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Management Information Systems Capabilities and Performance of Teachers Service Commission of Kenya

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Abstract:

The need for Teacher Service Commission (TSC) to perform better, 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 specific objectives were to establish the influence of communication capabilities, payment capabilities, human resource management capabilities and data management capabilities on performance of Teachers Service Commission of Kenya. 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 population was grouped into population into two sub-populations, namely - the management and the support staff. 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 and open-ended questions. 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 data was analyzed using descriptive and inferential analysis. The study found out that communication capabilities, accounting information systems, human resource management systems, and electronic data management system influenced 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 concluded that accounting capabilities had a positive influence on performance of TSC. It was concluded that human resource management capabilities had 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 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.

Keywords: Management information system, communication capabilities, payment capabilities, human resource management capabilities, data management capabilities, performance, teacher service commission

1. Introduction

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 integration of information among its users right from individuals, groups, businesses, organizations and even governments. Adoption and integration of automated services has mainly been made possible in order to create and deliver services, which have had both useful and effective impact on the businesses and the citizens (Bourgeois, 2014). Management information systems have increasingly been used as a strategic tool to give more efficient support to any government's priorities and program delivery (World Bank, 2012).

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). Across the world, MIS is greatly being adopted to improve service delivery in the public sector. Some MIS systems facilitate communication within and outside the organization. This involves digitization of communication technologies (electronic mail, teleconferencing, telecommuting) (Onobrakpeya, Nana, & Odu, 2018);

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

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 governments are moving towards becoming more efficient operationally through adoption of MIS and thus set up measures to initiate major steps to promote their 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.

Teachers Service Commission, Kenya has adopted Management Information System (MIS) in a bid to digitalize their services in order to provide quick and efficient service to its customers. Through MIS, the following System has 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 systems, teachers are paid timely; 2) TSC Website and Mail – this acts 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 Resource 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, e.t.c; 5). TPAY- this is the system that enables 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 based 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. As part of its strategy, TSC 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.

As argued by DFID (2018), 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. Vester Haldrup (2018) also indicated that digitization of services can directly and indirectly lead to an improved performance of an organization by: lowering the cost of delivery, improving the quality of services and strengthening and responsive. This study, therefore, sought to determine the influence of 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. 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 (2011-13) and (2015-2019) 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. 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 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. 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 of MIS and automation of services in the TSC, there was need to establish the extent to which 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 whose 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. There was need to investigate how MIS capabilities have 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, payment capabilities, human resource management capabilities and data management capabilities) have influenced performance of TSC.

1.2. Objectives of the Study

The study sought to:

- Examine the influence of communication capabilities on performance of Teachers Service Commission of Kenya.
- Establish the effect of accounting capabilities on performance of Teachers Service Commission of Kenya.
- Determine the relationship between human resource management capabilities and performance of Teachers Service Commission of Kenya.
- Evaluate the influence of data management capabilities on performance of Teachers Service Commission of Kenya.

2. Literature Review

2.1. 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.

2.1.1 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 in 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, behavioral 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).

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 used 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 the use of MIS in the organisation.

2.1.2. 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). 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, needs 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.

2.1.3 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 while 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). 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 and success of MIS in TSC.

2.2. Review of Related Studies

Previous research work showed that 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 as, 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 supports 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 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.

Bani-Hani *et al.* (2019) investigated the impact of MIS on organization performance of Jordanian universities. The target population comprised all the business faculties' deans and departments' heads in Jordanian universities, state and private. Data was collected 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; this 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).

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 ensures that organizations are efficient in identifying and retaining talented individuals hence improved performance.

Azeez and Yaakub (2019) examined the relationship between Management Information System (MIS) and organisational performance at Missan Oil Company in Ira. 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 link with the organisational performance. The study concluded 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 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.

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 comprised 523 staff including 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.

2.3. Conceptual Framework

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.

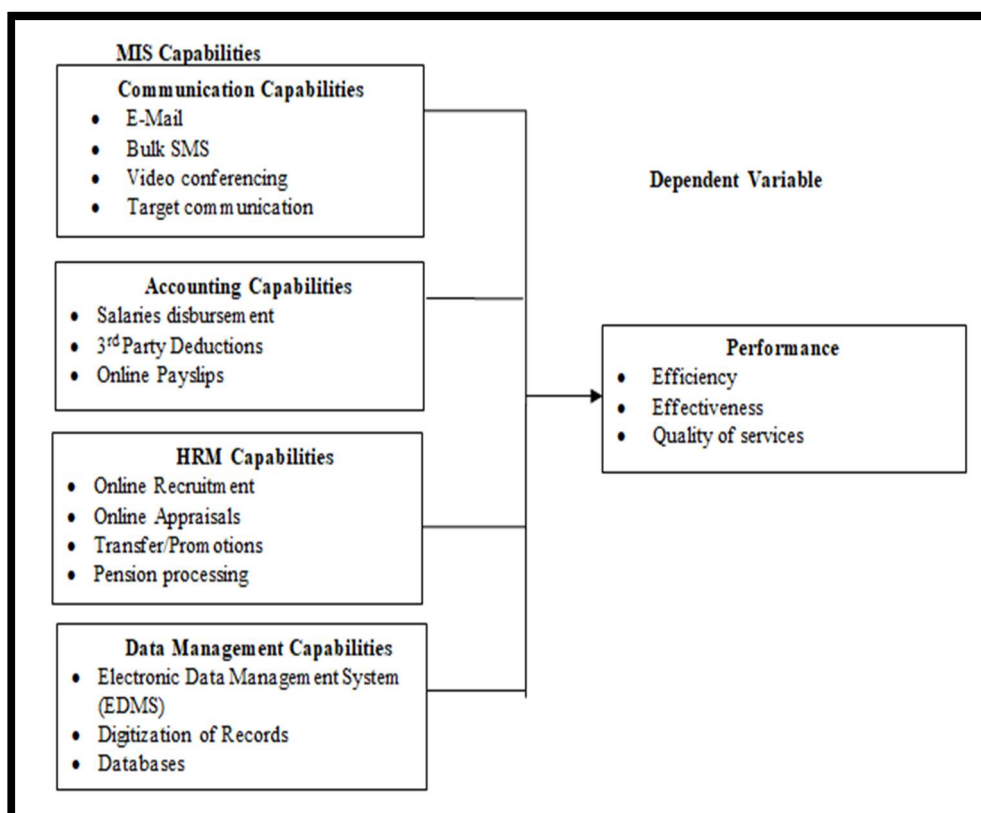


Figure 1: Conceptual Framework

Source: Author (2021)

3. Methodology

3.1. Design and Participants

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, 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 to look at the problem at hand thoroughly, define it, clarify it and obtain the necessary information that enabled the researcher to address the research problem.

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 497 management staff and 803 support staff.

The population was grouped into population into stratas/sub-populations. From each sub-population 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. On the contrary, 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 1.

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

Table 1: Sample Size

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 while 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.

3.2. Data Collection Instrument, Procedures and Analysis

The study collected primary data with the help of the questionnaire. The questionnaire was administered to targeted staff at TSC. The questionnaire had both closed and open-ended questions. 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. Prior to administering the questionnaires to the respondents, the researcher reviewed the questions thoroughly to ensure clarity and that any form of ambiguity is eliminated. Pilot testing, therefore, helped to determine the validity and reliability of the questionnaire.

After all the data was collected, the questionnaires 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. The analysed data was presented in tables, pie charts, and bar charts.

Inferential statistics entailed carrying out regression analysis which was used to determine and analyze the relationship between dependent variables and independent variables. The regression model took the following form:

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

Where: Y = Performance

X₁ = Communication Capabilities

X₂ = Accounting Capabilities

X₃ = Human Resource Management Capabilities

X₄ = Data Management Capabilities

β₀ = the intercept (value of EY when X = 0)

β_{1-n} = the regression coefficient

ε_i = error term

4. Results

The purpose of this study was to determine the influence of MIS capabilities (communication capabilities, accounting capabilities, HRM capabilities, and data management capabilities) on performance of Teacher service commission, Kenya.

4.1. Communication Capabilities

The respondents were 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

deviations. 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 a mean score of 3.6-5.0 means the respondents agreed to the statement.

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

Table 2: Communication Capabilities in TSC

The findings in Table 2 show 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 messaging 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 messages as shown by a mean score of 3.78.

4.2. Accounting Capabilities

The study also sought to establish the effect of accounting capabilities on performance of TSC. The respondents were asked to indicate the extent to which they agreed with the statements on using 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 deviations. 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, while a mean score of 3.6-5.0 implies that the respondents agreed to the statement.

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

Table 3: Accounting Information Systems in TSC

The results in Table 3 show that the respondents agreed that the Integrated Personnel Payroll and Database (IPPD) facilitated easy access to payslip online by teachers (mean score = 3.79), enhanced efficiency in report generation for quick decision making (mean score = 3.75), and 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) and facilitated efficient disbursement of salaries (mean score = 3.65); they 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, in case 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).

4.3. Human Resource Management Information System (HRMIS) Capabilities

The study also sought to determine the relationship between human resource management capabilities and performance of 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 likert scale (where 1 is strongly disagree and 5 is strongly agree) and results were interpreted using mean scores.

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

Table 4: Use of HRMIS in TSC

The results in Table 4 show that the respondents agreed that HRMIS had promoted accountability through audit trails (mean score = 3.90), and 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); and enhanced teachers' recruitment through online application (mean score = 3.63); they 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 respondents were neutral on whether HRMIS facilitated quick processing of pension for teachers (mean score = 3.03).

4.4. Data Management Capabilities and Performance

In this section the study sought to evaluate the influence of data management capabilities on performance of 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 deviations. A mean score of 1-2.5 implies that the respondents disagreed; a mean score of 2.6-3.5 means that the respondents were neutral (neither disagreed nor agreed), while a mean score of 3.6-5.0 means that the respondents agreed to the statement.

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

Table 5: Data Management Capabilities in TSC

The results in Table 5 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 decision making in the organization, as shown by a mean score of 3.41 respectively. Moreover, 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).

4.5. Regression Analysis Results

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,

X₁ is communication capabilities,

X₂ is accounting capabilities,

X₃ is human resource management capabilities,

X₄ is data management capabilities,

β₀ is the intercept (value of EY when X = 0),

β₁- β₄ is the regression coefficient and is error term.

| 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 | | | | |

Table 6: Model Summary

As shown in Table 6, 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 variables. The remaining percentage could be explained by other factors or variables not included in the study.

| 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 | | | | | | |

Table 7: ANOVA^a

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

| 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 |

Table 8: Regression Coefficients^a

The results in Table 8 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. 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. There was also a positive and statistically significant relationship between performance of TSC and human resource management capabilities ($B = 0.734$, $p = 0.000 < 0.05$). Moreover, the findings also showed that data management capabilities ($B = 0.387$, $p = 0.000 < 0.05$) had a positive and significant influence on performance of TSC.

5. Discussion

The results show 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. The findings are supported 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. Regression results showed that there was a positive and statistically significant relationship between communication capabilities and performance of TSC. These findings are in agreement with those of Nana and Odu (2018) who showed that information and communication technologies such as electronic mail, teleconferencing and telecommuting had a positive effect on service delivery, and subsequently organization performance.

The findings also reveal 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 significant impact on organizations' performance (effectiveness and efficiency). The regression results show that there was a positive and statistically significant relationship between accounting capabilities and 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.

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 increasing the 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. The regression results revealed there is a positive and statistically significant relationship between human resource management capabilities and performance of TSC. These findings are in agreement with those of Ogohi (2019) who revealed that HRMIS had an impact on recruitment process and organizational performance.

The results also show that EDMS provided a centralized, single source of data/information, hence ensuring availability and easy sharing of data. It also enabled digitization of records, elimination of manual document maintenance; and also facilitated quick decision 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 decisions more quickly. The regression findings also showed that data management capabilities had a positive and significant influence on performance of TSC. These findings are in line with those of Young-Harry *et al.* (2018) who also found a positive significant relationship between management information system and organizational performance.

6. Conclusion

The study concluded that communication capabilities, accounting capabilities, human resource management capabilities, data management capabilities had a positive and significant influence on performance of TSC. The use of electronic mails and bulk SMS in communication enhanced speedy delivery of information internally and externally.

The implementation of the Integrated Personnel Payroll and Database (IPPD) system in TSC facilitated easy access to payslip online by teachers and facilitated efficient disbursement of salaries, and 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 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.

7. 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 decision making. It also enhances accountability and reliability.

The study encourages the organization's top management to 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 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 were 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.

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