wanyoike intends to conduct research for a MBA Project Proposal entitled, "Management Information Systems Capabilities and Performance of Teacher Service Commission of Kenya".

Any assistance given will be highly appreciated.

KENYATTA UNIVERSITY OFFICE OF DEAN 07 JUN 2021 GRADUATE SCHOOL P.O. Box 43844-00100 NAIROBI

Yours faithfully,

PROF. ELISHIBA KIMANI
DEAN, GRADUATE SCHOOL

EK/enj

Appendix V: TSC Permit

TEACHERS SERVICE COMMISSION

Telephone: Nairobi
020-2892000/

0722-208552
Website:http://www.tsc.go.
keEmail: info@tsc.go.ke
When replying please quote

TSC HOUSE

KILIMANJARO ROAD
UPPER HILL
PRIVATE BAG
NAIROBI, KENYA

Ref.No:

13 th August, 2021

TSC/RDC/R.A/8/VOL.1/11

Mary Waithera Wanyoike
Kenyatta University

P.O. Box 43844, 00100
NAIROBI KENYA

RE: REQUEST TO COLLECT DATA

Your request to collect data to inform your research on: "Management Information Systems Capabilities and Performance of Teachers Service Commission of Kenya" has been granted.

You are advised to proceed to all service areas for assistance for assistance.

On completion of the exercise, you are expected to submit one hard copy and a soft copy in pdf of the research report to our office.

MORRIS GITAU
FOR: SECRETARY
TEACHERS SERVICE COMMISSION

Appendix VI: NACOSTI Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **350608**

Date of Issue: **04/August/2021**

RESEARCH LICENSE

This is to Certify that Ms.. Mary Waithera Wanyoike of Kenyatta University, has been licensed to conduct research in Nairobi on the topic: MANAGEMENT INFORMATION SYSTEMS CAPABILITIES AND PERFORMANCE OF TEACHER SERVICE COMMISSION OF KENYA for the period ending : 04/August/2022.

License No: **NACOSTI/P/21/12100**

350608

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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