ORGANISATIONAL INTERNAL CONTEXT, INFORMATION COMMUNICATION TECHNOLOGY INFRASTRUCTURE, STAFF ATTITUDE AND IMPLEMENTATION OF ELECTRONIC PROJECT MONITORING INFORMATION SYSTEM IN PUBLIC TERTIARY INSTITUTIONS IN KENYA

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A Thesis Submitted in Fulfilment of the Requirement for the Award of the Degree of Doctor of Philosophy in Project Planning and Management of the University of Nairobi

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DECLARATION

This doctoral thesis is my original work and has not been presented for any academic award in any other University.

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In loving memory of my father Ferdinard Nkanata Mburugu who built a strong foundation for my life and in appreciation of my mother Monica Wanja Nkanata who always believed in me.

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ABBREVIATION AND ACRONYMS

CAF	Critical Analysis Framework
DOI	Diffusion of Innovation
EASSY	East African Submarine Systems
ePMS	Electronic Project Monitoring System
e-ProMIS	Electronic Project Monitoring Information System
e-Government	Electronic Government
GoK	Government of Kenya
ICT	Information Communication Technology
ICU	Implementation and Coordination Unit
ILO	International Labour Organisation
IS	Information System
IT	Information Technology
KPI	Key Performance Indicators
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MDGs	Millennium Development Goals
MS	Micro Soft
NGO	Non-Governmental Organisation
OCI	Organizational Culture Index
PDF	Permanent Document Format
PMI	Project Management Institute
PMIS	Project Monitoring Information System
PMS	Project Monitoring System
PU	Perceived Usefulness
PEU	Perceived Ease of Use
TAM	Technology Acceptance Model
TEAMS	The East Africa Maritime System
TIVET	Technical, Industrial, Vocational and Entrepreneurship Training
TRA	Theory of Reasoned Action
UK	United Kingdom
WPMS	Web Based Project Management System

ABSTRACT

The study sought to establish the influence of organizational internal context on the implementation of Electronic Project Monitoring Information System (e-ProMIS) in Public Tertiary Institutions in Kenya. The study was guided by eight objectives which sought to establish the extent to which each of the independent variables namely; organisational strategy, organisational structure, organisational leadership, organisational culture and staff capacity influence the implementation of e-ProMIS. The study also sought to determine the joint influence of organisational internal context on implementation of e-ProMIS. The moderating influence of availability of ICT infrastructure and mediating influence of staff attitude between the organisational internal context and implementation of e-ProMIS were also examined. Eight research hypotheses related to the objectives were tested. Pragmatic paradigm to support mixed mode approach was adopted. Cross sectional descriptive survey and correlational research design were used. The population comprised members of staff from public tertiary institutions in Kenya. A sample of 210 members of staff was selected using stratified and simple random sampling techniques. Questionnaire with both open and closed-ended items with Likert-type interval scale anchored on a five point scale was used to collect data. Descriptive statistics were computed for all variables using frequencies, percentages, arithmetic mean and standard deviation. Statistical tools used for inferential statistic were Pearson's Product Moment Correlation (r), simple regression, multiple regression and stepwise regression (R^2). F-tests were used to test hypotheses in the study. The results revealed that r=0.513 f (3,158) =18.840 at p=0.000<0.05, 1. H_1 was confirmed and concluded that organisational strategy had a statistically significant influence on implementation of e-ProMIS. With r=0.558 f (3,158) =23.760 at p=0.000<0.05, 2. H_1 was confirmed and concluded that organisational structure had a statistically significant influence on implementation of e-ProMIS. With r=0.544 f (2,159) =33.410 at p=0.000<0.05, 3. H_1 was confirmed and concluded that organisational leadership had a statistically significant influence on implementation of e-ProMIS. With r=0.504 f (3,158) =17.892 at p=0.000<0.05, 4. H_1 was confirmed and concluded that organisational culture had a statistically significant influence on implementation of e-ProMIS. With r=0.655 f (1,160) =120.161 at p=0.000<0.05, 5. H_1 was confirmed and concluded that staff capacity had a statistically significant influence on implementation of e-ProMIS. With R^2=0.557 f (6,155) =39.272, 6. H_1 was confirmed and concluded that organisational internal context has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. With R^2=0.557 $R^2\Delta$=0.597 f (6,155) =39.272 at p=0.000<0.05, 7. H_1 was confirmed and concluded that the strength of the relationship between organisational internal context and implementation of e-ProMIS depends on availability of ICT infrastructure. With R^2=0.546, $R^2\Delta$=0.559, f (6,155) = 54.42, β=0.706, p=0.341>0.05, 8. H_1 was confirmed and concluded that the strength of the relationship between organisational internal context and implementation of e-ProMIS depends on staff attitude. The study further revealed the relevance of Diffusion of Innovation Theory and Theory of Reasoned Action in studying implementation of electronic based systems. The study highlights the need for staff training on new technologies, provision of adequate ICT infrastructure and staff attitudinal change trainings for effective implementation of new electronic based systems. The study deviated from other studies by empirically showing how organisational internal context influence the implementation of ICT based technologies. The study recommends further research to be conducted to establish the influence of monitoring and evaluation on implementation of e-government systems. Other e-government systems like e-procurement and itax also need to be studied.

CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

The rapid technological advancement of Information Technology (IT) industries and globalization has led to increased demand of project management solutions throughout the world as a fundamental force to complete projects within a defined scope, time, and within cost constraints. Most modern project systems deliver innovative solutions and its management process has the latest tools, techniques, systems, and schemes in use. One of these systems is Electronic Project Monitoring Information System (e-ProMIS), which is a Web-Based Project Management System (WPMS) introduced in the mid-1990s. A WPMS is conducted through extranet, which is a private network using internet protocols to transmit information and only accessible by authorised users at different predefined levels (Nitithamyong & Skibniewski, 2011). Project data are stored on centralised servers and a standard web browser is used as a gateway to access, exchange, and share information from remote locations at any time, eliminating the problems that occur in linear communication schemes (Thorpe & Mead, 2001). A basic WPMS is typically aimed at supporting project collaboration and information sharing, but advanced WPMSs also enhance users in searching for specific information or conducting business transactions completely online.

Web-Based Project Management System has been in use in developed countries like United Kingdom (UK), Unites States of America (USA) and Sweden among others. A study conducted in UK revealed that 44 per cent of users were satisfied with WPMS experience but undecided whether to adopt a WPMS on every project; 3 per cent were essentially unsure whether WPMSs are worthwhile, and 1 per cent were unsatisfied and rejected any future use (Nitithamyong & Skibniewski, 2011). AUSA-based survey also revealed that the application of WPMSs had been limited to commercial (41 per cent) and retail projects (31 per cent) (Becerik & Pollalis, 2006). In Sweden, Samuelson (2008) reported in his survey that the majority of practitioners only used WPMSs occasionally although the usage had increased considerably since the year 2010. Nitithamyong & Skibniewski (2011) observed that regardless of the proven advances in technology and the downward trend in the price charged by providers, the slow uptake may be because of unclear understanding among practitioners on how to successfully integrate the WPMS

concept in their processes. The above studies show usage of WPMS in developed countries but with varying rates of adoption.

Information available on the use of WPMS in developing countries emphasizes on its use in Asian countries. One of the countries in which it has been applied is Sri Lanka. According to a report on Institutionalization of Monitoring and Evaluation System in Sri Lanka – Lessons learnt, Best practices, Issues, Challenges and the Way Forward by Sivagnanasothy (2007), a comprehensive web-based National e-project monitoring system (ePMS) was established by the department of Foreign Aid and Budget monitoring of the Ministry of Plan Implementation which captures implementation progress as well as results of all key development projects and programmes and provides policy makers and senior officials with on-line and real time access to progress information. The ePMS which is a distinctive feature in Sri Lanka, is a home-grown user friendly, national web-based electronic on-line project monitoring system used to track the implementation progress (financial and physical) and results of all development projects and programmes (Sivagnanasothy, 2007). The World Bank evaluation mission rated the ePMS as a success story in terms of its comprehensive coverage, periodical updating, and use of information for troubleshooting. However, they noted the low level utilization of the system by sector ministries as an unexploited opportunity.

India uses a web based project monitoring system for monitoring the progress of different activities of construction projects from planning to completion phase. It has four main purpose; preparation of online monthly progress report of all projects; online monitoring of progress of all projects including their packages and all agreements drawn for a project in planning as well as in execution stage by different level of officers; generation of online mandatory letters at important stage of work (Singh et al. 2011). This is required for automatic updating of data related to project; monthly progress report can be viewed by all officers and client as well. The project monitoring system of India has programmed work in two phases: the first is online WBPMS which has details of all projects/package/sub-work and all data are to be stored in a database maintained by NIC server at New Delhi. Project registration, update of data, printing of online generated letters, progress update and progress monitoring is to be done online. The second is divisional accounting package to be maintained on desktop computer of each division where expenditure figures are to be updated (Singh et al. 2011). However, information on

WPMS from these countries is in form of reports from the government and hence empirical studies seem to be lacking.

The web-based project management system in Kenya is in form of Electronic Project Monitoring Information System for the Government of Kenya. This is an automated information management system designed to improve efficiency and transparency of national development planning and coordination of reconstruction activities within the country. It is also a powerful tool for tracking and analysing aid flows. The system serves as the main database and reporting system for the government of Kenya, donor and NGO community as it ensures effective access to development data. The main objective of the e-ProMIS Kenya is to serve as a reliable and credible source of information on overall donor contributions to Kenya's reconstruction, economic recovery and socio-economic development, as well as to support the Government in effectively managing development assistance and promoting the accountable and transparent use of resources (GOK, 2001-2012). E-ProMIS Kenya is a powerful tool that allows the user to view project data organized into lists, reports, charts, and maps. In e-ProMIS Kenya, the user is able to present the project data in the form of list, chart and map reports, memorize/save the reports, print them, and export them into PDF, MS Word and MS Excel format files. The developments of E-ProMIS Kenya was completed in December 2009 by Synergy International Systems Inc. and from 2010 over 150 trainers and users were trained to spearhead mainstreaming in the ministries. Between 18th and 23rd February 2013, training of Ministry monitoring and evaluation, project officers and committee members was conducted. The Ministry of Education, Science and Technology conducted training of three officers from each tertiary institution in Kenya to be the lead persons in the implementation of the system. The implementation process involves uploading information in the e-ProMIS for monitoring, analysis and reporting on the projects being implemented in these institutions.

Many theories have been advanced to explain adoption and implementation of technological innovations in organisations. The main theory to guide this study will be Diffusion of Innovation (DOI) model advanced by Rogers (1995). This theory remains a popular model in literature for investigating adoption of new technological innovation. The DOI is a broad psychological or sociological theory used to describe the patterns of adoption, explain the mechanism and assist in predicting whether and how a new

invention will be successful. This theory is concerned with the manner in which new technological innovation is communicated through particular channels overtime among members of a social system (Tan et al., 2008). On the other hand Technology Acceptance Model (TAM) introduced by Davis in 1986 has been used by researchers for modelling of the acceptance of IT by users. It has been used to study the factors of technological acceptance by users, which are perceived usefulness and perceived ease of use. These two factors have a great impact on people's attitudes towards the use of IT and therefore determine its acceptability. Both theories guided an understanding of how organisational internal context influence adoption and implementation of e-ProMIS as they explain the psychological issues like staff attitude and sociological aspects of the organisation like organisational culture, organisational leadership, organisational structure and staff capacity.

Different authors have conceptualized organizational factors uniquely. While studying factors affecting ICT diffusion; a case study of three large Australian construction contractors, Peansupap and Walker (2005) came up with two categories of organizational factors which are intra-organizational and inter-organizational factors. Intra-organizational factors include technological, individual, management and workplace environmental issues; while inter-organizational factors include ownership and standard of ICT, information overload and commitment to using ICT. Kandie (2009) while studying the influence of organizational strategy and institutional factors on performance of small and medium enterprises in Kenya created a distinction between organizational and institutional factors. He conceptualized institutional factors as structure, organizational culture and leadership while strategy was treated as an organizational factor. Mulabe (2013) defined organizational factors as attributes that define the internal environment of any institution, which in turn can influence to a greater extent the organizational behavior and outcomes. He therefore, conceptualized organizational factors as strategy, structure, technology, leadership and culture. Based on the above studies, it becomes imperative to create a distinction between intra-organizational and inter-organizational factors. Inter-organizational factors influence the organization from outside and refer to relationship between the organization and other organizations in the external environment. Intra-organizational factors refer to the internal environmental issues and how they influence the working relations within the particular organization. This study focused on the intra-organizational context which is organizational strategy,

organizational structure, organizational leadership, organizational culture, staff capacity, availability of ICT infrastructure and staff attitude. These are factors within the internal environment of an organization and are likely to influence adoption of technology by the organizations to a greater extent.

1.1.1Organizational Strategy

The success of implementation of e-ProMIS depends on the strategy adopted by the organization. This is because organizational strategy has also been associated with organization's goals and the means of achieving these goals. Organizational strategy is usually viewed as an integrated vision and direction which the organization derives, articulates, implements and communicates that vision and direction (Malan, 2003). Drucker (1954) defined strategy as analyzing the present situation and changing it if necessary. Incorporated in this view is finding out what one's resources are or what they should be (Machuki, 2011). Strategy can be described using 2D: Content and Process. The strategy process involves the activities leading up to and supporting a choice of strategy. It includes key decision makers and certain procedures; formal and informal, resulting in the formulation of strategy. The strategy content involves strategic choices or decisions, the breadth of target market, and the method of developing competitive advantage (Liu & Barrar, 2009).

On the basis of the analyses of various definitions of the concept of organizational strategy, Machuki (2011) concluded that strategy can be viewed as the configuration of an organization's thought process, action, resources, and capabilities for charting its long-term direction and success within the context of changing external environment. He further argues that even though difficult has hindered theoretical and empirical development of the concept of strategy, one can find among the many definitions that strategy has two primary purposes of defining the segments of the environment in which the organization will operate and providing guidance for subsequent goal-directed activity within that niche. It is therefore necessary that technology is integrated into strategy. This is because a strategy-technology integrating firm develops a detailed strategic plan through a formal procedure, puts an emphasis on long-term profitability, explicitly defines the role of technology in its strategy, links its investment in computer-based technologies to the need to implement its business strategy and coordinates the different functions within the firm (Liu & Barrar, 2009). This study sought to investigate how

different organizational strategies influence the implementation of e-ProMIS in tertiary institutions in Kenya. The study adopted organizational strategies from Miles and Snow (1978) typology categories of prospector, defender and reactor.

1.1.2 Organizational Structure

Organizational structure is usually understood to imply a configuration of activities that is characteristically enduring and persistent; the dominant feature of organizational structure is its patterned regularity (Ogollah, 2012). Descriptions of structure have typically focused on very different aspects of such patterned regularity. Some have sought to describe structure as a formal configuration of roles and procedures, the prescribed framework of the organization. Organizational structure has also been defined as the relationships and work roles amongst positions in the organization and among members of the organization through the provision of channels of communication (Malan, 2003). The purpose of structure is to divide work; tasks and responsibilities, amongst the members of the organization and thus organizing the co-ordination of their activities so that they are all directed towards achieving the same goals and objectives. Organizational structure consists of five parts; Jobs, the authority to do those jobs, the grouping of jobs in a logical fashion, the manager's span of control and mechanism of coordination (Higgins, 2005). Therefore, when executing a technological strategy, decisions are to be made regarding how an organization is structured. This incriminates decisions in terms of jobs into departments and divisions, the span of manager's control and the mechanisms of control of such a structure (Bhat et al., 2012). It is therefore necessary to investigate the influence of organizational structure on implementation of e-ProMIS. The study focused on the formalization, complexity and centralized organizational structures.

1.1.3 Organisational Leadership

Organizational leadership is important for improving organizational performance and increasing the efficiency and effectiveness of organizations. The capability of leadership exists at both the individual and the collective level, which together in their sum form organizational leadership (Kivipold &Vadi, 2010). Leadership is also a property of the whole organization where collective leadership qualities are embedded in the organization's systems and structure. Studies which focus on leadership for technology reform in educational institutions have highlighted its importance not just for Information Communication Technology (ICT) implementation, but for successful ICT

implementation (Seong & Ho, 2011). Fishman et al. (2002) proposed that leadership is an integral part of the successful use of technology. Anderson and Dexter (2000), based on their findings from a National Survey in the USA in 1998, found that indicators of leadership were more critical than infrastructure indicators in predicting successful ICT implementation. Organizational leadership has to be effective on thinking and understanding in order to provide a clear vision of the future. The vision must be clearly communicated to a wide range of employees who then become involved and motivated rather than directly guided. Information Technology should be at the top of any leader's list of priorities as an organization's utilization of technology and information represents a key differentiator in the competitiveness of modern businesses. Based on the above research findings it is necessary to investigate the extent to which organizational leadership influence the implementation e-ProMIS. This study focused on two types of organizational leadership which are transformational and transactional leadership.

1.1.4 Organizational Culture

The organizational culture has been defined as a pattern of shared basic assumptions that are learned by a group as it solved its problems of external adoption and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relating to those problems (Schein, 2004). Organizational culture is considered to be one of the key elements in both enhancing and inhibiting innovation. Since it influences employee behaviour, it may lead them to accept innovation as a fundamental value of the organization. In the recent times the cultural dimension has been highlighted in most branches of contemporary management studies including supply chain management, ICT management, customer relations management and knowledge management. The concept of culture provides a lens to contextualize implementation of ICT (Anumba et al., 2007). Despite the importance given to culture as a stimulant for innovation, empirical research especially in developing countries remains somewhat limited. This study therefore sought to analyze the link between organizational culture and implementation of e-ProMIS. Bureaucratic, supportive and innovative culture formed the interest of this study.

1.1.5 Staff Capacity

The development of essential ICT skills is necessary for implementation of electronic based technologies in organizations. This is because without such skills, the technologies can neither be maintained nor adapted to local use. As far as implementation of Web-based project management information system is concerned, the importance of requisite ICT skills is widely acknowledged.Training is vital for every IT project, especially when most users are novices. The extent of training given to users is generally recognized as influencing the productive use of an IT project and has been found to have a great impact on implementation success (Nitithamyong & Skibniewski, 2010). For WPMSs, Hjelt and Bjo'rk (2007) postulated that formal training and guidelines explaining the folder structure and document management practices used in the project at hand are necessary. Self-learning or learning from peers is insufficient and sometimes impossible in implementation of web based technologies in organisations. The case studies by Nitithamyong and Skibniewski (2010) support this view and suggest that users must be formally trained on how the system works or relates to the team's business processes early in its implementation. They suggest that training should be conducted with users sitting at terminals and approaching situation issues to ensure that appropriate knowledge is retained. In addition, continuing training opportunities must be provided to enhance the changing needs as well as to support team members joining later on in the project. It was therefore necessary to investigate the extent to which staff ICT skills and e-ProMIS training influence the implementation of e-ProMIS in organisations.

1.1.6 ICT Infrastructure

The availability of Information Communication Technology (ICT) infrastructure is a basic requirement for implementation of any electronic based technology. Mulwa (2012) in her study on the influence of institutional and human factors on readiness to adopt e-learning in Secondary schools in Kitui district noted that availability of ICT infrastructure has an influence on adoption of e-learning. ICT infrastructure refers to a wide range of technologies that assist organizations in running efficiently. These technologies are essential to the everyday mechanics of an organization and integral to effective service delivery. They are broadly classified as hardware, software and networking. However to be more specific, such facilities include equipment, internet connectivity, sources and reliability of energy, software and information storage facilities such as flash disks, CD-ROMs, DVDs. In most studies, the influence of availability of ICT infrastructure on

implementation of electronic based technologies has been studied as an independent variable. This study sought to investigate the moderating effect of availability of ICT infrastructure on the relationship between organizational internal context and implementation of e-ProMIS.

1.1.7 Staff Attitude

Attitude influences people to have a frame of mind of liking or disliking things and is assumed to be fundamental in acceptance, implementation and success of new technologies. For ICT based systems to be successful, it is suggested that staff need positive attitude towards adopting ICT. Staff attitude is usually viewed as an enduring disposition to consistently respond in a given manner to various aspects of the world including persons, events and objects (Gakuu, 2006). Voermans & Veldhoven (2006) argue that attitude is highly influential in the acceptance of new technology. The experienced ease of use and the experienced usability are considered central in explaining the likelihood of future system use. Based on this, general attitude the employees will have an intention to use the IT system, which finally results in actual system use. Davis (1993) stated that when researching the ease of use, a distinction is often made between ease of use of the application or technology itself and support provided by the organisation for users. When researching the usability, a distinction is often made between the usability of the application or technology itself and the overall quality of output or service delivered by the application or technology. Most of the studies on influence of attitude on implementation of IT systems have focussed on attitude as an independent variable. This study sought to investigate the mediating influence of staff attitude on the relationship between organisational internal context and implementation of e-ProMIS in tertiary institutes in Kenya.

1.2 Statement of the Problem

Project Monitoring is one of the key stages in project management as it contributes significantly to the success of projects. This is because monitoring focuses on the implementation process and progress towards the achievement of project objectives. Considering that large amounts of time and resources are dedicated to selecting and designing projects, it remains of paramount importance that projects be adequately managed in organizations if they are to achieve their performance objectives. In this regard there has arisen the need to develop a more efficient and effective monitoring

system to ensure projects are completed on schedule and do not overrun the anticipated budgets. This has come in the form of Web-Based Project Management Information System (WPMIS). The emergence of WPMIS has gained considerable attention in the world since the concept was introduced in the mid-1990s with many professionals expecting it to transform how projects are implemented (Nitithamyong & Skibniewski, 2011).

In order to address challenges of management and monitoring of government projects in Kenya, the government adopted a WPMIS known as Electronic Project Monitoring Information System (e-ProMIS) in 2009.This is an automated information management system designed to improve efficiency and transparency of national development planning and coordination of reconstruction activities within the country. Its objective is to serve as a reliable and credible source of information to support the government in effectively managing development assistance and promoting the accountable and transparent use of resources. The Electronic Project Monitoring Information System was developed by Synergy International Systems Inc. in December 2009. In 2010 government officers were trained to spearhead implementation in the Ministries and other government institutions. However, the backend reports from e-ProMIS platform have shown that most institutions have not been updating information on their project regularly. This has caused concern in Treasury as to why institutions are not uploading project data into the monitoring system (MOEST circular, 20th March 2013 &7th April 2014). Retraining of staff on e-ProMIS conducted in February 2013 and April 2014 still does not seem to change the situation. It became necessary to carry out a study on why institutions were finding it difficult to implement the electronic based monitoring system. Probably other factors within the organisational context were influencing the implementation process. Researchers have discussed how to implement WPMIS in developed countries (Nitithamyong & Skibniewski, 2011). But it appeared that little attention was drawn on developing countries, especially Kenya.

Education being one of the key drivers of the social pillar of Kenya Vision 2030 has been one of the key beneficiaries of funds allocation during the national budgets. In 2013/2014 budget, the educational sector received Kshs. 273.7 billion while in 2014/2015 budget it received 139 billion. Unlike in primary and secondary schools where infrastructural development is left in the hands of the parents, in tertiary institutions these are funded by

the government. This explains why tertiary institutions were targeted to implement e-ProMIS as a monitoring tool for development infrastructure. Most of the ICT related studies conducted in Kenya especially in the education sector have focused on adoption of eLearning in universities and secondary schools. These studies have also mainly focussed on influence of variables such as staff attitude, human resource capacity, personal characteristics, school environment and availability of ICT infrastructure (Gakuu, 2006; Gakuu & Kidombo, 2010; Keiyoro, 2010; Mbwesa, 2010; Mulwa, 2012). There appears to be limited focus on the organisational factors or corporate level factors and how they influence adoption and implementation of ICT based technologies. This study deviated from this research trend by considering organisational factors namely strategy, structure, organisational culture and leadership. The moderating effect of staff capacity and staff attitude on the link between organisational factors and implementation of e-ProMIS was also considered. It is therefore, against this background that this study sought to establish the influence of organisational internal context on the implementation of e-ProMIS in public tertiary institutions in Kenya.

1.3 Purpose of the Study

The purpose of this study was to establish the extent to which organisational internal context influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. It also sought to determine the moderating effect of availability of ICT infrastructure and mediating effect of staff attitude on the relationship between organisational internal context and implementation of e-ProMIS in tertiary institutions in Kenya.

1.4 Objectives of the Study

The objectives for the study were to:

i) Establish the extent to which organisational strategy influences the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

ii) Examine how organisational structure influences the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

iii) Determine the extent to which organisational leadership influences the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

iv) Assess the extent to which organisational culture influences the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

v) Establish how organisational staff capacity influences the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

vi) Determine the joint influence of organisational internal context on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

vii) Determine the moderating influence of availability of Information Communication Technology Infrastructure on the relationship between organisational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

viii) Examine the mediating influence of staff attitude on the relationship between organisational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

1.5 Research Questions

This study sought to provide answers to the following research questions;

i) To what extent does organisational strategy influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya?

ii) How does organisational structure influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya?

iii) To what extent does organisational leadership influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya?

iv) To what extent does organisational culture influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya?

v) How does organisational staff capacity influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya?

vi) What is the joint influence of organisational internal context on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya?

vii) To what extent does the relationship between organisational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya depend on availability of Information Communication Technology infrastructure?

viii) To what extent does the relationship between organisational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya depend on staff attitude?

1.6 Research Hypotheses

This study was guided by the following research hypotheses which were based on the study objectives;

i) $\mathbf{H_1}$ Organisational strategy has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

ii) $\mathbf{H_1}$ Organisational structure has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

iii) $\mathbf{H_1}$ Organisational Leadership has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

iv) $\mathbf{H_1}$ Organisational culture has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

v) $\mathbf{H_1}$ Organisational staff capacity has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

vi) $\mathbf{H_1}$ Organisational internal context has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

vii) $\mathbf{H_1}$ The strength of the relationship between organizational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya is dependent on availability of Information Communication Technology infrastructure.

viii) $\mathbf{H_1}$ The strength of the relationship between organizational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya is dependent on staff attitude.

1.7 Significance of the Study

One of the key online services available through the e-government initiative is an e-ProMIS for all public institutions receiving government and donor funding. This study was meant to investigate how the organizational internal context influence the implementation of the e-ProMIS and hence its findings would inform the strategies that need to be put in place in organizations so as to ensure successful implementation of e-ProMIS at this formative stage.

The findings from the study are useful to managers by revealing the type of organizational structure that would promote implementation of electronic based technologies. It also informs management on appropriate leadership and organizational culture that should be promoted in organizations that seek to enhance implementation of electronic based systems.

Further the study informs on the importance of availing ICT infrastructure and training staff in order to build their capacities to handle technologies. Finding on influence of staff attitude are important to both staff and management by revealing the correct attitude that should be inculcated to the staff for the successful implementation of electronic systems.

Findings from the study are also beneficial not only to the government but also participating institutions and personnel involved in the implementation of e-ProMIS. Other organizations like Non-Governmental Organizations involved in project work and intending to adopt an electronic monitoring information system shall also benefit from this study as they are informed on how to prepare for the implementation process.

This study also contributes in building knowledge in the young project management discipline and especially on monitoring and evaluation which is a key component of every project. This is because no successful project management can be achieved without

a good monitoring and evaluation system. The study informs current and future technological implementation in organizations especially in this digital era.

1.8 Assumption of the study

In this study it was assumed that different tertiary institutions were at a different level of implementation of e- ProMIS. It was also assumed that the difference in the level of implementation was influenced by differences in organisational strategy, organisational structure, organisational leadership, organisational culture and organisational staff capacity adapted by these institutions. It was further assumed that respondents were honest and accurate in providing information upon which the study findings were based.

1.9 Limitations of the Study

The researcher encountered a number of limitation related to the research and especially in data collection. However, the limitations did not in any way have a significant interference in the outcome of this study. Some of the respondents involved in the study found it difficult to fill the research questionnaire fearing that giving the information might jeopardize their jobs. This was solved by assurance that the information given would not be divulged and would only be used for academic purpose. The Principals were excluded from the study because the information needed touched on their leadership styles and other managerial qualities. It was therefore felt that their information might be biased in an attempt to portray a good picture of their leadership. However their deputies, registrars and heads of department were part of the sampled population and provided adequate information needed for the study.

Individual respondents differ in their perception therefore making generalization on responses difficult. This study assumed that the responses were factual because they were given by the target group. The study also used a cross-sectional research design where by the respondents participated only once in the study. Although cross-sectional data enable generalization of findings, while offering cost and control advantages, it prevents close investigation of several aspects of the relationship in this study. Finally the challenge of resource limitation was also experienced. This ranged from time, financial and technical support especially during data analysis and thesis development. This barrier was mitigated by the researcher applying and winning a research grant from the employer and taking a study leave.

Despite the limitations experienced the quality of the study was not compromised. The study was designed in a highly scientific manner following a thorough literature and theoretical review. The study was also rigorous in its approach, analysis, interpretation and reporting its findings. The results of this study have immense contribution to the existing body of knowledge, organisational factors and implementation of not only e-ProMIS but also e-government in general.

1.10 Delimitation of the study

This study was concerned with establishing the influence of organisational internal context which are organisational strategy, organisational structure, organisational leadership, organisational culture and organisational staff capacity on implementation of e-ProMIS. The study also investigated the moderating effect of availability of ICT infrastructure on the influence of organisational internal context on implementation of e-ProMIS. The mediating role of staff attitude on the relationship between organisational context and implementation of e-ProMIS was investigated. This study was restricted to public tertiary institutes in Kenya. Other institutions implementing e-ProMIS like universities, University colleges and state corporations were not included in this study. Mixed mode approach to conduct a cross sectional descriptive survey was used and as such it only established associations and not causality. Sampling was conducted using simple random technique to get an appropriate sample for the study. Data was collected using questionnaires.

1.11 Definitions of Significant Terms

e-ProMIS: e-ProMIS is an automated electronic project monitoring information system designed by the Government of Kenya for uploading project information by public institutions and accessible by users and public. It is hosted at the National Treasury and can be accessed through the World Wide Web.

ICT infrastructure: These are a wide range of facilities that include computers, internet connectivity, sources of energy, software and information storage facilities us by institutions in implementation of e-ProMIS.

ICT staff: These are members of staff employed by tertiary institutes to work as technicians or computer laboratory attendants. For this study they exclude lecturers whose work is to teach ICT related skills not unless they also participate in implementation of e-ProMIS in their various

institutions.

Implementation of e-ProMIS: Implementation of e-ProMIS refers to installation and operationalization of e-ProMIS system at the institute level. This entails registration of the institute into the e-ProMIS interface, regular uploading of project data and internal use of e-ProMIS by generating reports and charts.

Organisational Internal Context: This refers to administrative factors existing in organisation's internal environment. These are organisational strategy, organisational structure, organisational leadership, organisational culture and organisational staff capacity.

Organizational Leadership: Organizational leadership refers to a process of influence in which top management can enlist the aid and support of others in the accomplishment of a common task. In this study it refers to how top management organizes staff in achieving implementation of e-ProMIS.

Organizational Culture: These are the organization values, visions, norms, working language, systems, symbols, beliefs, and habits. It is also the pattern of such collective behaviors and assumptions that are taught to new organizational members during the orientation programme. Organizational culture affects the way people and groups interact with each other, with clients, and with stakeholders. It also determines the way people perceive new technology like e-ProMIS.

Organizational Strategy: Organizational strategy refers to the configuration of an organization's thought process, actions, resources and capacities in order to meet its long term goals. Emphasize is on Information Communication Technology plans that are promote implementation of e-ProMIS in the institution.

Organizational Structure: Organizational structure refers to the division of work, tasks and responsibilities, amongst the members of the organization and therefore organizing the coordination of their activities so that they are directed towards achieving the same goals and objectives. It also refers to how authority is distributed and the reporting relationships.

Project staff: These are members of staff employed as estate managers or clerks of works or any other position but deal with coordination of constructions in the institutions. In this study they are part of the staff who were targeted by the Ministry for training on uploading information on the e-ProMIS interface

Public Tertiary Institutions: These are Public Technical Training Institutes and Institutes of Technology under the Ministry of Education, Science and Technology. They receive government funding for their development projects and hence are implementing e-ProMIS.

Staff Attitude: Staff attitude refers to a positive or negative feeling that staff might have towards e-ProMIS. In this study it is conceptualised as an expression of favour or disfavour towards implementation of e-ProMIS by the staff in their institutions.

Staff capacity: Staff capacity refers to ICT training and skills possessed by staff. They include skills such as MS word, Excel, PowerPoint and Access. In this study it includes training by the Ministry of Education, Science and Technology to staff on uploading of data on e-ProMIS.

1.12 Organisation of the study

The study is organised into five chapters. Chapter one covers background of the study, statement of the problem, purpose of study, research objectives, research questions, research hypothesis, significance of key terms, assumptions and delimitation of the study. Chapter two is a review of literature based on variables that the influence implementation of e-ProMIS. It also presents theoretical and conceptual framework of the study. Chapter three covers research methodology. It covers research paradigm, design, target population, sample and sampling procedure, research instruments, reliability and validity of instruments, data collection procedure and data analysis. Chapter four covers data analysis, presentation, interpretation and discussions, while chapter five contains summary of findings, conclusions and recommendations.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The chapter reviews literature related to the implementation of E-ProMIS which is the dependent variable of the study and independent variables namely strategy, structure, leadership and culture. Staff capacity and staff attitude which form the moderating variables are also reviewed. It also presents the theoretical and conceptual framework guiding the study. Finally a summary of the research gap is also indicated.

2.2 Monitoring and Evaluation

Monitoring and evaluation is a significant component of development programs as it ensures that most effective and efficient use of resources is practiced which determines the success or failure of a program or a project (Khalifa, 2012). Monitoring focuses on the implementation process and progress towards the achievement of project objectives, while evaluation measures how well the project activities have achieved the expected objectives and/or the extent to which changes in outcomes can be attributed to the project (Khalifa, 2012). There are several activities and indicators common to both monitoring and evaluation. They are recognized management practice that allows for learning and change when implemented regularly (McKenziea, 2006). They can have several objectives at different points along a programmer's timeline. The primary objective of monitoring activities is to ensure that the implementation of the project is effective and efficient. The primary objective of an evaluation programme is to measure the impact of a project, which, in turn, will inform the implementation of the future or on-going projects (Gyorkos, 2003). Mahoney and Lederer (2010) in a study on the role of monitoring and shirking in information systems project management argue that the purpose of monitoring is to collect three main classes of information about the progress of a project against a baseline and the anticipated outcome of the project. The classes include information that assures managers that the project is progressing within acceptable budget, schedule, and quality expectations; supports decisions to approve the movement of the project though stages, and confirms subjective assessments that benefits will be realized. Information about progress against budget, schedule and quality constitutes feedback about project team members and can be used to increase the accountability and motivate their behavior

to perform more diligently or in some other manner in management's best interest (Crowford, 2003).

Several researchers have empirically tested the impact of monitoring. Using 102 students in a laboratory experiment; increased monitoring was shown to reduce project failure by reducing over-commitment (Kirby & Davis, 1998). In another laboratory experiment with 228 students, monitoring encouraged subordinates to act in the interests of their mangers (Tosi, Katz & Gomez-Masia, 1997). In a study of 110 boards of director members, monitoring increases actions that saved the organization money (Kosnik, 2000). These studies have underscored the importance of monitoring in ensuring project success. They have shown a positive relationship between monitoring and project success. However, they have not discussed how monitoring should be implemented to ensure this success. On the type of monitoring used, a study by Mahoney and Lederer (2003) has identified project management software as the most frequently used tool with Microsoft project as the most popular example. They often named periodic progress reports with comparisons of results to schedules and periodic team meetings as two techniques. Others include a project plan Gantt charts and critical path analysis. This has indicated that monitoring has been revolutionized and now incorporates an electronic system. This comes inform of Electronic project monitoring information system which was the interest of this study.

2.3 Project Management Information System

Globalization and the internationalization of markets have not only increased competitive pressures on business enterprises but also management of public institutions. This has led organizations to engage in projects that are critical to their performance, if not their survival. While large amounts of time and resources are dedicated to selecting and designing projects, it remains of paramount importance that projects be adequately managed in organizations if they are to achieve their performance objectives. In this regard there has arisen the need to develop a more efficient and effective monitoring system to ensure projects are completed on schedule and do not overrun the anticipated budgets. This has come inform of Project Management Information System (PMIS). PMIS are an integral part of the overall management system in a purposeful organization and form parts of tools such as enterprise resource planning and overall information systems (Sorensen et al., 2010). The management systems support management activities

on all levels as well as provide for the identification of key performance indicators (KPI's) (Folinas, 2007). PMIS differs from regular information systems because the primary objectives of these systems are to analyze other systems dealing with the operational activities in the organization (Sorensen et al., 2010). PMIS is a subject of the overall planning and control activities covering the application of humans, technologies and procedures of the organization. In the information technology industry, Gartner Research estimates that 75% of large IT projects managed with the support of a project management information system will succeed while 75% of projects without such support will fails (Light et al. 2005). Using PMIS to manage projects, while not sufficient to ensure success, has thus become a necessity.

The goal of PMIS is to boost efficiency by making the development cycle more visible as long as all users are able to track specific tasks and can have a better understanding of how the project is going on (Braglia & Frosoline, 2013).The PMIS industry is dominated by a number of leading software representatives such as Microsoft, Oracle and Metier Management System (a former Lockheed company) and a number of small independent companies. Demand has remained steady for years but, as organizations are increasingly turning to enhanced technical solutions, it is supposed to grow up significantly in the near future. In particular, PMIS are believed to evolve towards a more integrated project lifecycle management and the extensive adoption of web-based or cloud computing tools (McCullen, 2009; Tarantilis et. al., 2008). There are several benefits derived from the adoption and the correct use of PMIS: Projects can be managed from within integrated and coherent applications; tasks and task assignments can be created, updated and tracked in real time; involved actors have direct and real time access to all documents regarding the project; documents are updated and only last approved releases are made available to them; tasks and timely updates when modifications to the current scheduling are needed and all actors are immediately informed when this occurs; real time completion control gives a justification for the eventual rescheduling of the project itself and finally individuals are allowed to communicate with one another in real-time. All communication can be logged and tracked from within the software (Braglia & Frosolini, 2013).

Empirical studies on PMIS have been mostly limited to describing the demographics of project management software usage (Laberattore & Pollack-Johnson, 2003) and to evaluating specific applications of these systems and software modules to support project

management tasks such as planning (Amami et al., 1993); Scheduling (Herroelen, 2005); estimating cost (Love & Irani, 2005) and managing documents (Amami & Beghini, 2000). Others have mainly concentrated on impact of PMIS on project managers and project success (Raymond & Bergenon, 2007; Braglia & Frosolini, 2013). From the above observations, PMIS has become an important component of project management and especially monitoring and evaluation. It is in this regard that the government requires public institutions to embrace this technology in management and monitoring of projects. However, it is worth noting that the above referred studies have been conducted in developed economies and hence can only be replicated in the developing world with a lot caution. They have also mostly targeted private companies and failed to indicate how governments have used the same to monitoring its funded projects. Organizational internal context influencing the implementation process of this new and important technology in project management remained a gap that needed to be filled. This study aimed at filling this gap.

2.4 Implementation of Electronic Project Monitoring Information System

Information system implementation research has evolved as successive generations of researchers and practitioners have observed and commented on the issue surrounding the process (Anumba *et al.* 2007). Implementation has been defined as the whole process of introducing a system into an organization from conception of an idea, through the analysis, design, installation and operation of the developed system (Anumba et al., 2007).Other conceptions of implementation have viewed it as a process of influence (Gibson and Smilor, 1991), as an interaction system between designer and user, and as a problem solving exercise. In breaking down the implementation process into discreet steps, Walton and McKersie (1991) see three broad sub-tasks involved in the implementation. These are designing the IT system, developing enabling human resource policies to support the end user and managing the implementation process. This represents a socio-technical approach in that both the requirements of technology and the requirements of the organization are taken into account simultaneously (Anumba et. al., 2007). Stewart et al., (2000) had earlier suggested that implementation should be seen as technology diffusion through a social system. These social-technical factors are what make organizational internal context that this study investigated so as to establish how they influence the implementation process of e-ProMIS.

2.5 Organizational Internal Context and Implementation of E-ProMIS

There seems to be lack of agreement by authors on what should constitute organizational factors. Peansupap and Walker (2005) categorize them into intra-organizational and inter-organizational factors. Intra-organizational factors include technological, individual, management and workplace environmental issues; while inter-organizational factors include ownership and standard of ICT, information overload and commitment to using ICT. A study by Nitithamyong and Skibniewski (2010) on a cross-case analysis of Web based project management system (WPMS) implementation success factors categorized them into three groups in order of importance. The first group referred to as key success factors include; Top management support, presence of champion, adequacy or training, quality of the service provider's support services, ease of system use and system reliability. The second group referred to as important success factors are; User involvement during implementation, planning, alignment of WPMS objectives to project objectives, service provider's knowledge in construction, availability and reliability of data connections and WPMS access, flexibility of queries and reporting formats and data security. The third group of factors referred to as basic requirements include; adequacy of resources, computer experience of team members, project duration and system integration. The factors within the organisational internal context considered in this study were organisational strategy, organisational structure, organisational leadership, organisational culture and availability of ICT infrastructure. The moderating role of staff capacity and staff attitude was also considered.

2.5.1 Organizational Strategy and Implementation of e-ProMIS

The strategic management literature contains various perspectives definitions and description of how to define the concept of strategy (Mintzberg at al 2001). The concept of strategy has become an umbrella term covering a set of practices designed for moving or changing an organization into a new position in an existing market to locate and penetrate a new market or to even better utilize digital technology. Strategy refers to the positioning and actions taken by an enterprise in response to or anticipation of changes in the external environment, intended to achieve competitive advantage (Kaplan, 2005). Strategies are formulated to achieve an organization's purpose. For organizations to stay competitive they need a strategy for utilizing IT application. The objective of IT strategy is to establish a mid to long term plan for introducing information systems and to coordinate relevant IT investments. Change in strategic purpose leads to change in

strategy (Bhatti, 2011). There are four types of strategies; corporate, business, functional and process. Corporate strategy defines the business the company is or will be conducted in a fundamental way. Business strategy depicts as how a firm in a particular business can gain competitive advantage over its competitors. Functional strategy should be aligned with business strategy, hence functional strategies in areas such as marketing, human resources, research and development, finance and more should be allied with business strategy. Process strategies are cross functional in nature and aims at integrating an origination's processes in order to improve their effectiveness and efficiency (Higgins 2005).

Different frameworks or tools have been developed for analyzing different schools of thought about strategy. One of the most commonly quote in strategic research literature is the Michael Porter five forces framework (Kandie, 2009). It has five Ps (plan, pattern, position, perspective and ploy). Plan refers to a direction, a guide or course of action into the future. Pattern is a set of behaviours over time. Position is the selling particular product in a particular market. Perspective is an organization's fundamental way of doing things while, ploy is a specific maneuver intended to outwit a competitor (Kandie, 2009). This model determines the state of competition in an industry. There are three generic strategies that can be pursued by almost any firm; cost leadership, differentiation and focus. A cost leadership strategy indicates that firms pursue economies of scale which allow them to be low cost producers and to sell at a lower price than the competitors. Differentiation means that firms try to offer a unique product or service to customers by being innovative, which allows the firm to choose a premium price. The focus of niche strategy applies either to cost leadership or differentiation but concentrates on a specific market, group of customers, product or service (Kandie, 2009).

The typology of Miles and Snow (1978) suggests organizations adopt one of the four strategic types (prospector, defender, analyzes or reactor) in order to attain organizational effectiveness (Madanoglu et al., 2014). Prospector type companies' actions are focused on the external environment as these companies are known to continuously analyze the external environment. These are leaders in creating new products and developing new methods. Prospectors drive change and uncertainty in the market place to which competitors are forced to react (Madanoglu et al. 2014). Adopters of this strategic orientation frequently improve their products and services and strive to be the first entrant

in the market. Unlike prospectors, defenders are very internally oriented companies who when it comes to new products development, they are conservative. Instead of developing new products or services, they tend to focus on price and quality. Their main concern is increasing the efficiency of the present activities. They prefer more stable and secure product and service areas. These companies do not keep abreast of developments in the industry. They maintain a niche with a very limited assortment of products or services where they can offer superior products, at a higher quality and better prices than their competitors (Madanoglu, et al. 2014).

Analyzers are a hybrid of the prospector and defender type; they use efficiency in stable product market segments and innovate in dynamic product markets (Kumar et al., 2012). As a result, analyzers are not the first entrants in a market for products and services but rather they carefully analyze rivals actions. They focus on products and services which are promising and engage into imitating the design, manufacturing and distribution of these products (Madanogul, et al. 2014). Finally, reactors are organizations that do not have a consistent market orientation. These companies try to respond to pressures coming from the external business environment. Reactors are not a stable strategy type since they are not able to respond effectively to the environment and adapt only when environmental pressures force them to do so (Kumar et al. 2012). The Miles and Snow (1978) typology focuses on the dynamic process of adjusting the environmental change and uncertainty and considers tradeoff between external and internal factors (Kumar et al 2012). This study adopted three of the four Miles and Snow (1978) typology in studying strategy. Considering that the analyzer is a hybrid of both prospector and defender it was not considered in the study. This is in line with the recommendations of Gnjidic (2014) in his study of researching the dynamics of Miles and Snow strategic typology. Miles and Snow's typology has also been use by Kandie (2009) in studying the influence of organizational strategy, institutional factors and performance of Small and Medium Enterprises in Kenya and Madanogul et al (2014) in building a case against strategic equifinality; hybrid ideal type service organization in a developing country.

2.5.2 Organizational Structure and Implementation of e-ProMIS

Organizational structure is defined as the set of all the ways in which the work is divided into different tasks, achieving coordination (Mintberg, 1983). Child (1975) defined this term as the formal allocation of work roles and the administrative mechanisms to control

and integrate work activities including those which cross formal organizational boundaries. The structure reflects the formal scheme of relationships, communications decision processes, procedures and systems which allow an organization to develop its functions and achieve its objectives (Leon & Garcia, 2011). Organizational structure also reflects the way in which information and knowledge is distributed within an organization, which affects the efficiency of their utilization. Consequently it substantially influences the distribution and coordination of the company's resources, the communication processes and the social interaction between organizational members (Leon & Garcia, 2011). Therefore, configuration of organizational structure impedes or facilitates the capacity of the company to adapt to change, to learn, to innovate or to improve its ability to generate added value for its customers.

The objectives of the organizational structure are to coordinate different parts of the organization and different areas of work; provide flexibility in order to respond to changing environmental demands; monitor the activities of the organization; provide social satisfaction to members of the organization; ensure effective and efficient organizational performance, including the utilization of resources; and provide accountability of areas of work undertaken by groups and individual members of the organization (Malan, 2003). Enock (2001) suggest six major dimensions as components of organizational structure; formal reporting relationship level of authority and span of control; motivation of employees through systems of performance appraisal; systems for communication of information, integration of effort and participation in organizational activities; delegation of authority and providing procedures for monitoring and evaluating the action; allocation of individual tasks and responsibilities, job specialization and definition and grouping together of sections, departments, divisions and larger units.

Researchers have operationalized organizational structure using differing typology and dichotomy. Burns and Stalker (1961) developed a dichotomy of organizational structures corresponding to differential abilities to process information, which distinguished between mechanistic and organic structure (Leon & Garcia, 2011). Bureaucratic and mechanistic structures were well suited for mass production in a stable environment and were based on the belief that organizations are rational entities whose design is a science and where people are considered economic components. They are characterized by different hierarchy levels, where organizational vision emanates from the top, and

through a long process of downwards communication reaches the employees; intense work division, which generates high work specialization; high degree of horizontal differentiation, with specialized role responsibilities which implies functional grouping and rigid departmental separation; high formalization derived from the strict adherence to formal rules and regulations; and high centralization and relational complexity resulting from the managers' need to coordinate the organizational activities required to develop the vision of their planning control and continuous intervention in problem resolution, decision making and management (Leon & Garcia, 2011). These organizational forms develop a considerable hierarchical control while the managers are the key agents responsible for establishing organizational hierarchy and creating highly formalized groups of rules, protocols and formal procedures that hide information flows through the functional and hierarchical frontiers.

Organic and decentralized structures perceive organizations as complex and social entities, where individual and social forces compete and interact. Their main characteristics are; their flat structures, formed by top managers, strategic groups and multidisciplinary team work, where vertical decision making is replaced by horizontal collaboration; narrow horizontal differentiation based on expertise and knowledge specialization rather than an operative specialization, where departmental barriers disappear and multidisciplinary work teams are formed, made up of experts from different areas who integrate their specialized knowledge in the design and production of complex products; low vertical differentiation, as a consequence of workers participating in their management and control; little formalization of behavior, ensuring information distribution and effective coordination; and decentralization of power and control, resulting in proactive employee participation, organizational management, and an open and trust-based culture (Leon & Garcia, 2011). These organizational forms have a flat and horizontal shape, with only three layers of management between the top and the front line.

A review of the literature an organizational structure (Mintberg, 1983; Child, 1972; Leon and Garcia, 2011; Kandie, 2009; Ronoh, 2013) has identified several design variables proposed by different authors; however, although the content is the same, there can be alternative forms for expressing the same content. The hierarchical dimensions of structure such as complexity, formalization and centralization have received more

attention than any other (Kandie, 2009). Each of these dimensions is also the dominant characteristics of a well-known structural type. Complexity refers to the degree of differentiation that exists within an organization. Formalization refers to an organization where there are explicit job descriptions, lots of organizational rules and clearly defined procedures covering process. Centralization refers to the degree to which the right to make decision and evaluate activities is concentrated. This study took this approach in investigating the influence of organizational structure on the implementation of e-ProMIS.

Studies conducted on the relationship between organizational structure and technologies have mainly concentrated on effect of IT implementations on organizational structure (Doherty *et al*. 2010). These studies have indicated that information technologies are likely to change the role and scope of middle managers and encourage large organizations to recentralize (Doherty *et al*. 2010). Another reasonably common theme in the organizational literature has been the impact that new technologies might have on the standardization and formalization of working practices and procedures (Spanos et al, 2002). A study by Donerty *et al*. (2010) on a holistic approach to understanding the changing nature of organizational structure revealed that there is a relationship between success of IT implementation and the re-shaping of organizational structure. The study further indicated that IT systems would only deliver benefits in circumstances in which the host organization's structure is already well aligned, with the structural models and assumptions that are embedded within IT System. Singh and Hardeker (2011), while studying the adoption and diffusion of eLearning in UK Universities, revealed that the locus of control played a significant part in the adoption of eLearning. These studies have focused on implementation of IT have influenced organizational structure. Other studies have looked at influence of organizational structure on adoption of eLearning. This study sought to investigate the influence of organizational structure on implementation electronic monitoring system which has received little attention.

2.5.3 Organizational Leadership and Implementation of e-ProMIS

The concept of leadership has generated lively interest, debate and occasional confusion as management thought has evolved (Franco & Almeida, 2011). It is not easy to define leadership, and given the complexity of the subject, there is no general consensus about delimitation of the field of analysis. Definition of leadership is related to the purpose

associated with the attempt to define it, and so presents a wide range of possibilities (Franco & Almeida, 2011). Leadership can be seen as a group process, an attribute of personality, the art of inducing complaisance, an exercise of influence, a particular type of action or behavior, a form of persuasion, a power relationship, an instrument to achieve goals, the result of an interaction, a differentiated role or initiation of structure. Leadership is associated with stimulants and incentives that motivate people to reach common objectives. According to many authors, leadership allows cooperation, diminishes conflicts, contributes to creativity and has an integrating role, as it keeps people united even when not physically so. In this way, leadership, together with stimulants and incentives, promotes people's motivation towards achieving common goals, having a relevant role in the processes of forming, transmitting and changing organizational culture (Franco & Almeida, 2011). Examining leadership on the individual level is not sufficient at all, it is important to combine it with examining leadership on the collective level, especially on the level of the entire organization. Approaches to leadership on the collective level represent a holistic view of leadership and they differ from the traditional view of leadership that focuses on personal influence that an individual leader has on his or her followers. The epicenter of collective leadership is the coordination process that leads collective members to task success by sharing in leadership qualities between collective members. All these coordination processes are dynamic in nature. On one hand, these are processes where interactive influences among individuals make them work together as a collective; and on the other, they are processes where the collective as a social system operates and responds with respect to environmental dynamics (Kivipold & Vadi, 2008).

Leadership style has also received significant attention in literature. The most discussed has been transformational and transactional styles. The two styles have also been considered as the most relevant in team context (Bhat et al., 2012). Transformational leadership has been studied widely in the last 20 years and the positive outcomes of it cannot be denied (Kuo et al., 2010). Transformational leaders achieve these results in one or more ways: they may be charismatic to help followers (namely idealized influence), and thus inspire them (namely inspirational motivation); they may meet emotional needs of each employee (namely individualized consideration); and/or they may intellectually stimulate employees (namely intellectual stimulation). These four dimensions of transformational leadership can be summarized as follows: first idealized influence

provides vision and sense of mission, instills pride, gains respect and trust. Second is inspirational motivation when communicates high expectations, uses symbols to focus efforts, and expresses important purposes in simple ways (Bass, 1990). Third is intellectual stimulation which promotes intelligence, rationality, and careful problem solving. Finally is individualized consideration which gives personal attention, treats each employee individually, coaches, and advised. The transformational leader convinces followers to adopt the organizational vision and upkeeps the confidence that they will accomplish the goals. They influence the followers as role model (Bhatti et al; 2011). Kuo et al (2010) while studying the factors influencing employees' attitudes in high-tech environment observed that transformational leadership has a significant influence on the work attitudes and behaviors of followers; and is positively related to indicators of leadership effectiveness. More specifically transactional leadership is effective for short-term goals and with certain subordinates, but in a long-term perspective transformational leadership is more effective. However, this observation needs to be proved empirically. Bass (1985) commented that effective leaders use a combination of both types of leadership (transformational and transactional leadership styles). This approach was also taken by Kandie (2009) in studying SMEs in Kenya. This study will take a similar approach to establish the influence of leadership style on implementation of e-ProMIS in tertiary institutions in Kenya.

Studies on leadership in educational institutions have mainly focused on a link between leadership and school effectiveness. In most cases, outcomes in school effectiveness research have been defined as student learning outcomes and more specifically as test results. Attempts have been made to connect leadership with outcomes, usually a regression or multi-level model where different variables are regressed on pupil achievement (Muijs, 2010). Although few studies which focus on leadership for technology reform in schools have been conducted, leadership is highlighted in the literature on technology use in schools as being key for successful ICT implementation. A study by Seong and Ho (2011) on how leadership for ICT reform is distributed within a school, found that the importance of facilitating leadership actions by senior managers in the form of setting aside time for ICT development, providing direction (vision) and engaging in transformational processes (changing culture and mindset) is crucial for ICT reform. They also emphasized the need by leaders, to provide emotional leadership by motivating staff to embark on change. Senior management and middle management could

provide mutually independent transformational and transactional leadership as both types of leadership qualities are needed for ICT implementation. It is for this reason that this study sought to establish the influence of transformational and transactional leadership on implementation of e-ProMIS in tertiary education institutions.

2.5.4 Organizational Culture and Implementation of e-ProMIS

Organizational culture is generally seen as a set of key values, assumptions, understandings, and norms that are shared by members of an organization and taught to new members as correct (Yiing &Ahmad, 2008).Culture theorists have suggested a variety of definitions, ranging from notions of accepted behavioral rules, norms and rituals to shared values, ideologies and beliefs, and at an underlying level, shared patterns of meaning or understanding (Linnenluecke & Griffins, 2010). The common themes found in organization culture research are that: first, scholars have attempted to develop frameworks to categories important dimensions and to provide a conceptual foundation for the study of organization culture. Second, values, ideologies and beliefs are considered to be particularly important for understanding an organization's culture and have been viewed as a reliable representation. The assessment and measurement of organizational culture has typically focused on organizational values. A third aspect of cultural research has been the role of an organization's culture (and its underlying values and ideology of management) in hindering or fastening the implementation of managerial innovations or technological innovations. (Linnenlueck & Griffins, 2010).

A study of organizational culture can take on a multiple of aspects, including levels (visible expressed values, and underlying assumptions), strength (strong or weak), and adaptiveness (adaptive or unadaptive) (Yiing & Ahmad, 2008). Organizational culture can be assessed along many dimensions, resulting in conceptually different, but fundamentally similar models and theories. Kandie (2009) used Harrisons (1972) ideas that described the four dimensions of culture using single pictograms and making reference to Greek mythology. These four dimensions of culture are power, role, task and person. Power culture is characterized by a single source of power from which rays of influence spread throughout the organization. Role culture is characterized by bureaucracy and its strength lies in its functions and specialists, which are coordinated and controlled by senior executives. Rules procedures and job descriptions dominate the internal environment. Task culture is characterized by accomplishing the job at hand by

availing resources to make the project successful. Person culture is characterized by a group of people who come together to champion their own interests rather than on an individual basis. The above approach has been found to be more suitable for private business oriented organizations as opposed to public organizations.

Another approach to organization culture has been developed by Wallach (1983) and used by Mulabe (2013) to study the influence of organizational culture on the performance of state corporations in Kenya. Wallach (1983) looked at culture as a combination of three categories, bureaucratic, innovative or supportive to varying degrees. Wallach (1983) states that the organizational culture index (OCI), profile culture on the three stereotypical dimensions. He asserts that the flavor of an organization can be derived from the combination of these three dimensions. A bureaucratic culture is hierarchical compartmentalized organized systematical and has clear lines of responsibility and authority. An innovative culture refers to a creative, result-oriented, challenging work environment. A supportive culture exhibits teamwork and a people oriented encouraging trust work environment. Although a number of typologies, categorizations and instruments for measuring organizational culture exist, there is little agreement on which ones are more appropriate or superior to the other (Yiing & Ahmad, 2008).

Organizational culture has often been cited as the primary reason of the failure of implementing organizational change programs. Songer et al., (2001) argue that organizational culture is mainly the reason for poor implementation of information technology systems rather than technology issues. Amanda (2006) in his study on understanding cultural impediments to ICT system integration; observed that it's important to recognize that technology and culture are intertwined, as technology affects and is affected by the prevailing cultural environment. He further came up with commitment from top management, continuing support for users, involvement of users and nature of control systems as cultural factors affecting ICT system integration. A study by Mansor et al. (2012) on organization factors influencing performance management commitment, internal resources performance, oriented culture, employee engagement and maturity of PMS indicates that leadership is important in designing and developing effective performance management system and as a consequence could influence employees commitment to achieving targets and improving g performance. They also observed that culture can influence organization power relationship and their response to

change. Gasendran and Brewer (2007) argue that most ICT systems fail due to lack of management attention to complex organizational factors preferring to concentrate solely on technical or strategic matters. Through the review of the above literature it is evident that organizational culture has an influence on implementation of management information systems. However, these studies were conducted in business organizations and not government owned institutions. They also focused on general ICT as opposed to electronic project monitoring systems. Finally they were conducted in developed countries and might not accurately portray the situation in developing countries like Kenya. Wallach (1993) definition was adopted for this study because it was found to be more suitable for state or public corporations (Mulabe, 2013).

2.5.5 Staff Capacity and Implementation of e-ProMIS

The awareness about the importance of ICT skills is growing among staff in most institutions. It is unfortunately that Africa ranks lowest with respect to human capital as far as ICT skills development is concerned among counterparts in the world (Mutula & Brakel, 2007). Existing research on IT transfer to developing countries has recognized the need to develop a skilled workforce. A study by Haug et al., (2011) on IT readiness in small and medium-sized enterprises, reported that limited knowledge of by staff may be a barrier to IT implementation. The IT skills can be related to software technical skills or simply referred to user perspective. IT skills of employees are related to their IT acquaintance which has positive impact in relation to IT implementation. Haug et al., (2011) have argued that employees are likely to accept and support IT projects if they are confident that they can use the IT.

In order for ICT to be effectively deployed as engines of economic development, existing IT skills gap must be addressed. Human resources development should be emphasized through systematic training and education if countries have to reap digital dividends. Furthermore, pervasive use of ICT depends on well trained human resources for developing relevant applications, supporting and maintaining systems. Moreover, investment in human capital, research and development is becoming increasingly recognized as a critical factor in preparing employees and citizens to participate in the digital age. ICT skills are necessary because without such skills the technologies can neither be maintained nor adapted to local use. Eze et al., (2012) observed that ICT infrastructures provide platform upon which on-line communities interact real-time;

internet skills offer the technical know-how provides business and management skills to effectively apply the facilities. Therefore, technology competence transcends physical assets and includes intangible resources. They further, reported that successful ICT adoption depends largely on relevance of the internal technology resources, infrastructures, technical skills and user time. Institutions with higher competence and technology readiness are more disposed to adopt ICT (Eze et al 2012). When technology is introduced the users should be trained on how to use the resource appropriately. Baylor and Ritchie (2002) argued that regardless of the amount of technology and its sophistication, technology will not be used unless members have skills, knowledge and attitude necessary to use it. In Kenya, TIVET ICT baseline survey of 2011showed human resource capacity as the second major challenge in ICT. However, this study focused on ICT integration in teaching hence focusing mainly on skill among lecturers. The administrative staff and project staff in particular were left out in the study. Considering that ICT and project staffs are the ones to use e-ProMIS it was necessary to find out their level of ICT skills and how this influenced implementation of e-ProMIS.

2.5.6 ICT Infrastructure and Implementation of e-ProMIS.

The term ICT is largely associated with hardware and software technologies linked by vast array of technical protocol (Musakali & Mutula, 2007). Most times it is treated synonymous with Information Technology (IT) which is any computing, microelectronic, and telecommunications facilities used for the acquisition, processing, storage, presentation and transmission of information in all its forms. Based on the broad-based definition of IT, it may be implied that ICT is integral to IT (Musakali & Mutula, 2007). Consequently, the terms will be used interchangeably in this study. ICT is an umbrella term that includes any communication device or application, encompassing radio, television, cellular phones, computer and network hardware and software, satellite systems among others (Jain, 2010). ICT is an essential tool for the efficient administration of an organization, and in the delivery of service to its clients. Advances in ICT have enabled people all over the world to share ideas faster and more efficiently at far distances (Mulwa, 2012).

ICT infrastructure is basic requirement for implementation of Web-based project management information system like e-ProMIS. The Government of Kenya through Vision 2030 recognizes ICT as a key driver of the economic growth. According to second

annual progress report on the implementation of the first medium term plan (2008-2012) of Kenya Vision 2030, the country has achieved key milestones in this regard. On internet, the cost per megabyte (MB) data transmitted declined by more than half (58.3 per cent) since 2007. The proportion of Kenyan population using internet increased from 7.7 per cent in 2007 to 10 per cent in 2008/2009. In total 135 institutions were connected to internet. The proportion of population with mobile phones increased from 39 per cent in 2007 to 45.7 per cent in 2008/2009. There has also been increase in rural electrification resulting to 27,561 new customer connections by 2009/2010. Further, Kenya has three major submarine cables namely, SEACOM with a capacity of 1.2 terabytes; The East African Marine System (TEAMS) with a capacity of 1.3 terabytes; East African Submarine Systems (EASSy) cable with a capacity of 1.3 terabytes; and an expanded backbone ICT infrastructure network. The Kenya Vision 2030 report acknowledges that the efficacy of ICT as a development catalyst in Kenya has not been fully exploited. This is mainly constrained by the poor and inadequate ICT infrastructure in the country. Other challenges that hinder effective operations in the sector include weak collaboration between the Government and the private sector; limited local ICT talent pool; inadequate financial resources; weak institutional and legal framework particularly to govern automated services and electronic transactions, poor access and availability of ICT infrastructure (Government of Kenya, 2011).

Most of the studies carried out at the institution level on availability of ICT infrastructure have focused on secondary schools and universities. The studies focused on e-learning as opposed to implementation of e-ProMIS. The findings from a TIVET ICT baseline survey in Kenyan institutions (Government of Kenya, 2011) have shown that several institutions have their own IT department and personnel, most of them use the computer lab access model combined with laptops. However, the report indicates that equipment is not sufficient. Reliable electricity was available in half of the institutions surveyed. However, the survey also reported the following challenges in order of intensity; inadequate training and learning infrastructure; facilities, equipment and human resource capacity. It is worth noting that this baseline survey focused on integration of ICT into teaching and targeted teaching staff and ICT personnel. Administrative staff was not part of the sample. It therefore failed to capture the use of ICT for administrative purpose within which e-ProMIS falls. Owing to the importance of availability of ICT infrastructure in the implementation of ICT based technologies, there was need to

establish the moderating influence of availability of ICT infrastructure on the relationship between organizational internal context and implementation of e-ProMIS.

2.5.7 Staff Attitude and Implementation of e-ProMIS

Attitude is usually viewed as an enduring disposition to consistently respond in a given manner to various aspects of the world including persons, events and observers (Gakuu, 2006). Roger (1995) noted that staff inclinations towards ICT use is a critical component of ICT diffusion in organizations. Several studies carried out on the influence of attitude on adoption of ICT have given mixed findings. A study by Peansupap and Walker (2005) on factors affecting ICT diffusion classified attitude under individual issues. They further observed that individual participant behavior is a core element of ICT diffusion because it is the individual ICT user that ultimately bears responsibility for enhancing work process through applying ICT tools. They indicated that individuals influence ICT diffusion in three ways, through clear benefits of ICT use; the individual's ICT knowledge characteristics, and their having a positive perception of ICT. They argued that previous beneficial experiences of other ICT applications that have provided recognizable benefits is important because this positive experience is likely to facilitate ICT users to more quickly understand the benefits to be derived from any new ICT applications and thus developing confidence in and a positive perception of ICT in general.

A great attention has been focused on the influence of attitude on ICT adoption. A study by Keiyoro (2010) explains the role of attitude in the use of ICT in teaching and learning of science subjects in secondary school. Gakuu (2006) studied factors and attitude that influence lectures readiness to adopt distance education and use of ICT in the University of Nairobi. Mulwa (2012) studied the influence of institutional and human factors on readiness to adopt E-learning in secondary schools in Kitui district. On the other hand Mbwesa (2010) in a study of faculty perception son the effectiveness of WEDUSOFT as a learning management system in the University of Nairobi concluded that the extent to which teachers perceive a certain pedagogic approach as being effective influence greatly the extent to which they appreciate and adopt new innovations. However it is worth noting that most of these studies have focused attention on influence of attitude on adoption of ICT in teaching and learning. There seems to be little focus on influence of attitude on implementation of electronic monitoring systems like e-ProMIS. Studies on attitude have also mainly focused it as an independent variable. There was need to

investigate how staff attitude mediates the relationship between other variables. This study therefore sought to investigate the mediating influence of staff attitude on the relationship between organizational context and implementation of e-ProMIS.

The models for analysis of attitude and ICT include that of Technology Acceptance Model (TAM), from management information system (MIS) arena. Attitude measurement scales in the area of MIS research are frequently informed by tripartite definition of attitude by which attitude are structured on three component; cognitive, affective and conative. The cognitive dimension relates to beliefs or thoughts about the object, while affective or emotional refers to the feelings about it and conative or intentional relates to the action or response towards it (Spacey et al., 2004). Subsequently, social-psychologists, Ajzen and Fishbein (1980) proposed in the Theory of Reasoned Action (TRA) that an individual's behaviour was determined by a person's intension to perform that behaviour. This intension was influenced jointly by the individual's attitude and subjective norm. A derivative of the TRA, the TAM, a widely used and respected model in information technology research, measures the psychological determinants of attitudes and subsequent behaviours. The TAM is not designed specifically to measure attitudes but rather technology acceptance, which is considered the most important factor in determining the success or failure of an information system (Spacey et al., 2004). TAM developed the TRA further with its inclusion of the constructs of perceived usefulness and perceived ease of use. Perceived usefulness is the degree to which a person believes that using a particular system would enhance his or her job performance whereas perceived ease of use is the degree to which a person would be free from effort (Davis, 1984). These two constructs have an important impact on a person's attitude towards using the system. They were adopted for use in this study in establishing the mediating influence of staff attitude on the relationship between organizational internal context and implementation of e-ProMIS.

2.6 Theoretical Framework

This study is guided by two theories. These are Diffusion of Innovation Theory linked with Change Management and Theory of Reasoned Action. These theories are linked to the variables of the study and guide the relationship between these variables.

2.6.1 Diffusion of Innovation Theory

In order to establish the influence of organizational internal context on implementation of e-ProMIS in public tertiary institutions in Kenya, an integration of diffusion of innovation theory (DOI) with change management was applied as the main theory guiding this study. The DOI model, introduced by Rogers (1995) remains a popular model in the investigation of the behavior of users in adopting new technological innovation. The DOI is a broad psychological or sociological theory used to describe the patterns of adoption, explain the mechanism and assist in predicting whether and how a new invention will be successful. Diffusion has been defined as a process in which technological innovation and managerial innovation have been introduced into work processes and adopted by a specific group or across the whole organization (Bresnen & Marshall, 2011). Innovation on the other hand, is defined as an idea, practice, or object that is perceived to be new by an individual or other unit of adoption

Tan et al., (2008) observed that diffusion of innovation theory is concerned with the manner in which new technological ideas migrate from creation to use and that technological innovation is communicated through particular channels, overtime, among the members of a social system. Figure 1 depicts the DOI process channel.

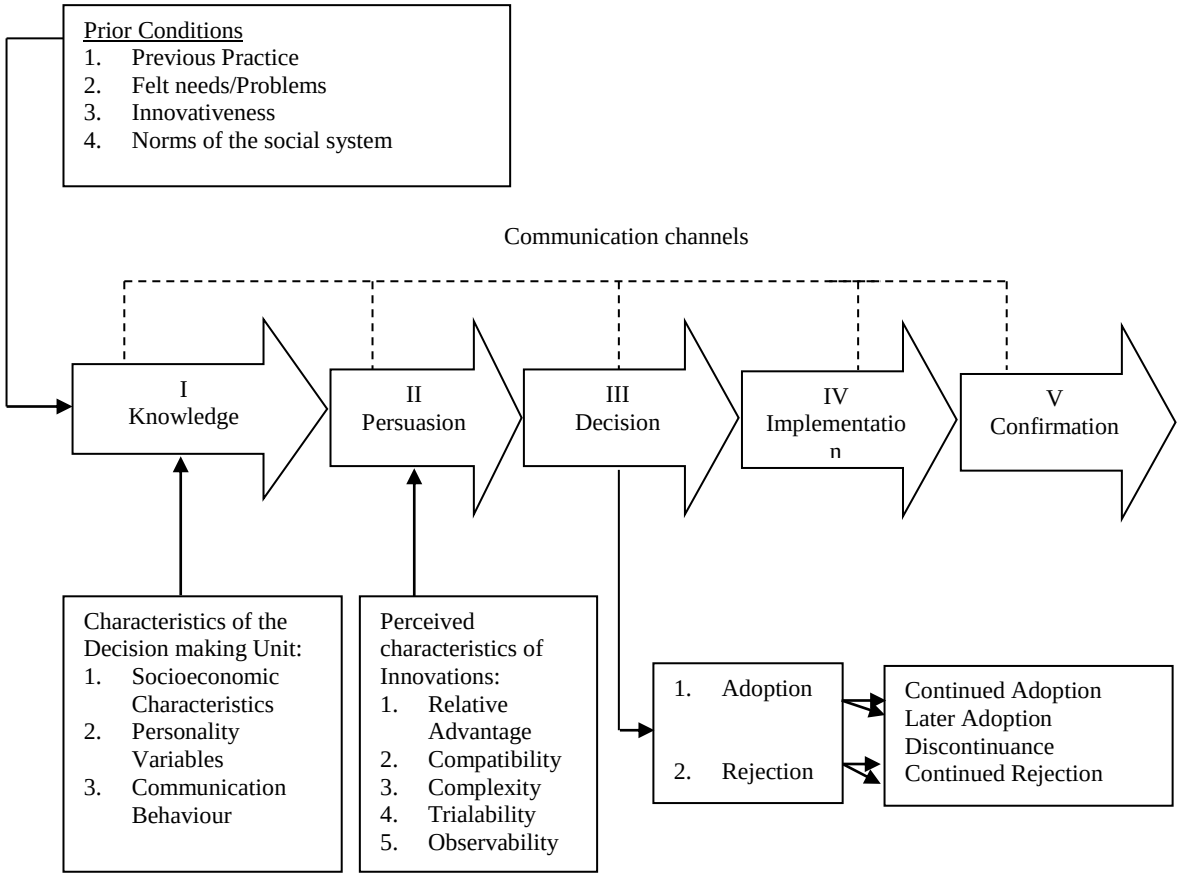


Figure 1: Diffusion of Technology Innovation Mode

Source: Rogers (1995). *Diffusion of Innovation*, Free Press, New York, NY.

Based on the DOI model, Roger (1995) proposed five important perceived characteristics of innovation. They are: relative advantage which refers to the degree in which the innovation is perceived to be better than what it supersedes; comparability referring to the degree to which the innovation is consistent with existing values, past experiences and needs; complexity which refers to the degree to which the innovation is difficult to understand and use; trialability referring the degree to which the innovation can be experimented on a limited basis; and observability which refers to the degree of visibility of the new innovation results.

According to Tan et. al., (2008) many researchers have adopted this model along with its characteristics to study innovations (Behnham & Raymond, 1996); Brancheau & Wetherbe, 1990; Hussin & Noor, 2005; Kendall et. al., 2001; Limthongchai & Speece, 2003; Slyke et al., 2004 a, b, 2005 among others). In Kenya, Mulwa, (2012) applied it in

her study on the influence of institutional and human factors on readiness to adopt E-learning in secondary school in Kitui district.

Considering that this study intended to research beyond adoption (which is level III in DOI) and consider implementation (level IV of DOI), it was necessary to examine other relevant literature for better understanding. A study by Peansupap and Walker (2005) on the factors affecting ICT diffusion; a case study of three large Australian construction contractors provides invaluable information that effective ICT diffusion success could be perceived in terms of factors that influence technology adoption and the way in which successful adoption of technology by potential users within an organization could be maintained. They argue that IT innovation diffusion within an organization also requires a change management process that encourages people to adopt and use it as well as motivating people, providing appropriate training and technical support, supervisor support and open discussion issues to solve problems and resolve issues. They therefore call for integration of innovation diffusion and change management as shown in figure 2.

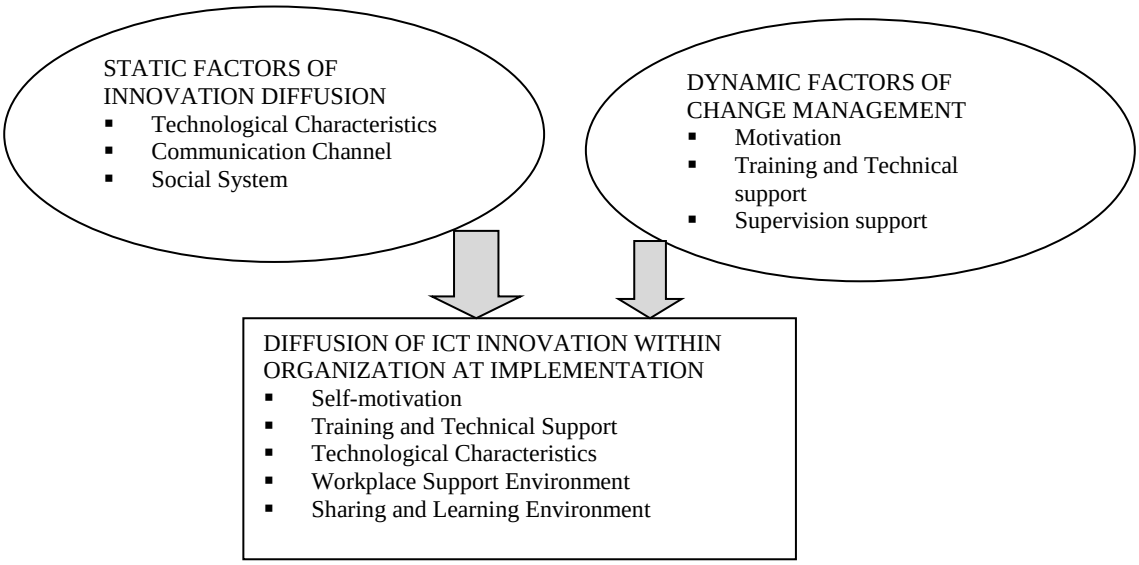


Figure 2: Integration of Diffusion of Innovation and Change management

Source: Peansupap & Walker (2005), Factors affecting ICT diffusion; a case study of three large Australian construction contractors. *Engineering, Construction and Architectural Management* Vol. 12 No. 1.

By applying this integration of innovation diffusion and change management as the main theory guiding this study, implementation of e-ProMIS is seen as a decision by the tertiary institutions to use the Web-based monitoring technology to communicate on the

progress of their projects to stakeholders. The independent variables which are organizational internal context and dependent variable, which is implementation of e-ProMIS, are well covered in the theory as they relate to static factors of innovation diffusion and dynamic factors of change management.

2.6.2 Theory of Reasoned Action

The Theory of Reasoned Action (TRA) was developed by Fishbein & Ajzen (1975) and to explain the linkage between beliefs, attitudes, norms, intentions and behaviours of individuals. The Proponents of TRA explain that a person's behaviour is determined by his behavioural intention to perform it. The intension is also determined by the person's attitudes and their subjective norms towards the behaviour. Subjective norms are defined as the person's perception that most people who are important to him think should or should not perform the behaviour in question (Fishbein & Ajzen, 1975). They further defined attitude towards the behaviour as the individual's positive and negative feelings about performing behaviour. Attitude is therefore determined through an assessment of one's beliefs regarding the consequences arising from behaviour and an evaluation of the desirability of these consequences.

Based on the TRA, Davis developed a Technology Acceptance Model (TAM) for modelling of the acceptance of IT by users (Davis et al., 1989). This conceptual model has been developed to study the factors on computer acceptance by users. The basis comprises two factors: perceived usefulness and perceived ease of use. Perceived usefulness (PU) is defined as the prospective user's subjective probability that using a specific application will increase his or her job performance within an organizational context. The more an application improves their effectiveness in an organizational field, the more it is considered to be helpful. Perceived ease of use (PEU), on the other hand, refers to the degree to which the prospective user expects the target system to be free of effort. Therefore, the less time needed to learn to use the applications, the more they are used (Davis et al., 1989). These two factors have a great impact on peoples' attitudes towards the use of IT. The external factors contain social and organizational factors, the features of computer systems such as software and hardware, the approach to training and also the support of other people in applying the computer systems. These factors all have potential effects on users' attitudes towards the usefulness and the ease of use of IT (Davis et al., 1989). Considering that this study aimed at establishing the moderating

influence of staff attitude on implementation of e-ProMIS as contained in objective 7, this model was found suitable to guide the study.

2.7 Conceptual Framework

The objective of this study was to examine the influence of organizational internal context on implementation of electronic project monitoring information system in tertiary institutions in Kenya. The basic assumption was that implementation of e-ProMIS is dependent on five key independent variables within the organization namely; organizational strategy, organizational structure, organizational leadership, organizational culture and staff capacity. The joint influence of organizational internal context is also studied. This relationship between the independent and dependent variables is moderated by availability of ICT infrastructure. Staff attitude acts as a mediating variable between organizational internal context and implementation of e-ProMIS. The relationship between the study variable is shown in Figure 3.

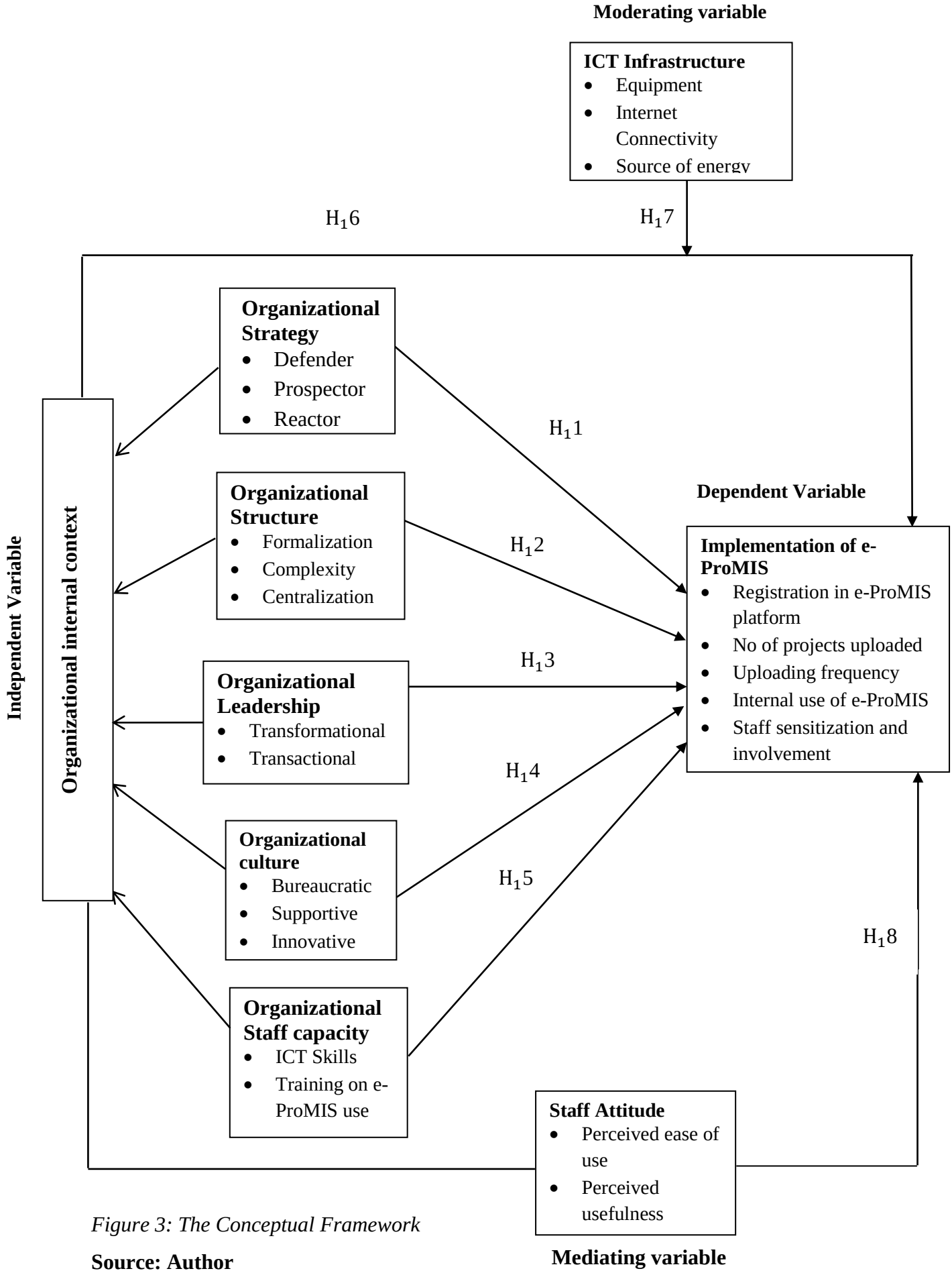


Figure 3: The Conceptual Framework

Source: Author

As shown in Figure 3 literature review has revealed that indicators for implementation of e-ProMIS are registration into e-ProMIS platform, number of projects uploaded, frequency of uploading, number of projects uploaded, internal use of the system and involvement of staff (Braglia & Frosoline, 2013). On organisational strategy, Snow and Miles (1978) suggested that organisations adopt one of the three strategic types (prospectus, defender or reactor) in order to attain organisational effectiveness. The type of organisational strategy adopted by an organisation influences its implementation of e-ProMIS and formed hypothesis 1. Hierarchical dimensions of structure such as complexity, formalization and centralisation have been highlighted in literature as the main organisational structures adopted by organisations (Leon & Garcia, 2011). Implementation of e-ProMIS depends on the type of organisational structure adopted by an organisation and formed hypothesis 2 in this study. Leadership literature has shown that transformational and transactional styles are the key leadership styles adopted by organisations (Bhat et al. (2012). Literature has shown that leadership style is instrumental in determining the level of implementation of e-ProMIS. This formed hypothesis 3 in this study.

Organisational culture has a combination of three dimensions; bureaucratic, supportive and innovative culture (Wallach, 1993). These cultural dimensions have an influence on the implementation of e-ProMIS in organisations and formed hypothesis 4. Staff capacity has been conceptualized in literature as ICT skills and training on e-ProMIS forming hypothesis 5. Indicators for availability of ICT infrastructure are ICT equipment, internet connectivity and source of energy (Mulwa, 2012). Joint influence of organisational internal context is studied as hypothesis 6. Availability of ICT infrastructure was conceptualized as a moderating variable in this study making hypothesis 7. The Technology Acceptance Model by Davis (1986) developed two indicators for measuring staff attitude which are perceived usefulness and perceived ease of use. The attitude of members of staff mediates the relationship between organisational internal context and implementation of e-ProMIS. This formed hypothesis 8 in this study.

2.8 Summary of the Research Gaps

To conclude the literature reviewed, a summary of research gaps is provided in Table 2.1.

Table 2.1: Summary of the research gaps

Author	Focus of the Study	Methodology used	Findings	Gap in Knowledge	Focus of current study
Gakuu, C.M. (2006)	Factors and attitudes that influence lecturers' readiness to adopt distance education and the use of ICT in teaching in the University of Nairobi.	Cross-Sectional Survey	The study revealed that attitude towards the use of computer in distance education was positively correlated to availability and usage.	The study focused on human resource factors and not organizational internal context. It was also interested in establishing the readiness to adopt use of ICT in teaching	This study focuses on organizational internal context. It is interested in implementation of electronic project monitoring information system
Tan, K. S., Chong, S. C., Lin, B., &Eze, U. C. (2008)	Internet-based ICT adoption: Evidence from Malaysian SMEs	Cross-Sectional Survey	Revealed that relative advantage, compatibility, complexity, observability, and security are significant factors influencing internet-based ICT adoption.	The target of this study was limited to Small and Medium Enterprises. It generally looks at ICT adoption.	This study specifically focuses on influence of internal context on implementation of e-ProMIS.
Kandie, P.Y (2009)	Influence of organizational strategy, institutional factors on performance of small and medium enterprises in Kenya	Cross-Sectional Descriptive Survey	There is a relationship between strategy, leadership and organizational structure on performance of SMEs.	The study only focused on interrelationships between organizational factors and performance of SMEs.	This study looks at the moderating role of ICT infrastructure on the relationship between organizational internal context and implementation of e-ProMIS.
Nitithamyong and Skibniewski (2010)	Success factors for the implementation of web-based construction project management systems: A cross-case analysis	Case Study- using a Three Cross-Case Analysis	A project seeking to employ a WPMS must be equipped with the following: an adequate level of resourcing; an appropriate duration to promote the system; and a sufficient level of the team's computer literacy.	The study considered general success factors and did not focus on the influence of organizational factors. It was also conducted in developed countries while circumstances are different for developing countries like Kenya. It employed a case study	This study addresses the influence of organizational internal context on implementation of e-ProMIS. It employs cross sectional methodology.

				methodology.	
Gajendran and Brewer (2010)	Integration of information and communication technology; Influence of the cultural environment	Survey using qualitative and quantitative approaches	Organizational culture has influence on critical success factors for ICT integration in construction projects teams.	The study focused only on organizational culture and its influence on ICT integration and hence did not consider other organizational factors.	This study broadly covers the influence of four organizational context on implementation of e-ProMIS.
Keiyoro, P.N (2010)	Factors influencing the effective use of ICT in teaching and learning science curriculum in Kenyan Secondary Schools: The case of Cyber and NEPAD e-schools.	Descriptive Survey (ex-post facto design)	Use of ICT in teaching and learning science curriculum was not effective because of inadequate ICT infrastructure, limited skills among teachers, time and lack of internet connectivity.	The study focused on use of ICT in teaching and learning science curriculum	This study focuses on implementation of ICT in Monitoring of Projects.
Mbwesa, J. K. (2010)	Faulty perception on the effectiveness of WEDUSOFT as a learning management system	Descriptive Survey	The study revealed that the extent to which teachers perceive a certain pedagogic approach as being effective will influence greatly the extent to which they appreciate and adopt new technology.	The study was focused on the influence of perception on adoption of new technology in teaching.	This study focuses on attitude as a mediating variable between internal context and implementation of e-ProMIS.
Mulwa, A.S. (2012)	Influence of Institutional and human factors on readiness to adopt E-learning in Secondary schools in Kitui	Cross-Sectional Descriptive Survey	Institutional factors had significant influence on the readiness to adopt e-learning in secondary schools.	The study focused on influence of institutional factors on the readiness to adopt e-learning and therefore did not address other electronic systems. It was also conducted in secondary school.	This study addresses the influence of organizational internal context on implementation of e-ProMIS. It focuses on tertiary institutions.
Wong and Zhang (2013)	Implementation of web-based construction project management system in China projects by Hong Kong developers	Case study	Web-based construction project management system was proved to be efficient and effective in cross region project coordination and monitoring	This was a case study on the benefits of implementation of web-based project management system.	This study employs cross sectional descriptive survey. It focuses on organizational internal context..
Mulabe, J.K. (2013)	Human resource strategic orientation, employee outcomes, organizational factors and performance of state corporations	Cross-Sectional Descriptive Survey	There is a relationship between organizational culture and leadership on performance of state corporations.	The study only considered two organizational factors namely; organizational culture and leadership.	This study looks at all the four organizational factors namely strategy, structure, culture and leadership.

	in Kenya				
Ronoh, B.J. (2013)	Business strategy, organizational structure, human resource strategic orientation and performance of large private manufacturing firms in Kenya	Correlational Research Design	Organizational structure and business strategy moderates the relationship between human resource strategic orientation and firm performance.	The study used correlational design to study moderating effect of the two organizational factors on performance of large private manufacturing firms.	This study employs cross-sectional descriptive survey. It focuses on organizational internal context as independent variables while human resource factors are moderating variables.
Ibua, M.P. (2014)	The influence of institutional factors on the relationship between employee characteristic and employee outcome in public corporations in Kenya	Cross-Sectional Survey	The influence of employee empowerment on organization performance was statistically and significantly moderated by institutional factors	The study considered institutional factors as moderating variable and not independent variable	This study looks at organizational factors as independent variable with staff attitude as mediating variable.

2.9 Summary of Literature Review

The chapter has discussed both theoretical and empirical literature related to the variables under study. The concept of monitoring and evaluation and its importance in project management cycle has been discussed. Electronic project monitoring information system has been traced from project management information system which gained prominence due globalization, internationalization of markets and advancement of information technology. Based on review of empirical studies, organizational internal context has been conceptualized as organizational strategy, organizational structure, organizational leadership, organizational culture and staff capacity. Key indicators of each of the variables have been identified and discussed on how they influence the implementation of e-ProMIS. The moderating and mediating influence of availability ICT infrastructure and staff attitude respectively has been discussed. Diffusion of Innovation Theory and Theory of Reasoned Action and how they guide the study has been discussed. The review of literature was important in linking the study with other empirical studies.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes how the study was carried out. The main sections consist of philosophical underpinning of the study, research design, target population, sampling procedure, research instruments, validity and reliability of data collection instruments, data collection procedure and data analysis techniques.

3.2 Research Paradigm

A research paradigm sets the context for an investigator's study. Pragmatism which is the main philosophical underpinning of this study derives from the work of Peirce, James, Mead and Davey (Creswell, 2013). To pragmatists, knowledge claims arise out of actions, situations and consequences rather than antecedent conditions. There is a concern with application of what works and solutions to problems (Creswell, 2013). Instead of methods being important, the problem is most important and researchers use all approaches to understand the problem.

The pragmatic rule states that the current meaning or instrumental or provisional truth value of an expression is to be determined by the experiences or practical consequences of belief in or use of the expression in the world (Johnson & Onwuegbuzia, 2004). Pragmatism helps to shed light on how research approaches can be mixed fruitfully. Research approaches should be mixed in ways that offer the best opportunities for answering important research questions (Johnson & Onweugbuzie, 2004). As a philosophical underpinning for mixed mode studies, it conveyed the importance for focusing attention on the research problem and then using pluralistic approaches to derive knowledge about the problem (Cresswell, 2013). This study therefore employed pragmatism paradigm to guide its mixed mode approach.

Pragmatism also allows the researcher to interact with the research and especially with the respondents (Johnson & Onwuegbuzia, 2004). This is as opposed to the epistemological stand held by positivism and post-positivism paradigms. This allows the researcher to correct both qualitative and quantitative data as in the case in this study. Pragmatism also allows the researcher to conduct both deductive and inductive logic

which is a middle path between positivism and constructive paradigms. Considering that questionnaires with both closed and open ended questions were used as instruments to collect both quantitative and qualitative data on implementation of e-ProMIS in public tertiary institutions, this paradigm was found to be the most suitable for the study.

3.2.1 Research design

The study combined a cross sectional descriptive survey and correlational research design. The use of the two designs was suitable because the study used both descriptive and inferential analysis of data. On one hand cross sectional descriptive survey design is concerned with describing, recording, analysing and interpreting conditions that exist. Application of cross-sectional survey means information was collected from a predetermined population at just one point in time (Fraenkel &Wallen, 2008). Kothari (2004) argued that surveys are only concerned with conditions or relationships that exist, opinions that are held, processes that are going on, effects that are evident or trends that are developing. This design was most appropriate for this study because of its ability to elicit a diverse range of information. It also had the ability to minimize bias and maximize reliability. Correlational research design on the other hand allows the use of inferential statistics for measurement of two or more variables to determine the extent to which they are related or influence each other (Fraenkel & Wallen, 2008). Considering that in this study the influence of each independent variable and the joint influence of all the independent variables on the dependent were to be determined, correlational research design was most suited. It also enabled testing the moderating and mediation influence by use of multiple and stepwise regressions. Therefore, a combination of the two research designs enabled the researcher to conduct both descriptive and inferential analysis effectively.

3.3 Target Population

The study targeted public tertiary institutions implementing e-ProMIS which included Technical Training Institutes, Institutes of Technology and National Polytechnics in Kenya. Information from the Ministry of Education, Science and Technology showed that there were thirty five (35) tertiary institutions implementing e-ProMIS. Three members of staff from each tertiary institution who had been trained and given passwords by the Ministry of Education, Science and Technology so as to access and upload data into the e-ProMIS system formed part of the target for this study. The study also targeted Deputy

Principals, Registrars and Heads of Department. Principals were left out of the study to avoid biased information as the study touched on their leadership styles, organizational strategy, and organizational culture among other variables. Information from the Ministry of Education, Science and Technology indicated that there were 355 deputy principals, registrars and heads of department. The total target population was 460 as indicated in Table 3.1.

Table 3.1: Target Population

INSTITUTION	TARGET POPULATION
e-ProMIS trained staff	105
Deputy Principals, Registrars & HODS	355
Total	**460**

3.4 Sample Size and Sampling Procedure

This element of research methodology describes the sample size for the study and the sampling technique that was applied to obtain the required sample.

3.4.1 Sample Size

Considering that the unit of analysis was the institution, a census of all 35 tertiary institutions implementing e-ProMIS was taken in this study because their number is small. The sample size of respondents from the tertiary institutions was calculated using the formula suggested by Krejcie and Morgan (1970), as indicated below;

$$s = x^2NP(1 - P) \div d^2 (N - 1) + x^2P(1 - P).$$

Where:

s=required sample size

x^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841)

N= the population size

P= the population proportion (assumed to be 0.50 since it would provide the maximum sample size).

d= the degree of accuracy expressed as a proportion (0.05)

Therefore, s=$3.841(460)(.50)(1-.50) \div 0.05^2\,(460-1)+3.841(.50)(1-.50) = 209.5671$ approximately 210 respondents. This sample size corresponds with sample size given by the Krejcie and Morgan (1970) table.

3.4.2 Sampling Procedure

The study employed a combination of stratified and simple random sampling techniques. All the three members of staff trained on e-ProMIS were sampled in the study because of their knowledge on implementation of e-ProMIS in the institutions. E-ProMIS trained staff were 105. Considering that the tertiary institutions have almost the same number of deputy principals, registrars and heads of departments, three were sampled from each of the thirty five institutions using simple random sampling procedure. This resulted to a sample size of 210 respondents.

3.5 Research Instruments

Data was collected using questionnaires.

3.5.1 Questionnaire

Questionnaires were used to collect data because of their ability to collect a lot of information from respondents over a short period. They are also free from the bias of the researcher. They contained closed-ended questions and a few open-ended questions. The questionnaire had nine sections in order to cover the entire research variables. Section A had five questions to collect information on the category of the institution, personal information like gender, age, level of education and the category of the respondent. The purpose of this section was to get the background information of the respondents. In section B data was collected on implementation of e-ProMIS. There were seven questions measured on Likert scale seeking information on the level of implementation of e-ProMIS. The section also had two open-ended questions on challenges experienced in implementing e-ProMIS and suggestions for improvement. In section C data was collected on the type of strategy used in the institution. To measure Organizational Strategy, the well-known Miles and Snow (1978) typology was used. The questionnaire was adapted from the study of Agbejule and Jokipii (2009) who had adapted it from the studies by Guilding (1999) with a good reliability score with a coefficient alpha of 0.79. This score suggest acceptable reliability of the measures.

Section D solicited for information on the type of Organizational Structure found in the respondents' organization. A survey questionnaire developed by Hages (1965) was used in this section. The questionnaire was also used by Jennings and Seaman (1994) with a coefficient alpha for structural variables of formalization, complexity and centralization were 0.90, 0.95 and 0.92 respectively. The same instrument was also used by Kandie (2009) with a coefficient alpha for structural variables of formalization, complexity and centralization were 0.752, 0.624 and 0.627 respectively. These scores suggest acceptable reliability of the measures. Section E solicited for information from the respondents on the type of leadership applied in their organization. A questionnaire developed by Bass, Avolio, and Jung (1995) was used to measure organizational leadership. Kandie (2009) used the same instrument in his research and obtained Cronbach'salpha values for transformational leadership style and transactional leadership style of 0.96 and 0.62 respectively. These scores suggest acceptable reliability of the measures. The respondents were expected to assess the styles of their organizational leadership by answering questions in two categories; transformational leadership and transactional leadership. In each case the respondents rated each category on a five point Likert scales ranging from not at all, rarely, occasionally, frequently and always.

Section E of the questionnaire collected data on the type of Organizational Culture prevalent in their organization. A survey questionnaire developed by Wallach (1983) whose reliability coefficient was 0.71, 0.77 and 0.87 for bureaucratic, supportive and innovative culture respectively was used. It was also used by Mulabe (2013) in his study whose reliability coefficient was 0.935. The questionnaire had sixteen questions rated on a five point Likert scale ranging from; to a very little extent, to a little extent, to a moderate extent, to a great extent and to a very great extent. Section G of the questionnaire was on availability of ICT infrastructure. Respondents were requested to indicate the extent to which desktop computers, laptop computers, internet connectivity, data storage devices, digital cameras, mobile network and electricity are adequate to support implementation of e-ProMIS in their institutions. It was rated on a five point Likert scale. Section H of the questionnaire tested the respondents' attitude towards e-ProMIS based on perceived ease of use and perceived usefulness. A questionnaire developed by Osgood et al. (1957) and used by Spacey et al. (2004) in their study whose reliability coefficient scores for attitudinal variables of perceived usefulness and perceived ease of use were 0.95 and 0.82 respectively was adapted. The respondents were

given attitudinal statements based on perceived usefulness and perceived ease of use of e-ProMIS and rated on a five point Likert scale ranging from, strongly disagree, disagree, neutral, agree and strongly agree to choose from. Finally, section I of the questionnaire collected data from the respondents on their training on ICT and how it contributes to their implementation of e-ProMIS. The questions were rated on a five point Likert scale ranging from; to a very little extent, to a little extent, to a moderate extent, to a great extent and to a very great extent

3.5.2 Validity of Research Instruments

Validity refers to the appropriateness, meaningfulness, correctness and usefulness of the inferences a researcher makes (Fraenkel and Wallen, 2008). Mugenda (2008) argues that it is not possible to estimate validity from the instrument but from the data that is collected using the instrument. To ensure validity, the questionnaire was verified by a panel of experts made up of the researcher's supervisors. A pilot study was conducted in three University Colleges, involving 18 respondents. University Colleges were selected for piloting because they share similar characteristics with the tertiary institutions and were not part of the study. The data collected was processed, analyzed and interpreted. Based on the comments from experts and piloting results the items were refined and the final questionnaire developed.

3.5.3 Reliability of Instruments

Reliability refers to the consistency of scores or answers from one administration of an instrument to another and from one set of items to another (Fraenkel & Wallen, 2008). Mugenda (2008) observed that reliability in research is influenced by random error. As random error in the data increases, reliability of the data decreases. Random error is the deviation from a true measurement due to factors that have not effectively been addressed by the researcher. To test for reliability questionnaires were distributed to the respondents by the researcher and trained research assistants and picked after they were completed. Internal consistencies were computed during the pilot study using Cronbach's Alpha co-efficient. This technique requires only a single administration and provides a unique, quantitative estimate of the internal consistency of a scale. This generated an inter-item correlation matrix first and then sum up all the correlation to estimate the mean correlation. A high coefficient implies that items in the scale correlates highly among themselves and consistently measure the construct of interest. Kyalo (2007); Munyoki

(2007); Mulwa (2012); Nganga (2014) and Ibua (2014) have used the same tool successfully to assess reliability of their research instruments. The results of the Cronbach reliability coefficients for the study variables are presented in Table 3.2.

Table 3.2 Reliability Coefficients

Section of Questionnaire	Variable	Number of Items	Cronbach Reliability Coefficients
Section B	Implementation of e-ProMIS	9	0.764
Section C	Organisational Strategy	15	0.785
Section D	Organisational Structure	7	0.755
Section E	Organisational Leadership	28	0.778
Section F	Organisational Culture	16	0.814
Section G	Staff capacity	8	0.760
Section H	Staff attitude	20	0.793
Section I	Availability of ICT infrastructure	6	0.802
Composite Cronbach's Alpha Reliability Coefficient			**0.781**

The results in Table 3.2 show that the Cronbach's Alpha coefficients for the variables under study ranged from 0.755 to 0.814. According to the rule of the thumb provided by George and Mallery (2003) coefficients greater than $\alpha > 0.7$ are acceptable while $\alpha > 0.8$ are good.

3.6 Data Collection Procedure

The researcher applied and got a research permit from National Commission for Science, Technology and Innovation. Research assistants were recruited and trained by the researcher and then data was collected using questionnaires by either the researcher or the trained research assistants. Each research assistant was assigned a specific number of tertiary institutions from which to collect data. Appointments were booked in advance

with the Principals of the institutions through telephone calls. Respondents were assured of confidentiality before filling the questionnaires.

3.7 Data Analysis Techniques

Collected data was taken through data analysis phases which involved data clean up, reduction, differentiation and explanation. Data cleanup involved editing, coding and tabulation in order to detect any anomalies in the responses and also assign specific numerical values to the responses for further analysis. Data was then keyed using Statistical Package for Social Sciences (SPSS) version 20 computer programme with appropriate codes and variable specification after which counter checking was done to ensure no erroneous entries. In analyze qualitative data generated through open ended questions in the questionnaire, the Framework Based Approach proposed by Ritchie et al (2003) was used. This involved classifying and organizing data into a thematic framework based on key themes, concepts and categories.

Descriptive statistics was used for measures of central tendencies including mean, and standard deviation. The Pearson's coefficient of correlation was applied to measure the degree of influence of each independent variable (organizational strategy, organizational structure, organizational leadership, organizational culture and staff capacity) on the dependent variable which was implementation of e-ProMIS. Pearson **r** was used in this study since the data was measured in the interval scale and Pearson's correlation coefficient technique is recommended for such data as being the most appropriate for determining relationships (Kothari, 2004). The assumption associated with the application of Pearson **r** is that the relationship between the variables being correlated is linear. This assumption was tested on the data by first plotting a scatter graph to check on the linear relationship of the variables. The correlation was based on two-tailed tests in order to allow for the possibility that the influence of independent variables on the dependent variable could assume a positive or a negative direction.

To test hypothesis, simple linear models was used to test significance between each independent and dependent variable. Multiple regression and Stepwise regression models were used to test the moderating and mediating variables. In this study the significance level for hypotheses testing was set at **0.05**.

The mediating effect of staff attitude on the relationship between Organizational Internal Context and Implementation of e-ProMIS was tested. A variable is said to function as a mediator to the extent that it accounts for the relation between the independent and the dependent variable. The role of a mediating variable is to transmit the influence of an independent variable(s) to the dependent variable and hence it is important to test this influence. In mediation analysis, the significance of the relationship between the independent and dependent variables has been integral in theory testing, being used as a basis to determine whether to proceed with analyses of mediation and whether one or several proposed mediator(s) fully or partially accounts for an effect (Rucker, et al., 2011). To test for mediation, one should estimate the three following regression equations: first, regressing the dependent variable on the independent variable; second, regressing the mediator on the independent variable; and third, regressing the dependent variable on both the independent variable and on the mediator. Separate coefficients for each equation should be estimated and tested (Baron and Kenny, 1986).

There is no need for hierarchical or stepwise regression or the computation of any partial or semi-partial correlations. These three regression equations provide the tests of the linkages of the mediational model as shown in figure 4. To establish mediation, the following conditions must hold: First, the independent variable must affect the mediator in the first equation; second, the independent variable must be shown to affect the dependent variable in the second equation; and third, the mediator must affect the dependent variable in the third equation. If these conditions all hold in the predicted direction, then the effect of the independent variable on the dependent variable must be less in the third equation than in the second. Perfect mediation holds if the independent variable has no effect when the mediator is controlled (Baron and Kenny, 1986).

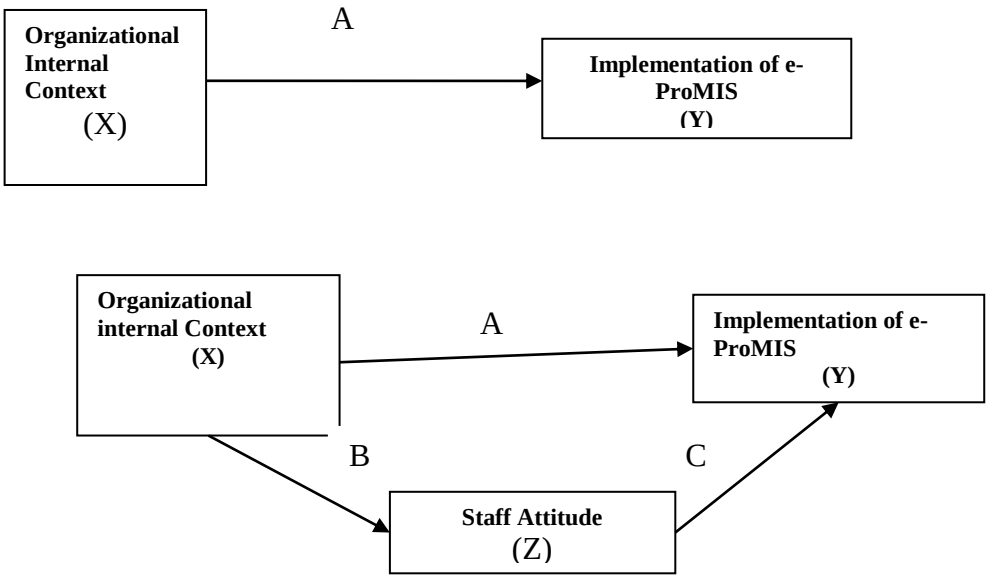


Figure 4: Mediation model

Source: Baron and Kenny (1986)

Test if X predicts Y; $y = a_1 + \beta X + e_1$

Test if X predicts Z; $y = a_2 + CX + e_2$

Test if X predicts Y when Z is in the model $y = a_3 + \beta' X + AZ + e_3$

The models for testing hypotheses are presented in the Table 3.3

Table 3.3: Models for Testing Hypothesis

Objective	Hypotheses	Model	Type of Analysis
To establish the extent to which organisational strategy influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	H_1: Organisational strategy has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	$y = a + \beta_1 X_1 + e$ y= Implementation of E-ProMIS a=constant β_1= Beta coefficient X_1= Strategy e= error term	Linear Regression Analysis
To examine the extent to which organisational structure influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya	H_1:Organisational structure has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Mt. Kenya	$y = a + \beta_2 X_2 + e$ y= Implementation of E-ProMIS a=constant β_2= Beta coefficient X_2= organisational structure e= error term	Linear Regression Analysis
To establish the extent to which leadership influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	H_1:Leadership has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya	$y = a + \beta_3 X_3 + e$ y= Implementation of E-ProMIS a=constant β_3= Beta coefficient X_3= Leadership e= error term	Linear Regression Analysis
To examine the extent to which organisational culture influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	H_1:Organisational culture has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya	$y = a + \beta_4 X_4 + e$ y= Implementation of E-ProMIS a=constant β_4= Beta coefficient X_4= Organisational culture e= error term	Linear Regression Analysis
To establish the extent to which organisational staff capacity influences the implementation of Electronic Project Monitoring Information System in	H_1: Organisational staff capacity has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary	$y = a + \beta_5 x_5 + e$ y = Implementation of E-ProMIS a= Constant β_5 = Beta coefficient X_5= Organizational staff capacity	Linear Regression Analysis

Public Tertiary Institutions in Kenya.	Institutions in Kenya.	e = error term	
Determine the joint influence of organisational internal context on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	$\boldsymbol{H_1}$**:** Organisational internal context has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya	$y = a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + e$ y = Implementation of E-ProMIS $\beta_{1....}$ B_5 = Beta coefficient X_1 = Organisational Strategy $X_{2=}$ Organisational Structure $X_{3=}$ Organisational Leadership $X_{4=}$ Organisational Culture X_5 = Staff Capacity e = error term	Linear Regression Analysis
To examine the moderating effect of availability of Information Communication Technology on the influence of organisational internal context on implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	$\boldsymbol{H_1}$**:** The strength of the relationship between organizational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya is dependent on availability of Information Communication Technology infrastructure.	$y = a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_1\ X_2\ X_3\ X_4\ X_5\ X_6 + e$ y = Implementation of E-ProMIS a = Constant $\beta_{1....7}$ = Beta coefficient $X_{1\ ....5}$ = Organizational internal context X_6= Availability of ICT infrastructure e = error term	Multiple Regression Analysis
To examine the mediating influence of staff attitude on the influence of organisational internal context on implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	$\boldsymbol{H_1}$**:**The strength of the relationship between organizational context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya is dependent on staff attitude	Test if X predicts Y; $y = a_1 + \beta X + e_1$ Test if X predicts Z; $y = a_2 + CX + e_2$ Test if X predicts Y when Z is in the model $y = a_3 + \beta'X + AZ + e_3$	Linear Regression Analysis Multiple Regression Analysis Step wise Regression Analysis

3.8 Ethical Considerations

The study ensured ethical considerations were observed by getting voluntary informed consent from all the respondents. This was done by making telephone calls in advance to the sampled institutions to inform them about the purpose of the study. The researcher also respected privacy and ensured confidentiality of the respondents by maintaining anonymity of the respondents. Individual identity has not been disclosed and the researcher and his assistants ensured maintenance of respect of human dignity. Data was collected by competent researcher and research assistants. All segments of society had the opportunity to participate in the research if they so wished and if they were considered to be appropriate participants for the study. The research findings have only been used only for scholarly purpose.

3.9 Operationalization of Variables

The study objectives, variables, indicators for each variable, measurement scale and type of analysis done are shown in Table 3.4

Table 3.4: **Operationalization of Variables**

Objective	**Variable**	**Indicators**	**Measurements**	**Measurement scales**	**Research Approach**	**Type of analysis**	**Techniques for Analysis**
To establish the extent to which organizational strategy influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	Independent variable	**Defender** Focus on efficiency focus on narrow market domains Emphasis on market protection Emphasis on low prices Do not search outside their domain of new opportunities **Prospector** Focus on broad market Continually search for market opportunities Less concern with current product /services and market Strong concern for product/service and market innovation Usually not efficient **Reactor** Lack of consistent product/service and market development Risk averse, forced by environmental pressures to make adjustment	A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the three scales in column three measuring this variable.	Interval	Quantitative	Parametric	Correlation
To examine the extent to which organisational structure influence	Organizational structure	**Formalization** Codified job description Rules and procedures govern decision and	A composite index was obtained by calculating the average of the total sum of the responses of each	Interval	Quantitative	Parametric	Regression

Objective	Variable	Indicators	Measurements	Measurement scales	Research Approach	Type of analysis	Techniques for Analysis
the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya		working relationships Tasks are comparatively simple and repetitive Ranges of variation with jobs **Complexity** Job specialization Training varies according to grade Degree of differentiation **Centralized** Lines of communication and responsibility are clear Decision is made by top management or delegated to middle and low managers Fewer innovative ideas Effective in stable non-complex environments	respondent over the three scales in column three measuring this variable.	Interval	Quantitative	Parametric	Regression
To establish the extent to which leadership influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	**Leadership**	**Transformational leadership** Employee empowerment, guidance and motivation. Creating new vision, systems and institutionalizing new approaches. Enhancing intellectual stimulation and inspirational communication. Supportive leadership and personal recognition.	A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the two scales in column three measuring this variable.	Interval	Quantitative	Parametric	Regression

Objective	Variable	Indicators	Measurements	Measurement scales	Research Approach	Type of analysis	Techniques for Analysis
		Providing high ideal for moral and ethical conduct. **Transactional leadership** Guiding and monitoring employees in the direction of established goals, clarifying role and task requirement. Limited or no empowerment. Use of conventional reward and punishment to gain compliance. Shirking supervisory duties.		Interval	Quantitative	Parametric	Regression
To examine the extent to which organizational culture influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	**Organizational culture**	**Bureaucratic culture** Power oriented and orderliness. Hierarchical and established structure regulated from within. **Supportive culture** Collaborative people orientation and sociability. Encouraging leadership and personal freedoms. Equitable, safe and trusting **Innovative culture** Risk taking, creativity, innovation and result oriented Stimulating and challenging Enterprise and growth	A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the three scales in column three measuring this variable.	Interval Interval	Quantitative Quantitative	Parametric Parametric	Regression Regression

Objective	Variable	Indicators	Measurements	Measurement scales	Research Approach	Type of analysis	Techniques for Analysis
		oriented Unique products and services					
To establish the extent to which organizational staff capacity influences the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	Staff capacity	Level of training in ICT Usefulness of E-ProMlS training	A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the two scales in column three measuring this variable.	Interval Interval	Quantitative Quantitative	Parametric Parametric	Regression Regression
To examine the moderating effect of availability of Information Communication Technology on the influence of organizational internal contextual factors on implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	Moderating Variable- ICT infrastructure	Desktop computers Laptop computers Internet connectivity Data storage devices Digital cameras Mobile network Electricity Standby generator /solar Energy	A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the eight scales in column three measuring this variable.	Interval	Quantitative	Parametric	Regression

Objective	Variable	Indicators	Measurements	Measurement scales	Research Approach	Type of analysis	Techniques for Analysis
To examine the Mediating influence of staff attitude on the influence of organizational internal contextual factors on implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	Staff attitude	**Perceived usefulness.** Improves quality Greater control Accomplish tasks quickly Supports critical aspects Improves performance Enhances effectiveness Easier to do job Increases productivity Overall useful **Perceived ease of use** Awkward to use Difficult to learn Use is often frustrating Find it easy to get it to do what I want Rigid and inflexible to use Easy to remember how to use Takes a lot of mental effort Clear and understandable to use Takes effort to be skillful Overall easy to use	A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the two scales in column three measuring this variable.	Interval Interval	Quantitative Quantitative	Parametric Parametric	Regression Regression
Dependent variable	Implementation of E-ProM IS	Registered on e-ProMIS platform Number of projects uploaded into the system Frequency of uploading data	A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the five scales in column three	Interval Interval	Quantitative	Parametric Parametric	Correlation Descriptive analysis Regression

Objective	Variable	Indicators	Measurements	Measurement scales	Research Approach	Type of analysis	Techniques for Analysis
		Use e-Pr0MIS internally Challenges and suggestions for improvement of implementation of e-ProMIS	measuring this variable.	Open-ended questions	Qualitative	Non Parametric	Descriptive analysis

CHAPTER FOUR
DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents the findings of the study as defined in the methodology chapter, gives an interpretation and discussion of the findings. The study set out to establish the influence of organisational internal context on the implementation of electronic project monitoring information system in public tertiary institution in Kenya. The chapter is divided into sections as follows: Section 4.2 presents the response rate of the study. Section 4.3 presents background of respondents based on gender, age, level of education and position held at the institutions. Section 4.4 presents test of assumptions. Section 4.5 presents analysis of the dependent variable which was implementation of e-ProMIS. Section 4.6 presents analysis of the influence of each of the independent variables on the dependent variable as stated in the objectives of the study. For each of the seven research objectives, descriptive analysis was first done by use of arithmetic mean and standard deviation followed by correlation analysis using Pearson's Product Correlation. Research hypotheses were tested using F-test in regression analysis. Discussions were done for each objective based on the analysis and interpretation of descriptive and inferential data. The independent variables of the study were organisational strategy, organisational structure, organisational leadership, organisational culture and staff capacity. The availability of ICT infrastructure was used as moderating variable while staff attitude a mediating variable.

4.2 Response Rate

Questionnaires were administered to a sample of 210 from 35 tertiary institutions out of which 162 from 30 tertiary institutions were filled and returned forming a response rate of 71%. Suander et al. (2003) posited that above 50% response rate is reasonable for statistical generalization. This was considered to be representative sample for further analysis. The response is higher than those of similar studies conducted by Omari (2012) who carried a study in public state corporations in Kenya and had a response rate of 48% and Nganga (2014) who carried a study in Government Ministries in Kenya and had a response rate of 61.3%. The response rate is almost close to Ibua (2014) who carried out a study in Public Universities in Kenya and had a response rate of 72%.

4.3 Background of the Respondents

This section gives the background of the respondents according to gender, age, level of education, position held in the institution. Background of respondents was informed by the items in the research instruments used in the study. This was meant to check whether the respondents were normally distributed.

4.3.1 Distribution of the Respondents by gender

Respondents were requested to indicate their gender. The findings are represented in Table 4.1.

Table 4.1: Gender distribution of Respondents

Gender	Frequency	Percentage
Male	113	69.75
Female	49	30.25
Total	**162**	**100**

The research findings in Table 4.1 indicate that 69.75% of the respondents were male while 30.25% of the respondents were female. These findings show that the tertiary institutions in Kenya have adhered to the constitutional requirement of having at least 30% of employees as either gender.

4.3.2 Distribution of the Respondents by Age

Age distribution was got by requesting respondents to indicate their age in years. Age was classified into six categories. The responses were as shown in Table 4.2.

Table 4.2: Distribution of Respondents by Age

Age bracket	Frequency	Percentage
26-30 years	3	1.85
31-35 years	15	9.26
36-40 years	28	17.28
41-45 years	43	26.54
46-50 years	38	23.47
51 and above	35	21.60
Total	**162**	**100.0**

The research findings in Table 4.2 indicate that 1.85% of the respondents were between 21-30 years, 9.26% were between 31-35 years, 17.28% were between 36-40 years, 26.54% were between 41-45 years, 23.47% were between 46–50 years and 21.60% were 51 year and above. These findings show that majority of the employees in Tertiary Institutions in Kenya are above 40 years hence experienced in their work.

4.3.3 Distribution of the Respondents by Level of Education

Respondents were requested to indicate their level of education. The findings are presented in Table 4.3.

Table 4.3: Distribution of Respondents by Level of Education

Level of Education	Frequency	Percentage
Masters	77	47.53
Bachelor's degree	5	3.09
Diploma	48	29.63
Certificate	26	16.05
Secondary	1	0.62
Higher National Diploma	4	2.46
Post Graduate Diploma in Education	1	0.62
Total	**162**	**100.0**

The research finding in Table 4.3 indicate that 47.53% of the respondents had Master's degree, 3.09 had Bachelor's degree, 29.63% had Diploma, 16.05% had Certificate, 0.62% had Secondary level of education and Post Graduate Diploma in education while 2.46% had National Higher Diploma. These findings showed that majority of the staff in tertiary institutions in Kenya have Diploma and above level of education and therefore adequately qualified.

4.3.4 Distribution of the Respondents by Position held at the Institution

The respondents were requested to indicate the position they held in the institution. The responses are shown in Table 4.4.

Table 4.4: Distribution of Respondents by Position Held in the Institution

Position	Frequency	Percentage
Deputy Principal	21	12.96
Head of Department	123	75.93
Tutors	9	5.56
Registrar	8	4.94
Industrial Liaison Officer	1	0.62
Total	**162**	**100.00**

The research findings in Table 4.4 indicate that 12.92% of the respondents were Deputy Principals, 75.93% were Heads of Department, 5.56% were Tutors, 4.94% were Registrars and 0.62% was industrial Liaison Officers. These findings show that the respondents were normally distributed to various positions in the tertiary institutions. Heads of department were the majority because of the number of departments in the tertiary institutions. Most of the tertiary institutions had one Deputy Principal and one Registrar.

4.4 Tests of Assumptions and Analysis of Likert Type of Data

This section shows how tests of normality and multicollinearity were carried out. It also includes a description on analysis of Likert type of data. Test of normality was conducted using Kolmogorov-Smirnov test statistics (KS-test) and Shapiro-Wilk test (SW-test). KS-test belongs to the Supremum class of EDF statistics and this class of statistics is based on the largest vertical difference between the hypothesized and empirical distribution (Rizali & Wah, 2011). This is meant to test if data follows or does not follow a specified distribution. While testing for normality, the null hypothesis was that the sample population was not normal. Shapiro-Wilk test was used to countercheck the validity of the normality results from the KS-test statistics. This test is able to detect departures from normality due to either skewness or kurtosis or both (Rizali & Wah 2011). While testing whether a population is normal using SW-test, the null hypothesis is rejected if the value of W is too small. The value of W should lie between zero and one whereby small values of W lead to the rejection of normality whereas a value of one indicates normality of the data Rizali & Wah (2011). The results of the KS- test and SW-test are shown in Table 4.5.

Table 4.5: Results of Kolmogorov-Smirnov and Shapiro-Wilk tests

		Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
a)	Organizational Strategy	.133	162	.002	.894	162	.084
b)	Organizational structure	.207	162	.001	.843	162	.065
c)	Organizational Leadership	.186	162	.002	.873	162	.070
d)	Organizational Culture	.080	162	.003	.980	162	.120
e)	Staff capacity	.186	162	.001	.826	162	.071
f)	Staff attitude	.138	162	.000	.924	162	.060
g)	Availability of ICT infrastructure	.094	162	.001	.947	162	.063
h)	e-ProMIS implementation	.061	162	.003	.871	162	.081

Results in Table 4.5 indicate that in all the variables under investigation, $p< 0.05$ and therefore the null hypothesis was rejected and concluded that the sample was picked from a normal population. The SW- test statistics for the study variables were between .826 and .980 hence the null hypothesis that the population was not normal was rejected. It was therefore concluded that the sample population was normally distributed.

The variables of the study were further subjected to multicolinearity testing using Variance Inflation Factor (VIF) and Tolerance Tests in the regression analysis. The values of Variance Inflation Factor (VIF) ranged from 1.00 to 4.6 which are within the criteria set by Meyers (1990), who suggest that VIF should be less than 10. The tolerance value was between 0.217 and 0.941 which was within Menard's (1995) criteria, who suggested that tolerance value of less than 0.1 can infer multicollinearity. Further, referring to the rule of thumb by Garson (2008), none of the independent variables had a correlation of more than 0.8, which suggested that there was no multicolinearity. Garson (2008) posited that inter-correlation among variables of more than 0.8 indicates a possible problem of multicolinearity.

4.4.1 Analysis of Likert- Type Data

Eight sections of the research questionnaire had five scales Likert-type of items. Researchers have assumed that Likert-type data have equidistant so that parametric methods of data analysis are used (Lantz, 2013). Carifio and Racco (2007) indicates that when using a five point Likert scale the following is the scoring; To a very great extent (VGE) 4.2<VGE<5.0; To a great extent (GE) 3.4<GE<4.2; To a moderate extent (ME) 2.6<ME<3.4; To a little extent (LE) 1.8<LE<2.6 and To a very little extent (VLE) 1.0<VLE<1.8. The scale gives equidistant of 0.8. This weighting criterion was followed in data analysis of Likert-type of data in this study. The same scale was used successfully used by Nganga (2014).

4.5 Analysis of Implementation of Electronic Project Monitoring Information System

Implementation of e-ProMIS was identified in this study as the dependent variable. Institutional registration on the e-ProMIS platform, uploading of projects into the e-ProMIS, frequency of uploading data into e-ProMIS, sensitization of members of staff, monitoring of implementation and internal use of e-ProMIS to generate project data were identified as indicators of implementation of e-ProMIS. Respondents were given seven items rated on a five point Likert scale ranging from: To a very little extent (VLE); To a little extent (LE); To a moderate extent (ME); To a great extent (GE) and To a very great extent (VGE) from which to choose. The findings are presented in Table 4.6 and Table 4.7.

Table 4.6: Frequencies and Percentages for Implementation of e-ProMIS in Public Tertiary Institutions in Kenya

Statement	VLE F (%)	LE F (%)	ME F (%)	GE F (%)	VGE F (%)	Total F (%)
a) Our institution is registered into the e-ProMIS platform	6 (3.7)	0 (0)	0 (0)	0 (0)	156 (96.3)	162 (100)
b) Projects constructed in our institution since 2010 have been uploaded into e-ProMIS	6 (3.7)	123 (76.0)	33 (20.3)	0 (0)	0 (0)	162 (100)
c) We frequently upload our projects into e-ProMIS	6 (3.7)	121 (74.7)	35 (21.6)	0 (0)	0 (0)	162 (100)
d) Members of staff have been sensitized on use of e-ProMIS	6 (3.7)	115 (71.0)	30 (18.5)	11 (6.8)	0 (0)	162 (100)
e) Members of staff are involved in uploading data into e-ProMIS	6 (3.7)	104 (64.2)	32 (19.8)	20 (12.3)	0 (0)	162 (100)
f) We monitor implementation of e-ProMIS in our institution	15 (9.3)	100 (61.7)	42 (25.9)	5 (3.1)	0 (0)	162 (100)
g) In our institution e-ProMIS is used to generate project reports	20 (12.3)	91 (56.2)	51 (31.4)	0 (0)	0 (0)	162 (100)

The research findings in Table 4.6 show that 96.3% of the respondents indicated that to a very great extent their institutions were registered into the e-ProMIS platform, 76% indicated that to a less extent projects constructed in their institutions since 2010 had been uploaded into the e-ProMIS, 74.7% indicated that to a less extent they frequently uploaded their projects into the e-ProMIS, 71.0% indicated that to a less extent members of staff were sensitized on the use of e-ProMIS, 64.7% indicated that to a less extent members of staff were involved in uploading data into e-ProMIS, 61.7% indicated that to a less extent they monitor implementation of e-ProMIS in their institutions and 56.2% indicated that to a less extent e-ProMIS was used to generate project reports in their institutions. These research findings show that despite of the registration of majority of public tertiary institutions to the e-ProMIS platform, other indicators of implementation of e-ProMIS are to a little extent.

Table 4.7: Means and Standard Deviations for Implementation of e-ProMIS in Public Tertiary Institutions in Kenya

Statement	n	Min	Max	Mean	SD
h) Our institution is registered into the e-ProMIS platform	162	1.00	5.00	4.85	0.76
i) Projects constructed in our institution since 2010 have been uploaded into e-ProMIS	162	1.00	3.00	2.17	0.46
j) We frequently upload our projects into e-ProMIS	162	1.00	3.00	2.18	0.47
k) Members of staff have been sensitized on use of e-ProMIS	162	1.00	4.00	2.28	0.64
l) Members of staff are involved in uploading data into e-ProMIS	162	1.00	4.00	2.41	0.75
m) We monitor implementation of e-ProMIS in our institution	162	1.00	4.00	2.23	0.65
n) In our institution e-ProMIS is used to generate project reports	162	1.00	3.00	2.19	0.64
Composite implementation mean	**162**	**1.00**	**3.29**	**2.61**	**0.37**

The research findings in Table 4.7 show that the mean score for the seven statements used to measure implementation of e-ProMIS was 2.61 and standard deviation of 0.37. This shows that to a moderate extent public tertiary institutions have implemented e-ProMIS in the institutions. To a very great extent (M=4.85, SD=0.75) tertiary institution are registered into the e-ProMIS platform but to a very little extent (M=2.17, SD=0.46) projects constructed in the institution since 2010 have been uploaded into e-ProMIS. The findings also indicated that frequency of uploading projects into e-ProMIS was to a little extent (M=2.18, SD=0.47), sensitization of members of staff on use of e-ProMIS was done to a little extent while involvement of members of staff in uploading data into e-ProMIS was also to a little extent (M=2.41, SD=0.75). Further monitoring

implementation of e-ProMIS in the institution was done to a little extent (M=2.23, SD=0.65) and internal use of e-ProMIS to generate project reports was to a little extent (M=2.19, SD=0.63). The results imply that whereas most of the public tertiary institutions are registered on the e-ProMIS platform, other indicators of implementation such as uploading data into the system, frequency of uploading and internal utilisation of e-ProMIS are indicative of low level of implementation.

4.6 Analysis of Influence of Organisational Strategy on Implementation of e-ProMIS

In this section descriptive and inferential statistics of the influences of organisational strategy on implementation of e-ProMIS is presented. Organisational Strategy was measured using Miles and Snow (1978) typology of defender, prospector and reactor.

4.6.1 Descriptive Analysis of Influence of Organizational Strategy on Implementation of e-ProMIS

This section presents data analysis and findings on the indicators of organisational strategy comprising of means and standard deviations.

4.6.1.1 Prospector Strategy

The respondents were requested to indicate the extent to which their institutions utilised prospector strategy. They were given four items rated on a five point Likert scale ranging from: To a very little extent (VLE); To a little extent (LE); To a moderate extent (ME); To a great extent (GE) and To a very great extent (VGE) from which to choose. The findings are presented in Table 4.8 and Table 4.9.

Table 4.8: Frequencies and Percentages for Prospector Strategy

Statement	VLE F (%)	LE F (%)	ME F (%)	GE F (%)	VGE F (%)	Total F (%)
a) The institution redefines its service priorities	32 (19.8)	91 (56.2)	28 (17.3)	10 (6.2)	1 (0.6)	162 (100)
b) The institution is fast to identify new modes of delivery	26 (16.0)	68 (42.0)	61 (37.7)	6 (3.7)	1 (0.6)	162 (100)
c) Searching for new opportunities for service delivery is the institution's major part of its overall strategy	32 (19.8)	76 (46.9)	47 (29.0)	5 (3.1)	2 (1.2)	162 (100)
d) The institution changes its focus to new areas of service provision	24 (14.8)	66 (40.7)	56 (34.6)	13 (8.0)	3 (1.9)	162 (100)

The research findings on Table 4.8 show that majority of the respondents indicated that to a little extent the institutions redefine their service priorities (56.2%), the institutions are fast to identify new modes of service delivery (42.0%), searching for new opportunities for service delivery is the institutions' major part of overall strategy (42.0%) and the institutions change their focus to new areas of service provision (40.7%). These research findings show that majority of the public tertiary institutions in Kenya follow the prospector strategy to little extent.

Table 4.9: Means and Standard Deviations for Prospector Strategy

Statement	n	Min	Max	M	SD
a) The institution redefines its service priorities	162	1.00	5.00	2.12	0.81
b) The institution is fast to identify new modes of delivery	162	1.00	5.00	2.31	0.81
c) Searching for new opportunities for service delivery is a the institution's major part of its overall strategy	162	1.00	5.00	2.19	0.83
d) The institution changes its focus to new areas of service provision	162	1.00	5.00	2.41	0.90
Extent to which prospector strategy was utilised				**2.26**	**0.68**

The research findings in Table 4.9 indicate that tertiary institutions were to a little extent (M=2.12, SD=0.81) continually redefining their service priorities, sought to be the first to identify new modes of service delivery (M=2.31, SD=0.81 and seeking for new opportunities was a major part of their overall strategy (M=2.19, SD=0.83). To a moderate extent (M=2.41, SD=0.90) tertiary institutions often changed their focus to new areas of service provision. In overall, the surveyed institutions utilised to a little extent (M=2.26, SD=0.68) the prospector strategy. This implies that tertiary institutions drive change and uncertainty in the market place only to little extent. They neither improve their services and products frequently nor strive to be the first entrants in the market.

4.6.1.2 Defender Strategy

The respondents were requested to indicate the extent to which their institutions utilised defender strategy. They were given eight items rated on a five point Likert scale ranging from: To a very little extent (VLE); To a little extent (LE); To a moderate extent (ME);

To a great extent (GE) and To a very great extent (VGE) from which to choose. The responses are presented in Table 4.10 and Table 4.11

Table 4.10: Frequencies and Percentages for Defender Strategy

Statement	VLE F (%)	LE F (%)	ME F (%)	GE F (%)	VGE F (%)	Total F (%)
a) The institution is not quick at developing new products and services	11 (6.8)	35 (21.6)	75 (46.3)	31 (19.1)	10 (6.2)	162 (100)
b) The institution seeks a balance between stable and changing service scope	15 (9.3)	53 (32.7)	70 (43.2)	23 (14.2)	1 (0.6)	162 (6.8)
c) The institution watch competitors closely for new ideas and adopt those which appear to be most promising	35 (21.6)	56 (34.6)	50 (30.9)	19 (11.7)	2 (1.2)	162 (100)
d) The institution maintains stable service priorities	42 (25.9)	66 (40.7)	45 (27.8)	9 (5.6)	0 (0)	162 (100)
e) The institution emphasizes efficiency of service provision	53 (32.7)	74 (45.7)	30 (18.5)	5 (3.1)	0 (0)	162 (100)
f) The institution focuses on core activities	78 (48.1)	60 (37.0)	21 (13.0)	2 (1.2)	1 (0.6)	162 (100)
g) The institution has no definite service priorities	16 (9.9)	11 (6.8)	57 (35.2)	36 (22.2)	42 (29.9)	162 (100)

The research findings on Table 4.10 show that majority of the respondents indicated that to a very little extent the public tertiary institution in Kenya focus on core activities (48.1%). Majority of respondents also indicated that to a little extent the institutions watch competitors closely for new ideas and adopt those which appear to be most promising (34.6%), they maintain stable service priorities (40.7%) and they emphasize efficiency of service provision (45.7%). To a moderate extent the institutions are not quick at developing new products and services (46.3%), seeking a balance between stable and changing service scope (43.2%), emphasizing efficiency of service provision (45.7%) and they have no definite service priorities (35.2%).

Table 4.11: Means and Standard Deviations for Defender Strategy

Statement	n	Min	Max	M	SD
a) The institution is not quick at developing new products and services	162	1.00	5.00	2.96	0.97
b) The institution seeks a balance between stable and changing service scope	162	1.00	5.00	2.64	0.86
c) The institution watch competitors closely for new ideas and adopt those which appear to be most promising	162	1.00	5.00	2.36	0.99
d) The institution maintains stable service priorities	162	1.00	4.00	2.13	0.86
e) The institution emphasizes efficiency of service provision	162	1.00	4.00	1.92	0.80
f) The institution focuses on core activities	162	1.00	5.00	1.69	0.79
g) The institution has no definite service priorities	162	1.00	5.00	3.48	1.23
Extent to which defender strategy was utilised				**2.46**	**0.56**

The research findings in Table 4.11 indicate that tertiary institutions to a moderate extent (M=2.96, SD=0.97) were not quick at developing new products and services and that they sought a balance between stable and changing service scope (M=2.64, SD=0.86). It was further established that tertiary institutions to a little extent (M=2.36, SD=0.99) watched their competitors closely for new ideas and adopted those which appeared to be most promising. Further to a little extent (M=2.13, SD=0.86) they sought to maintain stable service priorities, emphasize efficiency of service provision (M=1.92, SD=0.80) and focused on their core activities (M=1.69, SD=0.79). The findings also indicate that tertiary institutions to a great extent (M=3.48, SD=1.23) had no definite service priorities. In overall, the surveyed institutions utilised the defender strategy to a little extent (M=2.46, SD=0.56). These findings indicate that tertiary institutions prefer more stable and secure product and service areas only to a little extent.

4.6.1.3 Reactor Strategy

The respondents were requested to indicate the extent to which their institutions utilised reactor strategy. They were given four items rated on a five point Likert scale ranging from: To a very little extent (VLE); To a little extent (LE); To a moderate extent (ME);

To a great extent (GE) and To a very great extent (VGE) from which to choose. The findings are presented in Table 4.12 and Table 4.13.

Table 4.12: Frequencies and Percentages for Reactor Strategy

Statement	VLE F (%)	LE F (%)	ME F (%)	GE F (%)	VGE F (%)	Total F (%)
a) The institution changes provision only when under pressure from external agencies	19 (11.7)	38 (23.5)	38 (23.5)	47 (29.0)	20 (12.3)	162 (100)
b) The institution gives little attention to new opportunities for service delivery	21 (13.0)	28 (17.3)	24 (14.8)	39 (24.1)	50 (30.9)	162 (100)
c) The institution explores new opportunities only when under pressure from external agencies	18 (11.1)	21 (13.0)	30 (18.5)	39 (24.1)	54 (33.3)	162 (100)
d) The institution has no consistent response to external pressures	18 (11.1)	20 (12.3)	20 (12.3)	61 (37.7)	43 (26.5)	162 (100)

The research findings on Table 4.12 show that most of the respondents from the public tertiary institutions in Kenya indicated that to a great extent their institutions change provision only when under pressure from external agencies (29.0%) and have no consistent response to external pressures (37.7%). To a great extent the institutions give little attention to new opportunities for service delivery (30.9%) and explore new opportunities only when under pressure from external agencies (33.3%).

Table 4.13: Means and Standard Deviations for Reactor Strategy

Statement	n	Min	Max	M	SD
a) The institution changes provision only when under pressure from external agencies	162	1.00	5.00	3.07	1.22
b) The institution gives little attention to new opportunities for service delivery	162	1.00	5.00	3.43	1.41
c) The institution explores new opportunities only when under pressure from external agencies	162	1.00	5.00	3.56	1.36
d) The institution has no consistent response to external pressures	162	1.00	5.00	3.56	1.30
Extent to which reactor strategy was utilised				**3.40**	**1.13**

The research findings in Table 4.13 indicate that tertiary institutions to a moderate extent (M=3.07, SD=1.22) changed provision only when under pressure from external agencies and services and gave little attention to new opportunities for service delivery to a great extent (M=3.43, SD=1.41 also. It was further established that they to a great extent (M=3.56, SD=1.36) explored new opportunities only when under pressure from external agencies and had no consistent response to external pressures (M=3.56, SD=1.30). In overall, the surveyed institutions utilised to a moderate extent (M=3.40, SD=1.13) the reactor strategy. Institutions using reactor strategy lack a systematic strategy, operational driver and in most cases will exhibit inconsistent and unstable actions.

4.6.1.4 Overall analysis on Organisational Strategy

The overall findings on the extent to which tertiary institutions utilise organisational strategy are shown in Table 4:14.

Table 4.14: Means and Standard Deviations for Organisational Strategy

Type of strategy	n	Min	Max	M	SD
a) Prospector Strategy	162	1.00	5.00	2.26	0.68
b) Defender Strategy	162	1.00	3.86	2.46	0.56
c) Reactor Strategy	162	1.00	5.00	3.40	1.13
Overall Strategy	**162**	**1.00**	**4.00**	**2.66**	**0.55**

The research findings in Table 4.14 indicate that tertiary institutions to a moderate extent (M=2.66, SD=0.55) utilized strategy in their activities. Majority of them apply reactor strategy (M=3.40, SD=1.13) followed by defender strategy (M=2.46, SD=0.56) and a few of them used prospector strategy (M=2.26, SD=0.68). Reactor which is the dominant strategy utilised in tertiary institutions is not a stable strategy since institutions that adopt it are not able to respond effectively to the environment. They adapt only when environmental pressures force them to do so.

4.6.1.5 Correlational Analysis of Organisational Strategy and Implementation of e-ProMIS

Correlational analysis using Pearson's Product Moment technique was done to determine the relationship between indicators of organisational strategy and implementation of e-ProMIS. It was meant to identify the strength and direction of the association between the indicators of organisational strategy and implementation of e-ProMIS. Values of correlation coefficient range from -1 and +1. A correlation coefficient of +1 indicates that the two variables are perfectly and positively related in a linear sense, while -1 shows that the two variables are perfectly related but in a negative linear sense. Correlation coefficient (r) ranging from 0.81 to 1.0 is very strong; from 0.61 to 0.80 is strong; from 0.41 to 0.60 is moderate; from 0.21 to 0.40 is weak; and from 0.00 to 0.20 indicate no relationship (Hair et al., 2006). The results are summarized in Table 4.15.

Table 4:15 Correlation Matrix for organisational strategy and implementation of e-ProMIS

		Prospectors Strategy	**Defender Strategy**	**Reactor Strategy**	**Composite organizational Strategy**
Implementation of e-ProMIS	Pearson Correlation	.298**	.469**	.322**	.497**
	Sig. (2-tailed	.000	.000	.000	.000
	N	162	162	162	162

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

The correlation results in Table 4:15 indicate positive and significant coefficients between the indicators of organisational strategy and implementation of e-ProMIS. Defender

strategy had a moderate and significant relationship with implementation of e-ProMIS (r=469, p-value<0.01), reactor and prospector strategies both had a weak and significant relationship with e-ProMIS having (r=322, p-value<0.01) and (r=298, p-value<0.01) respectively. Composite organisational strategy had moderate and significant relationship (r=497, p-value<0.01) with implementation of e-ProMIS.

4.6.1.6 Inferential Analysis of Influence of Organisational Strategy on Implementation of e-ProMIS

The first objective of the study was to establish the influence of organisational strategy on implementation of Electronic Project Monitoring Information System (e-ProMIS). The literature and empirical evidence had suggested that organisational strategy would be associated with implementation of e-ProMIS. Implementation of e-ProMIS was the dependent variable in the study and had seven indicators namely: registration in the e-ProMIS platform; uploading of projects into the system; frequency of uploading projects; internal use of e-ProMIS to generate project reports, monitoring of implementation, sensitization and involvement staff members in the implementation. A composite index for implementation of e-ProMIS was computed.

Organisational strategy was the independent variable in the study. Organisational strategy under study was categorized into three types of strategies namely prospector, defender and reactor strategies. Data was collected using 15 items, each item consisted of a statement that was measured on a five point Likert-type scale. Composite index for each of the three indicators was computed and used in testing the hypothesis. To satisfy the first objective, the following hypothesis was tested using simple linear regression model.

Hypothesis one

H_0: Organisational strategy has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

H_1: Organisational strategy has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

The null hypothesis was tested using the following linear regression model:

$y = a + \beta_1 X_1 + e$ where;

y= Implementation of E-ProMIS

a=constant

β_1= Beta coefficient

X_1= Strategy

e= error term

The results are presented in Table 4.16.

Table 4.16: Regression Results of Influence of Organisational strategy on implementation of e-ProMIS

Model	Unstandardized Coefficients		Standardized Coefficients	t	P-Value
	B	Std. Error	Beta		
Constant	1.693	.127		13.376	.000
Prospector Strategy	.014	.049	.025	.280	.780
Defender strategy	.265	.061	.397	4.313	.000
Reactor Strategy	.071	.023	.217	3.049	.003

Predictors: (Constant), Reactor Strategy, Defender Strategy, Prospectors Strategy

Dependent Variable: Implementation of e-ProMIS

R= 0.513

R square=0.263

F(3,158)=18.840 at level of significance p = 0.000<0.05

The study findings in Table 4.16 show that r is equal to 0.513, indicating that organisational strategy has a moderately strong influence on implementation of e-ProMIS. The value of R squared is 0.263, indicating that organisational strategy explains 26.3% of the variation in the implementation of electronic project monitoring information system in public tertiary institutions in Kenya. The β coefficient of prospector strategy is 0.025, that of defender strategy is 0.397 and reactor strategy is 0.217. These results indicate that prospector strategy had no statistically significant influence on the implementation of e-ProMIS (β=0.025, t=0.280, p=0.780>0.05). Comparing the p values, it can be noted that the p values for defender strategy (p=0.000) and reactor strategy (p=0.003) are both statistically significant. The β values imply that one unit change in

implementation of e-ProMIS is associated with 2.5% changes in prospector strategy, 39.7% changes in defender strategy and 21.7% changes in reactor strategy.

The overall F–statistic was (3,158) =18.840 with p = 0.000<0.05 suggesting that there was a statistically significant relationship between organisational strategy and implementation of e-ProMIS in public tertiary institutions in Kenya. Based on the research findings we reject the null hypothesis which stated that organisational strategy has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya and conclude that organisational strategy has a statistically significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

Using the statistical findings the regression model can be substituted as follows;

$$y= 1.693+0.025P+0.397D+0.217R$$

Where y=Implementation of e-ProMIS

P= Prospector strategy

D= Defender strategy

R=Reactor strategy

Although studies relating to the influence of organisational strategy on implementation of ICT based technologies seem to be limited, there are many studies based on influence of organisational strategy on organisational performance. Considering that implementation of ICT based technologies is part of organisation's performance reference can be made on these studies. A study by Kandie (2009) found a positive and significant relationship between organisational strategy and performance of SMEs in Kenya. Further, a study by Ibua (2014) confirmed that organisational strategy is an important component in increasing organisational performance. The findings of this study also concur with Ronoh (2013) who found that organisational strategy had positive effect on the performance of large scale manufacturing firms in Kenya.

The findings from this study also confirm the results of a study on e-Government strategies in developed and developing countries by Chen et al., (2006) who posited the key role played by organisational strategy in ensuring successful implementation of e-

Government systems of which e-ProMIS falls. They further noted the necessity for an organisation or government to adopt a strategy that fits well with its current position in terms of their critical success factors. Owing to the importance of organisational strategy in implementation of ICT based technologies, Gichoya (2005) in his study on factors affecting the successful implementation of ICT projects in government advices that strategic readiness assessment should be conducted and used as an information gathering mechanism for government as they plan their strategies for ICT implementation.

4.6.2 Analysis of Influence of Organisational Structure on Implementation of e-ProMIS

In this section descriptive and inferential statistics of the influences of organisational structure on implementation of e-ProMIS is presented. Organisational Structure was one of the independent variables in this study. Factors relating to the organization structure are important in implementation of e-ProMIS. A proper organisational structure alignment is seen as a necessary precursor to the successful implementation of any system. This study sought to examine how organisational structure influences the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. Formalization, complexity and centralization were taken as the indicators of organisational structure.

4.6.2.1 Formalisation structure

Respondents were requested to indicate how often formalisation structure was applied in their institutions. They were given three items rated on a five point Likert scale ranging from: Never (NV); Rarely (RR); Occasionally (OC); Frequently (FR) and Always (AL) from which to choose. The findings are presented in Table 4.17 and Table 4:18.

Table 4.17: Frequencies and Percentages for Formalisation Structure

Statement	NV F (%)	RR F (%)	OC F (%)	FR F (%)	AL F (%)	Total F (%)
a) Codified job descriptions are used by our organization.	19 (11.7)	18 (11.7)	99 (61.1)	24 (14.8)	2 (1.2)	162 (100)
b) Rules and procedures govern decisions and working relationship.	7 (4.3)	46 (28.4)	71 (43.8)	32 (19.8)	6 (3.7)	162 (100)
c) Ranges of variation are allowed within jobs in our organization.	21 (13.0)	45 (27.8)	62 (38.3)	28 (17.3)	6 (3.7)	162 (100)

The research findings in Table 4.17 show that respondents from public tertiary institutions in Kenya indicated that they occasionally used codified job descriptions (61.1%), rules and procedures govern decisions and working relationship (43.8%) and ranges of variation are allowed within jobs in the institutions (38.3%). These findings imply that the tertiary institutions utilized formalization structure occasionally.

Table 4.18: Means and Standard Deviations for Formalization Structure

Statement	n	Min	Max	M	SD
a) Codified job descriptions are used by our organization.	162	1.00	5.00	2.83	0.87
b) Rules and procedures govern decisions and working relationship.	162	1.00	5.00	2.90	0.89
c) Ranges of variation are allowed within jobs in our organization.	161	1.00	5.00	2.71	1.02
Extent to which formalisation structure was utilised				**2.81**	**0.63**

The research findings in Table 4.18 indicate that tertiary institutions occasionally (M=2.83, SD=0.87) have codified job descriptions used by their organisations and that rules and procedures govern decisions and working relationship in their institutions occasionally (M=2.90, SD=0.83). It was further established from that ranges of variation were allowed within jobs in the institutions occasionally (M=2.71, SD=1.02). In overall, the surveyed institutions utilised the formalisation structure occasionally (M=2.81, SD=0.63). This implies that public tertiary institutions occasionally have explicit job descriptions, lots of organisational rules and clearly defined procedures covering process.

4.6.2.2 Complexity structure

Respondents were requested to indicate how often complexity structure was applied in their institutions. They were given two items rated on a five point Likert scale ranging from: Never (NV); Rarely (RR); Occasionally (OC); Frequently (FR) and Always (AL) from which to choose. The results are presented in Table 4.19 and Table 4.20.

Table 4.19: Frequencies and Percentages for Complexity Structure

Statement	NV F (%)	RR F (%)	OC F (%)	FR F (%)	AL F (%)	Total F (%)
a) Specialists are employed by our organization	20 (12.3)	31 (19.1)	71 (43.8)	39 (24.1)	1 (0.6)	162 (100)
b) The level of training required for our lowest level managers and each succeeding level varied considerably	9 (5.6)	23 (14.2)	86 (53.1)	39 (24.1)	5 (3.1)	162 (100)

The research findings in Table 4.19 show that in public tertiary institutions in Kenya occasionally specialists are employed by our organization (43.8%) and the level of training required for the lowest level managers and each succeeding level varied considerably (53.1%).

Table 4.20: Means and Standard Deviations for Complexity Structure

Statement	n	Min	Max	M	SD
a) Specialists are employed by our organization	162	1.00	5.00	2.81	0.96
b) The level of training required for our lowest level managers and each succeeding level varied considerably	162	1.00	5.00	3.05	0.86
Extent to which complexity structure was utilised				**2.93**	**0.75**

The research findings in Table 4.20 indicated that specialists were employed by the organisations occasionally (M=2.81, SD=0.96) and that the level of training required for their lowest level managers and each succeeding level varied considerably (M=3.05, SD=0.86). In overall, the surveyed institutions occasionally (M=3.29, SD=0.24) utilised complexity structure.

4.6.2.3 Centralisation structure

Respondents were requested to indicate how often centralization structure was applied in their institutions. They were given two items rated on a five point Likert scale ranging from: Never (NV); Rarely (RR); Occasionally (OC); Frequently (FR) and Always (AL) from which to choose. The results are presented in Table 4.21 and Table 4.22.

Table 4.21: Frequencies and Percentages for Centralisation Structure

Statement	NV F (%)	RR F (%)	OC F (%)	FR F (%)	AL F (%)	Total F (%)
a) Lines of communication and responsibilities are clear	12 (7.4)	6 (3.7)	81 (50)	53 (32.7)	10 (6.2)	162 (100)
b) Decisions are made by top managers and delegated to middle and low level managers	17 (10.5)	13 (8.0)	66 (40.7)	65 (40.1)	1 (0.6)	162 (100)

The research findings in Table 4.21 indicated that in public tertiary institutions in Kenya occasionally the lines of communication and responsibilities are clear (50%) and decisions are made by top managers and delegated to middle and low level managers occasionally (40.7%).

Table 4.22: Means and Standard Deviations for centralisation structure

Statement	n	Min	Max	M	SD
a) Lines of communication and responsibilities are clear	162	1.00	5.00	3.27	0.92
b) Decisions are made by top managers and delegated to middle and low level managers	162	1.00	5.00	3.12	0.96
Extent to which centralisation structure was utilised				**3.19**	**0.88**

The research findings in Table 4.22 indicate that in public tertiary institutions in Kenya occasionally (M=3.27, SD=0.92) have clear lines of communication and responsibilities decisions were made by top managers and delegated to middle and low level managers (M=3.12, SD=0.96). In overall, the surveyed institutions occasionally (M=3.19, SD=0.88) utilised the centralisation structure.

4.6.2.4 Overall analysis on Organisational Structure

The overall findings on the extent to which tertiary institutions utilise organisational structure are shown in Table 4:23.

Table 4.23: Means and Standard Deviations organisational structure

Type of Structure	n	Min	Max	M	SD
a) Formalization structure	162	1.00	4.00	2.81	0.63
b) Complexity structure	162	1.00	4.50	2.93	0.75
c) Centralization structure	162	1.00	4.50	3.19	0.88
Organizational structure	**162**			**2.96**	**0.54**

Table 4.23 shows that the overall mean for organisational structure in public tertiary institutions was 2.66, and standard deviation of 0.55. Majority of them applied centralisation structure (M=3.19, SD=0.88) followed by complexity structure (M=2.93, SD=0.75) and formalization structure (M=2.81, SD=0.63). This implies that in most tertiary institutions the right to make decisions and evaluate activities is concentrated to the top level hence little flexibility for staff at the lower level.

4.6.2.5 Correlational Analysis of Organisational Structure and Implementation of e-ProMIS

Correlational analysis using Pearson's Product Moment technique was done to determine the relationship between indicators of organisational structure and implementation of e-ProMIS. It was meant to identify the strength and direction of the association between the indicators of organisational structure and implementation of e-ProMIS. The results are summarized in Table 4.24.

Table 4:24 Correlation Matrix for organisational Structure and implementation of e-ProMIS

		Formalization structure	Complexity structure	Centralization structure	Composite organizational structure
Implementation of e-ProMIS	Pearson Correlation	.417**	.372**	.428**	.554**
	Sig. (2-tailed	.000	.000	.000	.000
	N	162	162	162	162

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

The correlation results in Table 4:24 indicate positive and significant coefficients between the indicators of organisational structure and implementation of e-ProMIS. Centralization structure and Formalization structure had a moderate and significant relationship with implementation of e-ProMIS (r=428, p-value<0.01) and (r=417, p-value<0.01) respectively. Complexity structure had a weak and significant relationship with e-ProMIS (r=372, p-value<0.01). Composite organisational structure had moderate and significant relationship (r=497, p-value<0.01) with implementation of e-ProMIS.

4.6.2.6 Inferential Analysis of Organisational Structure on Implementation of e-ProMIS in Public Tertiary Institutions in Kenya

The second objective of the study was to establish the influence of organisational structure on implementation of Electronic Project Monitoring Information System (e-ProMIS). The literature and empirical evidence had suggested that organisational structure would be associated with implementation of e-ProMIS. Organisational structure was an independent variable in the study and was measured using indicators on three types of organisational structure namely; centralization, complexity and formalisation. Data was collected using 7 items, each consisting of a statement that was measured on a five point Likert-type scale. Composite index for each of the three types of organisational structure were computed and used in testing the hypothesis. To satisfy the second objective, the following hypothesis was tested using simple linear regression model.

Hypothesis two

H_0: Organisational structure has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

H_1: Organisational structure has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

The null hypothesis was tested using the following linear regression model:

$y = a + \beta_2 X_2 + e$

y= Implementation of E-ProMIS

a=constant

β_2= Beta coefficient

X_2= organizational structure

e= error term

The results are presented in Table 4.25.

Table 4.25: Regression Results of Influence of Organisational structure on implementation of e-ProMIS

Model	Unstandardized Coefficients		Standardized Coefficients	t	P-Value
	B	Std. Error	Beta		
(Constant)	1.503	.135		11.105	.000
Formalization structure	.139	.044	.238	3.167	.002
Complexity structure	.101	.036	.204	2.777	.006
Centralization structure	.133	.029	.317	4.574	.000

Predictors: (Constant), Formalisation structure, complexity structure, centralization structure

Dependent Variable: Implementation of e-ProMIS

R= 0.558

R square=0.311

F(3,158)=23.760 at level of significance p = 0.000<0.05

The study findings on Table 4.25 indicate that r is equal to 0.558 meaning that organisational structure has a strong influence on implementation of e-ProMIS. The value of R squared is 0.311, indicating that organisational structure explains 31.1% of the variation in the implementation of electronic project monitoring information system in public tertiary institutions in Kenya. The β coefficient of formalisation structure is 0.238 that of complexity structure is 0.204 while for centralisation structure is 0.317. These

results indicate that all the three types of structure: formalization; complexity; and centralization were statistically significant with coefficients (β=0.238, t=3.167, p=0.002<0.05), (β=0.204, t=2.777, p=0.006<0.05) and (β=0.317, t=4.574, p=0.000<0.05) respectively. Specifically one unit change in implementation of e-ProMIS is associated with 23.8% changes in formalization structure, 24.4% changes in complexity structure and 31.7% change in centralization structure.

The overall F statistics was (3,158) = 23.760 at level of significance p = 0.000<0.05 suggesting that there was a statistically significant relationship between organisational structure and implementation of electronic project monitoring information system in public tertiary institutions in Kenya. Based on the research findings we reject the null hypothesis which stated that organisational structure has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya and conclude that organisational structure has a statistically significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

. Using the statistical findings the regression model can be substituted as follows;

y= 1.503+0.238F+0.204C+0.317CE

Where y=Implementation of e-ProMIS

F= Formalization structure

C= Complexity structure

CE= Centralization structure

Findings from this study agree with Pimtong et al (2012) that organisational structures whether mechanistic or organic in nature have a relationship with organisational performance. Findings from this study also support Ouchi (1977) who argued that organisational structure is not isomorphic with its control system but that structure is related to control. In a bid to reinforce Pimtong et al. (2012), Ronoh (2013) confirmed that organisational structure has a moderate effect on both human resource strategic orientation and performance of an organisation. He further found out that a mechanistic management system was appropriate to stable conditions whereas an organismic form is appropriate to changing conditions.

Findings from this study agree with those of Kandie (2009) that centralization was the most widely used type of structure. However this study found complexity to come second followed by formalization. It further reinforces Kandie (2009) findings that structure has a powerful influence on performance of an organisation including in the implementation of ICT based technologies like e-ProMIS. This implies that for effective implementation of e-ProMIS and other ICT based systems an appropriate organisational structure is necessary. The new system should be properly aligned to the structure in the organisation.

4.6.3 Analysis of Influence of Organisational Leadership on Implementation of e-ProMIS

In this section descriptive and inferential statistics of the influences of organisational leadership on implementation of e-ProMIS is presented. This study sought to establish the extent to which organisational leadership influences the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. Transformational and transactional leadership styles were focused on in this study.

4.6.3.1 Transformational Leadership Style

Transformational leadership style was measured using twenty items in the research instrument that were measured on a five point Likert scale ranging from Never (NV); Rarely (RR); Occasionally (OC); Frequently (FR); and Always (AL). Respondents were requested to choose the most appropriate response to their manager's leadership style. The results are presented in Table 4.26 and Table 4.27.

Table 4.26: Frequencies and Percentages for Transformational Leadership Style

Statement	NV F (%)	RR F (%)	OC F (%)	FR F (%)	AL F (%)	Total F (%)
a) Re-examines critical assumptions to ensure appropriate action	21 (12.9)	32 (19.8)	86 (53.1)	17 (10.5)	6 (3.7)	162 (100)
b) Seeks differing perspectives when solving problems	27 (15.4)	72 (44.4)	49 (30.2)	10 (6.2)	4 (2.4)	162 (16.7)
c) Gets me to look at problems from many different angles	25 (15.4)	70 (43.2)	60 (37.0)	2 (1.2)	5 (3.1)	162 (100)
d) Suggests new ways of looking at how we do our jobs	22 (13.6)	50 (30.9)	81 (50.0)	4 (2.4)	5 (3.1)	162 (100)
e) Talks optimistically about the future	39 (24.1)	65 (40.1)	53 (32.7)	3 (1.8)	2 (1.2)	162 (100)
f) Talks enthusiastically about what needs to the accomplished	27 (16.7)	48 (29.6)	81 (50.0)	4 (2.4)	2 (1.2	162 (100)
g) Articulates a compelling vision of the future	20 (12.3)	30 (18.5)	102 (63)	3 (18.5)	7 (4.3)	162 (100)
h) Expresses his/her confidence that we will achieve our goals.	27 (16.7)	47 (29.0)	82 (50.6)	5 (30.8)	1 (0.6)	162 (100)
i) Instils pride in being associated with him/her	26 (16.0)	33 (20.4)	87 (53.7)	15 (9.3)	1 (0.6)	162 (100)
j) Goes beyond own self-interest for the good of the group.	26 (16.0)	69 (42.6)	55 (34.0)	9 (5.6)	3 (1.9)	162 (100)
k) His /her actions build my respect for him/her	25 (15.4)	67 (41.4)	63 (38.9)	6 (3.7)	0.6 (3.1)	162 (100)
l) Displays a sense of power and confidence	25 (15.4)	46 (28.4)	77 (47.5)	9 (5.6)	5.6 (3.1)	162 (15.4)
m) Spend time teaching and coaching us.	37 (22.8)	62 (38.3)	56 (34.6)	7 (4.3)	0 (0)	162 (100)
n) Treats me as an individual rather than just a member of a group.	24 (14.8)	54 (33.3)	76 (46.9)	5 (3.1)	3 (1.9)	162 (100)
o) Treats each of us as individuals with different needs abilities and inspirations.	25 (15.4)	41 (25.3)	86 (53.1)	7 (4.3)	3 (1.9)	162 (100)
p) Focuses on me for developing my strengths.	26 (16.0)	46 (28.4)	83 (51.2)	6 (3.7)	1 (0.6)	162 (100)
q) Talks to us about his/her most important values and beliefs	26 (16.0)	55 (34.0)	66 (40.7)	12 (7.4)	3 (1.9)	162 (100)
r) Specifies the importance of having a strong sense of purpose	15 (9.3)	44 (27.2)	87 (53.7)	9 (5.6)	7 (4.3)	162 (100)
s) Considers the moral and ethical consequences of his/her decisions	15 (9.3)	41 (25.3)	79 (48.8)	15 (9.3)	12 (7.4)	162 (100)
t) Emphasizes the importance of having a collective sense of mission	15 (9.3)	36 (22.2)	69 (42.6)	26 (16.0)	16 (9.9)	162 (100)

The findings in Table 4.26 show that respondents indicated that managers in public tertiary institutions rarely seek differing perspectives when solving problems (44.4%), get staff to look at problems from many different angles (43.2%), talk optimistically about the future (40.1%), go beyond own self-interest for the good of the group (42.6%), their

actions build respect for themselves (41.4%), spend time teaching and coaching staff (38.3%).

The respondents further indicated that managers in their institutions occasionally Re-examines critical assumptions to ensure appropriate action (53.1%), suggests new ways of looking at how staff do their jobs (50.0%), talk enthusiastically about what needs to the accomplished (50.0%), articulates a compelling vision of the future (63%), express confidence that staff will achieve their goals (50.6%), instil pride in staff being associated with them (53.7%), display a sense of power and confidence (47.5%), treat members of staff as an individuals rather than just members of a group (46.9%), treat each of them as individuals with different needs abilities and inspirations (53.1%), focus on the individual member of staff for developing their strengths (51.2%), talk to them about his/her most important values and beliefs (40.7%), specify the importance of having a strong sense of purpose (53.7%), considers the moral and ethical consequences of their decisions (48.8%) and emphasize the importance of having a collective sense of mission (42.6 %).

Table 4.27: Means and Standard Deviations for Transformational Leadership

Statement	n	Min	Max	Mean	SD
a) Re-examines critical assumptions to ensure appropriate action	161	1.00	5.00	2.58	0.89
b) Seeks differing perspectives when solving problems	162	1.00	5.00	2.26	0.81
c) Gets me to look at problems from many different angles	162	1.00	5.00	2.20	0.71
d) Suggests new ways of looking at how we do our jobs	162	1.00	5.00	2.36	0.75
e) Talks optimistically about the future	162	1.00	5.00	2.07	0.77
f) Talks enthusiastically about what needs to the accomplished	162	1.00	5.00	2.36	0.75
g) Articulates a compelling vision of the future	161	1.00	5.00	2.46	0.77
h) Expresses his/her confidence that we will achieve our goals.	162	1.00	5.00	2.38	0.76
i) Instils pride in being associated with him/her	162	1.00	5.00	2.58	0.89
j) Goes beyond own self-interest for the good of the group.	162	1.00	5.00	2.35	0.88
k) His /her actions build my respect for him/her	162	1.00	5.00	2.33	0.80
l) Displays a sense of power and confidence	162	1.00	5.00	2.52	0.93
m) Spend time teaching and coaching us.	162	1.00	4.00	2.20	084
n) Treats me as an individual rather than just a member of a group.	162	1.00	5.00	2.44	0.85
o) Treats each of us as individuals with different needs abilities and inspirations.	162	1.00	5.00	2.52	0.87
p) Focuses on me for developing my strengths.	162	1.00	5.00	2.44	0.83
q) Talks to us about his/her most important values and beliefs	161	1.00	5.00	2.45	0.91
r) Specifies the importance of having a strong sense of purpose	162	1.00	5.00	2.69	0.88
s) Considers the moral and ethical consequences of his/her decisions	162	1.00	5.00	2.80	0.99
t) Emphasizes the importance of having a collective sense of mission	162	1.00	5.00	2.95	1.07
Composite for Transformational Leadership	**162**			**2.45**	**0.59**

The findings in Table 4.27 show that the leaders rarely (M=2.57, SD=0.89) re-examined critical assumptions to ensure appropriate action they and frequently (M=2.26, SD=0.81) sought differing perspectives when solving problems and rarely (M=2.20, SD=0.71) got employees to look at problems from many different angles. Additionally, respondents

indicated that their leaders rarely) suggested new ways of looking at how they did their jobs(M=2.36, SD=0.75; talked optimistically about the future (M=2.07, SD=0.77); talked enthusiastically about what needs to be accomplished (M=2.36, SD=0.75); articulated a compelling vision of the future (M=2.46, SD=0.77); expressed confidence in achieving goals (M=2.38, SD=0.76); instilled pride in the staff in being associated with them(M=2.58, SD=0.89) and went beyond self-interest for the good of the group (M=2.35, SD=0.88)

Leaders in tertiary institutions rarely frequently (M=2.33, SD=0.80) their actions built respect in their employees; rarely (M=2.52, SD=0.93) displayed a sense of power and confidence, spent time teaching and coaching employees while occasionally treated them as individuals rather than just members of the group (M=2.20, SD=0.84); treated each of the individuals with different needs, abilities and inspirations (M=2.44, SD=0.88); focused on developing staff strength (M=2.52, SD=0.87) and talked to the staff about their most important values and beliefs(M=2.44, SD=0.83). Leaders in tertiary institutions occasionally (M=2.69, SD=0.88) specified the importance of having a strong sense of purpose; considered the moral and ethical consequences of their decisions (M=2.80, SD=0.99) and emphasized the importance of having a collective sense of mission (M=2.95, SD=1.07). Overall the research findings indicate that leaders in tertiary institutions rarely (M=2.45, SD=0.60) used transformational leadership style.

4.6.3.2 Transactional Leadership Style

Transactional leadership style was measured using eight items in the research instruments that were measured on a five point Likert scale ranging from Never (NV); Rarely (RR); Occasionally (OC); Frequently (FR); and Always (AL). Respondents were requested to choose the most appropriate response to their manager's leadership style. The responses are presented in Table 4.28.

Table 4.28: Frequencies and Percentages for Transactional Leadership Style

Statement	NV F (%)	RR F (%)	OC F (%)	FR F (%)	AL F (%)	Total F (%)
a) Makes clear what I can expect to receive if any performance meets designated standards.	15 (9.3)	37 (22.8)	68 (42.0)	36 (22.2)	6 (3.7)	162 (100)
b) Expresses his/her satisfaction when I do a good job	11 (6.8)	39 (24.1)	66 (40.7)	38 (23.5)	8 (4.9)	162 (100)
c) Focuses attention on irregularities, mistakes, exception and deviations from standards.	12 (7.4)	46 (28.4)	61 (37.7)	35 (21.6)	8 (4.9)	162 (100)
d) Spends his/her time looking to put out fires	12 (7.4)	57 (35.2)	60 (37)	28 (17.3)	5 (3.1)	162 (100)
e) Keeps tracks of my mistakes	16 (9.9)	52 (32.1)	60 (37.0)	26 (16.0)	8 (4.9)	162 (%)
f) Directs his/her attention toward failure to meet standards	23 (14.2)	42 (25.9)	66 (40.7)	24 (14.8)	7 (4.3)	162 (100)
g) Things have to go wrong for him/her to take action.	35 (21.6)	54 (33.3)	46 (28.4)	22 (13.6)	5 (3.1)	162 (100)
h) Shows he/she is a firm believer in if it isn't broke, don't fix it	30 (18.5)	41 (25.3)	54 (33.3)	29 (17.9)	8 (4.9)	162 (100)

The findings in Table 4.28 show that majority of the respondents from public tertiary institutions in Kenya indicated that managers in their institutions rarely things have to go wrong for him/her to take action (33.3%). They further indicated that occasionally mangers in their institutions make clear what members of staff can expect to receive if any performance meets designated standards (42.0) %, express his/her satisfaction when members of staff do a good job (40.7%), focus attention on irregularities, mistakes, exception and deviations from standards (37.7%), spend his/her time looking to put out fires (37%), keep tracks of mistakes by members of staff (37.0%), direct attention toward failure to meet standards (40.7%) and show he/she is a firm believer in "if it isn't broke, don't fix it" (33.3).

Table 4.29: Means and standard deviations of transactional leadership style

Statement	n	Min	Max	Mean	SD
a) Makes clear what I can expect to receive if any performance meets designated standards.	162	1.00	5.00	2.88	0.98
b) Expresses his/her satisfaction when I do a good job	162	1.00	5.00	2.96	0.97
c) Focuses attention on irregularities, mistakes, exception and deviations from standards.	162	1.00	5.00	2.88	0.99
d) Spends his/her time looking to put out fires	162	1.00	5.00	2.73	0.94
e) Keeps tracks of my mistakes	161	1.00	5.00	2.74	1.01
f) Directs his/her attention toward failure to meet standards	162	1.00	5.00	2.69	1.03
g) Things have to go wrong for him/her to take action.	162	1.00	5.00	2.43	1.07
h) Shows he/she is a firm believer in if it isn't broke, don't fix it	162	1.00	5.00	2.65	1.12
Extent to which transactional leadership style was utilised				**3.17**	**1.10**

The findings in Table 4.29 show that the leaders in tertiary institutions occasionally (M=2.88, SD=0.98) made clear what the staff expect to receive if any performance met the designate standards; expressed their satisfaction when staff did a good job (M=2.96, SD=0.97); focussed attention on irregularities, mistakes, exceptions and deviations from standards(M=2.88, SD=1.99); spent their time looking to put out fires (M=2.73, SD=0.94); keep track of the employees mistakes (M=2.74, SD=1.01) and directed their attention toward failure to meet standards (M=2.65, SD=1.03). The findings further indicated that the leaders rarely (M=2.43, SD=1.07) things had to go wrong for them to take action while occasionally (M=2.65, SD=1.12) showed that he/she was a firm believer in "if it is not broken don't fix it". Overall the research findings indicate the leaders in tertiary institutions used transactional leadership style occasionally (M=2.75, SD=0.66).

4.6.3.3 Overall analysis on Organisational Leadership

The overall findings on the extent to which tertiary institutions utilise organisational leadership are shown in Table 4:30.

Table 4.30: Means and Standard Deviations Organisational Leadership

Type of Leadership	n	Min	Max	M	SD
a) Transformational Leadership	162	1.00	5.00	2.45	0.59
b) Transactional leadership	162	1.00	5.00	2.75	0.66
Organizational Leadership	**162**			**2.53**	**0.51**

According to findings in Table 4.30 the overall mean for organisational leadership in public tertiary institutions was 2.53, and standard deviation of 0.51. The most dominant leadership style was transactional leadership (M=2.75, SD=0.66) while others used transformational leadership (M=2.45, SD=0.59). This implies that transactional leadership style was being used frequently while transactional leadership was being used occasionally.

4.6.3.4 Correlational Analysis of Organisational Leadership and Implementation of e-ProMIS

Correlational analysis using Pearson's Product Moment technique was done to determine the relationship between indicators of organisational leadership and implementation of e-ProMIS. It was meant to identify the strength and direction of the association between the indicators of organisational leadership and implementation of e-ProMIS. The results are summarized in Table 4.31.

Table 4:31 Correlation Matrix for organisational Leadership and implementation of e-ProMIS

		Transformational Leadership	Transactional leadership	Composite Organizational Leadership
Implementation of e-ProMIS	Pearson Correlation	.421**	.453**	.515**
	Sig. (2-tailed	.000	.000	.000
	N	162	162	162

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

The correlation results in Table 4:31 indicate positive and significant coefficients between the indicators of organisational leadership and implementation of e-ProMIS. Both transformational and transactional leadership styles had a moderate and significant relationship with implementation of e-ProMIS (r=421, p-value<0.01) and (r=453, p-value<0.01) respectively. Composite organisational leadership also had a moderate and significant relationship (r=515, p-value<0.01) with implementation of e-ProMIS.

4.6.3.5 Inferential Analysis of Organisational Leadership on Implementation of e-ProMIS in Public Tertiary Institutions in Kenya

The third objective of the study was to establish the influence of organisational leadership on implementation of Electronic Project Monitoring Information System (e-ProMIS). The literature and empirical evidence had suggested that organisational leadership would be associated with implementation of e-ProMIS. Organisational leadership was an independent variable in the study and was measured using indicators of two styles of leadership namely; transformational and transactional leadership. Data was collected using 28 items, each consisting of a statement that was measured on a five point Likert-type scale. Composite index for the two styles of leadership were computed and used in testing the hypothesis. To satisfy the third objective, the following hypothesis was tested using simple linear regression model.

Hypothesis Three

H_0: Organisational leadership has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

H_1: Organisational leadership has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

The null hypothesis was tested using the following linear regression model:

$y = a + \beta_3 X_3 + e$

y= Implementation of E-ProMIS

a=constant

β_3= Beta coefficient

X_3= Leadership

e= error term

The results are presented in Table 4.32.

Table 4.32: Regression Results of Influence of Organisational Leadership on implementation of e-ProMIS

Model	Unstandardized Coefficients		Standardized Coefficients	t	P-Value
	B	Std. Error	Beta		
(Constant)	1.575	.130		12.144	.000
Transformational Leadership	.197	.044	.315	4.524	.000
Transactional Leadership	.203	.039	.360	5.075	.000

Predictors: (Constant), Transformational Leadership, Transactional Leadership

Dependent Variable: Implementation of e-ProMIS

R= 0.544

R square=0.296

F(2,159)=33.410 at level of significance p = 0.000<0.05

The study findings in Table 4.32 r is equal to 0.544 indicating that organisational leadership has a strong influence on implementation of e-ProMIS. The value of R squared is 0.296, indicating that organisational leadership explains 29.6% of the variation in the implementation of electronic project monitoring information system in public tertiary institutions in Kenya. The β coefficient of transformational leadership style is 0.315 while that of transactional leadership style is 0.360. These results indicate that transactional

leadership had a stronger influence than transformational leadership on implementation of e-ProMIS. The findings for both transactional and transformational leadership styles were statistically significant with coefficients ((β=0.315, t=4.524, p=0.000<0.05) and (β=0.360, t=5.075, p=0.000<0.05) respectively. This implies that every unit change in implementation of e-ProMIS is associated with 31.5% changes in transformational leadership and 36.0% changes in transactional leadership.

The overall F statistics was (2,159) =33.410 at level of significance p = 0.000<0.05 suggesting that there was a statistically significant relationship between organisational leadership and implementation of electronic project monitoring information system in public tertiary institutions in Kenya. Based on the research findings we reject the null hypothesis that organisational leadership has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya and conclude that organisational leadership has a statistically significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

. Using the statistical findings the regression model can be substituted as follows;

$$y= 1.575+0.315T+0.360TR$$

Where y=Implementation of e-ProMIS

T= Transformational Leadership

TR= Transactional Leadership

Transactional leadership style was found to have a higher influence than transformational leadership style on the implementation of e-ProMIS. This is confirmed by many researchers such as Kifle & Low (2009) who in their study on e-Government implementation and leadership, noted that leadership helps ensure a strong focus while directing, pushing or encouraging the public sector constituents to move forward and hasten the implementation process. They further posited that strong leadership and power is needed to settle any arising issues or conflicts during the implementation process. Effective leadership has also been pointed out by Gichoya (2005) as one of the critical factors influencing the successful implementation of ICT projects in government. The findings also support the argument of Lau (2004) that many e-government advances to date have been driven by the enthusiasm of individuals and individual agencies. He

further noted that leadership is an essential ingredient of e-government in order to motivate and break down barriers to change.

Kandie (2009) reported a positive relationship between leadership and performance which mainly depends on leadership style. Although Kandie (2009) reported that transformational leadership was more prevalent than transactional leadership, results from this study are different as transactional leadership was reported to be more used than transformational leadership. The difference could be explained by the difference of institutions used in the study as Kandie (2009) focussed on Small and Medium Enterprises which are in the private sector while this study focussed on tertiary institutions which are in the public sector. Further, Ndiritu (2012) in her study on effects of principal's transformational leadership on academic performance reported that exemplary leadership has been linked to academic performance. This portrays that the strong influence of leadership on all spheres of society cannot be over emphasized. Ibua (2014) posited that organisational leadership provided significant moderating effect on empowerment and organisational performance.

4.6.4 Analysis of Influence of Organisational Culture on Implementation of e-ProMIS

In this section descriptive and inferential statistics of the influences of organisational culture on implementation of e-ProMIS is presented. Organisational Culture was measured using bureaucratic, supportive and innovative culture as indicators.

4.6.4.1 Bureaucratic culture

Bureaucratic culture was measured by requesting respondents to indicate the extent to which their institutions utilised bureaucratic culture. They were given five items rated on a five point Likert scale ranging from: To a very great extent (VGE); To a great extent (GE); To a moderate extent (ME); To a little extent (LE) and To a very little extent (VLE) from which to choose. The findings are presented in Table 4.33 and Table 4.34.

Table 4.33: Frequencies and Percentages for Bureaucratic Culture

Statement	VLE F (%)	LE F (%)	ME F (%)	GE F (%)	VGE F (%)	Total F (%)
a) Power is centralized at the top	42 (27.8)	40 (24.7)	49 (30.2)	17 (10.5)	11 (6.8)	162 (100)
b) Managers are decision makers and decisions are made autocratically	26 (16.0)	42 (25.9)	49 (30.2)	28 (17.3)	17 (10.5)	162 (100)
c) Managers do not delegate important task	16 (9.9)	42 (25.9)	37 (22.8)	33 (20.4)	34 (21.0)	162 (100)
d) Managers coordinate, organize and monitor people and processes	36 (22.2)	68 (42.0)	36 (22.2)	16 (9.9)	6 (3.7)	162 (100)
e) Jobs are highly standardized and formalized with clearly defined rules, procedures and work processes that are strictly followed.	37 (22.8)	49 (30.2)	48 (29.6)	17 (10.5)	11 (6.8)	162 (100)

The research findings in Table 4.33 show that majority of the respondents indicated that in the public tertiary institutions in Kenya to a little extent managers do not delegate important task (25.9%), managers coordinate, organize and monitor people and processes (42.0%) and that Jobs are highly standardized and formalized with clearly defined rules, procedures and work processes that are strictly followed (30.2%). They also indicated that to a moderate extent power is centralized at the top (30.2%) and managers are decision makers and decisions are made autocratically (30.2%).

Table 4.34: Means and Standard Deviations of Bureaucratic Culture

Statement	N	Min	Max	M	SD
a) Power is centralized at the top	162	1.00	5.00	2.44	1.20
b) Managers are decision makers and decisions are made autocratically	162	1.00	5.00	2.80	1.21
c) Managers do not delegate important task	162	1.00	5.00	3.17	1.30
d) Managers coordinate, organize and monitor people and processes	162	1.00	5.00	2.31	1.04
e) Jobs are highly standardized and formalized with clearly defined rules, procedures and work processes that are strictly followed.	162	1.00	5.00	2.48	1.15
Bureaucratic culture	**162**	**1.00**	**5.00**	**2.64**	**0.72**

The research findings in Table 4.34 indicate that in tertiary institutions to a little extent (M=2.44, SD=1.20) power was centralized at the top; to a moderate extent (M=2.80, SD=1.21) managers were decision makers, decisions were made autocratically and did not delegate important task (M=3.17, SD=1.30). To a little extent (M=2.31, SD=1.04) managers coordinated, organized, monitored people and processes and that jobs were highly standardized and formalized with clearly defined rules, procedures and work processes that were strictly followed (M=2.48, SD=1.15). On the overall tertiary institutions practiced a bureaucratic culture to a moderate extent (M=2.64, SD=0.72).

4.6.4.2 Supportive culture

Supportive culture was measured by providing respondents with statements rated on a five point Likert scale ranging from: To a very great extent (VGE); To a great extent (GE); To a moderate extent (ME); To a little extent (LE) and To a very little extent (VLE) from which to choose. The findings are presented in Table 4.35 and Table 4.36.

Table 4.35: Frequencies and Percentages for Supportive Culture

Statement	VLE F (%)	LE F (%)	ME F (%)	GE F (%)	VGE F (%)	Total F (%)
a) Stability performance and efficient operations are long term goals	39 (24.1)	66 (40.7)	40 (24.7)	11 (6.8)	6 (3.7)	162 (100)
b) Success means dependable delivery, smooth scheduling and low cost	37 (22.8)	65 (40.1)	40 (24.7)	15 (9.3)	5 (3.1)	162 (100)
c) The focus is on internal integration, stability, order and control	35 (21.6)	63 (38.9)	44 (27.2)	16 (9.9)	4 (2.5)	162 (100)
d) Power and decision making is decentralized	31 (19.1)	51 (31.5)	41 (25.3)	26 (16.0)	13 (8.0)	162 (100)
e) An open, safe and friendly working environment where teamwork, support participation and consensus is encouraged.	47 (29.0)	45 (27.8)	41 (25.3)	14 (8.6)	15 (9.3)	162 (100)
f) Leaders are mentors/parental heads, encouraging and sociable	38 (23.5)	44 (27.2)	52 (32.1)	14 (8.6)	14 (8.6)	162 (100)

The research findings in Table 4.35 show that majority of the respondents indicated that in public tertiary institutions to a very little extent an open, safe and friendly working environment where teamwork, support participation and consensus is encouraged (29.0

%). They also indicate that to a little extent stability performance and efficient operations are long term goals (40.7%), success means dependable delivery, smooth scheduling and low cost (40.1%), the focus is on internal integration, stability, order and control (38.9%), and power and decision making is decentralized (31.5%). To a moderate extent leaders are mentors/parental heads, encouraging and sociable (32.1%).

Table 4.36: Means and Standard Deviations of Supportive Culture

Statement	N	Min	Max	Mean	SD
a) Stability performance and efficient operations are long term goals	162	1.00	5.00	2.25	1.02
b) Success means dependable delivery, smooth scheduling and low cost	162	1.00	5.00	2.30	1.02
c) The focus is on internal integration, stability, order and control	162	1.00	5.00	2.33	1.00
d) Power and decision making is decentralized	162	1.00	5.00	2.62	1.20
e) An open, safe and friendly working environment where teamwork, support participation and consensus is encouraged.	162	1.00	5.00	2.41	1.25
f) Leaders are mentors/parental heads, encouraging and sociable	162	1.00	5.00	2.52	1.19
Supportive culture	**162**			**2.41**	**0.92**

The research findings in Table 4.36 indicate that in tertiary institutions to a little extent (M=2.25, SD=1.02) stability performance and efficient operations were long term goals, success meant dependable delivery, smooth scheduling and low cost (M=2.30, SD=1.02), the focus was on internal integration, stability, order and control (M=2.33, SD=1.00) and to a moderate extent (M=2.62, SD=1.20) power and decision making was decentralized To a little extent (M=2.41, SD=1.25) an open, safe and friendly working environment where teamwork, support participation and consensus was encouraged and leaders were mentors/parental heads, encouraging and sociable (M=2.52, SD=1.19). On the overall tertiary institutions practiced supportive culture only to a little extent (M=2.45, SD=1.09).

4.6.4.3 Innovative culture

Supportive culture was measured by providing respondents with statements rated on a five point Likert scale ranging from: To a very great extent (VGE); To a great extent

(GE); To a moderate extent (ME); To a little extent (LE) and To a very little extent (VLE) from which to choose. The findings are presented in Table 4.37 and Table 4.38.

Table 4.37: Frequencies and Percentages for Innovative Culture

Statement	VLE F (%)	LE F (%)	ME F (%)	GE F (%)	VGE F (%)	Total F (%)
a) Innovation, risk-taking and challenges are embraced and individual initiatives and freedoms are encouraged.	21 (13.0)	56 (34.6)	51 (31.5)	22 (13.6)	12 (7.4)	162 (100)
b) Commitment to experimentation and thinking differently.	21 (13.0)	43 (26.5)	57 (35.2)	28 (17.3)	13 (8.0)	162 (100)
c) The focus is to be on the leading edge/being an industry leader	27 (16.7)	57 (35.2)	49 (30.2)	23 (14.2)	6 (3.7)	162 (100)
d) The long-term emphasis is on empowerment, growth development and job security	27 (16.7)	55 (34.0)	52 (32.1)	23 (14.2)	5 (3.1)	162 (100)
e) Success means gaining unique and new products /services.	33 (20.4)	52 (32.1)	48 (29.6)	19 (11.7)	10 (6.2)	162 (100)

The research findings in Table 4.37 show that most of the respondents indicated that in public tertiary institutions in Kenya to a little extent innovation, risk-taking and challenges are embraced and individual initiatives and freedoms are encouraged (34.6%), the focus is to be on the leading edge/being an industry leader (35.2 %), the long-term emphasis is on empowerment, growth development and job security (32.1%) and success means gaining unique and new products /services (32.1 %).

Table 4.38: Means and Standard Deviations of Innovative Culture

Statement	N	Min	Max	M	SD
a) Innovation, risk-taking and challenges are embraced and individual initiatives and freedoms are encouraged.	162	1.00	5.00	2.68	1.10
b) Commitment to experimentation and thinking differently.	162	1.00	5.00	2.81	1.19
c) The focus is to be on the leading edge/being an industry leader	162	1.00	5.00	2.53	1.05
d) The long-term emphasis is on empowerment, growth development and job security	162	1.00	5.00	2.53	1.03
e) Success means gaining unique and new products /services.	162	1.00	5.00	2.51	1.13
Innovative Culture	**162**			**2.61**	**0.95**

The research findings in Table 4.38 indicate that in tertiary institutions in Kenya to a moderate extent (M=2.68, SD=1.10) innovation, risk-taking and challenges were embraced and individual initiatives and freedoms were encouraged and commitment to experimentation and thinking differently was encouraged to moderate extent (M=2.81, SD=1.12). To a little extent (M=2.53, SD=1.05) the focus was to be on the leading edge/being an industry leader while the long-term emphasis is on empowerment, growth development, job security was encouraged (M=2.53, SD=1.03) and that success means gaining unique and new products services (M=2.51, SD=1.13). In overall tertiary institutions practiced innovative culture to a moderate extent (M=2.61, SD=1.95).

4.6.4.4 Overall analysis on Organisational Culture

The overall findings on the type of organisational culture found in public tertiary institutions are shown in Table 4:39.

Table 4.39: Means and Standard Deviations Organisational Culture

Type of Culture	N	Min	Max	M	SD
Bureaucratic Culture	162	1.00	5.00	2.64	0.72
Supportive Culture	162	1.00	5.00	2.41	0.92
Innovative Culture	162	1.00	5.00	2.61	0.95
Organizational Culture	**162**			**2.54**	**0.69**

Findings in Table 4.39 show that the overall mean for organisational culture in public tertiary institutions was 2.54 and standard deviation of 0.69. Majority of them had bureaucratic culture (M=2.64, SD=0.72) followed by innovative culture (M=2.61, SD=0.95) and then supportive culture (M=2.41, SD=0.92). This implies that most of tertiary institutions had hierarchical compartmentalized organized systematically and had clear lines of responsibility and authority.

4.6.4.5 Correlational Analysis of Organisational Culture and Implementation of e-ProMIS

Correlational analysis using Pearson's Product Moment technique was done to determine the relationship between indicators of organisational culture and implementation of e-ProMIS. It was meant to identify the strength and direction of the association between the indicators of organisational culture and implementation of e-ProMIS. The correlational results are presented in Table 4.40.

Table 4:40 Correlation Matrix for organisational Culture and implementation of e-ProMIS

		Bureaucratic culture	**Supportive culture**	**Innovative Culture**	**Composite Organizational Culture**
Implementation of e-ProMIS	Pearson Correlation	.380**	.333**	.362**	.447**
	Sig. (2-tailed	.000	.000	.000	.000
	N	162	162	162	162

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

The correlation results in Table 4:40 indicate positive and significant coefficients between the indicators of organisational culture and implementation of e-ProMIS. Bureaucratic, supportive and innovative cultures had a moderate and significant relationship with implementation of e-ProMIS (r=380, p-value<0.01), (r=333, p-value<0.01) and (r=362, p-value<0.01) respectively. Complexity organizational culture had a moderate and significant relationship with e-ProMIS (r=372, p-value<0.01). Composite organisational structure had moderate and significant relationship (r=447, p-value<0.01) with implementation of e-ProMIS.

4.6.4.6 Inferential Analysis of Organisation Culture on Implementation of e-ProMIS

The fourth objective of the study was to establish the influence of organisational culture on implementation of Electronic Project Monitoring Information System (e-ProMIS). The literature and empirical evidence had suggested that organisational culture would be associated with implementation of e-ProMIS. Organisational culture was an independent variable in the study and was measured using indicators of three types of organizational culture namely bureaucratic, supportive and innovative culture. Data was collected using 16 items, each consisting of a statement that was measured on a five point Likert-type scale. Composite index for each of the three types of organisational culture were computed and used in testing the hypothesis. To satisfy the fourth objective, the following hypothesis was tested using simple linear regression model.

Hypothesis Four

H_0: Organisational culture has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

H_1: Organisational culture has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

The null hypothesis was tested using the following linear regression model:

$y = a + \beta_4 X_4 + e$

y= Implementation of E-ProMIS

a=constant

β_4= Beta coefficient

X_4= Organisational culture

e= error term

The results are presented in Table 4.41.

Table 4.41: Regression Results of Influence of Organisational culture on implementation of e-ProMIS

Model	Unstandardized Coefficients		Standardized Coefficients	t	P-Value
	B	Std. Error	Beta		
(Constant)	1.799	.155		15.642	.000
Bureaucratic Culture	.184	.036	.358	5.055	.000
Supportive Culture	-.026	.054	-.065	-.482	.630
Innovative Culture	.150	.052	.385	2.892	.004

Predictors: Bureaucratic culture, Supportive culture, Innovative culture

Dependent Variable: Implementation of e-ProMIS

R= 0.504

R square=0.254

F(3,158)=17.892 at level of significance p = 0.000<0.05

The study findings on Table 4.41 indicates that r is equal to 0.504 meaning that organisational culture has a strong influence on implementation of e-ProMIS. The value of R squared is 0.254 indicating that organisational culture explains 25.4% of the variation in the implementation of electronic project monitoring information system in public tertiary institutions in Kenya. The β coefficient of bureaucratic culture is 0.358, that of supportive culture is -0.065 and innovative culture is 0.385. Comparing the coefficients, it can be noted that bureaucratic culture (β=0.358, t=5.055, p=0.000<0.05) and innovative culture (β=0.385, t=2.892, p=0.004<0.05) are both statistically significant. Only supportive culture was statistically insignificant (β=-0.065, t=-0.482, p=0.630>0.05). The results imply that one unit change in implementation of e-ProMIS is explained by 35.8% changes in bureaucratic culture and 38.5% change in innovative culture. The β value of supportive culture is affected inversely (β= -0.065). This finding was surprising and contrary to what was expected. It was difficulty for the researcher to explain why supportive culture would be inversely affected by implementation of e-ProMIS. This could probably be due to an error which could not be possibly detected.

The overall F statistics (3,158) =17.892 at level of significance p = 0.000<0.05suggesting that there was a statistically significant relationship between organisational culture and

implementation of electronic project monitoring information system in public tertiary institutions in Kenya. Based on the research findings we reject the null hypothesis that organisational culture has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya and conclude that organisational culture has a statistically significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. Table 4.41 presents the estimates for coefficients of the model.

Using the statistical findings the regression model can be substituted as follows;

y= 1.799+0.358B+-0.065S+0.385I

Where y=Implementation of e-ProMIS

B= Bureaucratic culture

S= Supportive culture

I= Innovative culture

Past studies confirm that a key piece of organisational infrastructure for e-Government systems like e-ProMIS lies in changing internal government employee culture or the way that things are done in an organisation (Kamungo & Jain, 2011). Government institutions typically tend to exhibit strong cultures that can inhibit or facilitate the success of various initiatives including the e-government (Rainey & Steinbauer, 1999). Results from a study by Koskinen et al., (2010) showed the existence of a strong relationship between organisational culture and participation in decision making hence influencing how implementation of e- government strategies. This agrees with the argument of Lippeveld (2001) that the main issue in implementation of information systems is that they are managed and used by people who have certain beliefs, attitudes and practices and changing them takes time. The findings further agree with results from a study by Hadi (2004) in Malaysian government institutions that the implementation of information monitoring systems in government organisations is greatly influenced by the organisations' cultural dimensions. A study from Ibua (2014) established that performance of an organisation is influenced by organisational culture adopted by that organisation.

4.6.5 Analysis of Influence of Staff Capacity on Implementation of e-ProMIS

In this section descriptive and inferential statistics of the influence of staff capacity on implementation of e-ProMIS is presented. The study investigated staff capacity as an

independent variable. Indicators selected for staff capacity were ICT skills and training in the use of e-ProMIS. To measure the influence of staff capacity on implementation of e-ProMIS, respondents were requested to answer six items in the research instrument indicating the extent to which their skills in ICT and e-ProMIS training were relevant to implementation of e-ProMIS. The items were measured on a five point Likert scale ranging from: To a very great extent (VGE); To a great extent (GE); To a moderate extent (ME); To a little extent (LE) and To a very little extent (VLE). The findings are presented in Table 4.42 and Table 4.43.

Table 4.42: Frequencies and Percentages for Staff Capacity

Statement	VLE F (%)	LE F (%)	ME F (%)	GE F (%)	VGE F (%)	Total F (%)
Word processing	6 (3.7)	70 (43.2)	60 (37.0)	22 (13.6)	4 (2.5)	162 (100)
Spread sheet (Excel)	8 (4.9)	84 (51.8)	52 (32.1)	17 (10.5)	1 (0.6)	162 (100)
Presentation software	10 (6.2)	82 (50.6)	52 (32.1)	17 (10.5)	1 (0.6)	162 (100)
Data base	6 (3.7)	86 (53.1)	49 (30.2)	20 (12.3)	1 (0.6)	162 (100)
Use of internet	2 (1.2)	79 (48.8)	58 (35.8)	21 (13.0)	2 (1.2)	162 (100)
Skills got from e-ProMIS training	7 (4.3)	32 (19.8)	57 (35.2)	56 (34.6)	10 (6.2)	162 (100)

The research findings in Table 4.42 show that majority of respondents from public tertiary in Kenya indicated that staff capacity in word processing (43.2%), spread sheet (Excel) (51.8%), Presentation software (50.6%), data base (53.1%) and use of internet (48.8%)had to a little extent relevance to implementation of e-ProMIS. They also indicated that to a moderate extent skills got from e-ProMIS training (35.2%) were relevant to implementation of e-ProMIS.

Table 4.43: Means and Standard Deviations of staff capacity

	n	Min	Max	M	SD
Word processing	162	1.00	5.00	2.68	0.85
Spread sheet (Excel)	162	1.00	5.00	2.51	0.76
Presentation software	162	1.00	5.00	2.53	0.81
Data base	162	1.00	4.00	2.52	0.64
Use of internet	162	1.00	4.00	2.57	0.76
Skills got from e-ProMIS training	162	1.00	5.00	3.49	0.97
Staff capacity	**162**	**1.00**	**3.50**	**2.67**	**0.44**

The research findings in Table 4.43 indicates that respondents were neutral (M=2.68, SD=0.85) on the relevance of skills in word processing (Ms Word). The relevance of the following ICT skills was to a little extent; Spread sheet (Excel) (M=2.51, SD=0.76; Presentation software (power point) (M=2.53 SD=0.81); Data base (access) (M=2.52, SD=0.64) and Use of internet (M=2.57, SD=0.76). They however felt that skills got from e-ProMIS were relevant to a great extent (M=3.49, SD=0.97). This implies that the respondents considered training on the use of e-ProMIS as the most important skill needed. On the overall they were neutral on the relevance of staff capacity to implementation of e-ProMIS.

4.6.5.1 Correlational Analysis of Staff Capacity and Implementation of e-ProMIS

Correlational analysis using Pearson's Product Moment technique was done to determine the relationship between indicators of staff capacity and implementation of e-ProMIS. It was meant to identify the strength and direction of the association between the indicators of organisational culture and implementation of e-ProMIS. Table 4.44 summarizes the results.

Table 4:44 Correlation Matrix for Staff Capacity and implementation of e-ProMIS

		Word processing	Spread sheet	Presentation software	Data base	Use of internet	e-ProMIS training	Staff capacity
Implementation of e-ProMIS	Pearson Correlation	.365**	.311**	.394**	.391**	.290**	.403**	.655**
	Sig. (2-tailed	.000	.000	.000	.000	.000	.000	.000
	N	162	162	162	162	162	162	162

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

The correlation results in Table 4:44 indicate positive and significant coefficients between the indicators of staff capacity and implementation of e-ProMIS. All the indicators of staff capacity had a weak but statistically significant relationship with implementation of e-ProMIS. Staff capacity on word processing had (r=365, p-value<0.01); Spread sheet (r=311, p-value<0.01); presentation software (r=394, p-value<0.01); data base (r=391, p-value<0.01); Use of internet (r=290, p-value<0.01), and skills got from e-ProMIS training (r=403, p-value<0.01) respectively. Composite staff capacity had a strong and statistically significant relationship (r=655, p-value<0.01) with implementation of e-ProMIS.

4.6.5.2 Inferential Analysis of Organisational Staff Capacity on Implementation of e-ProMIS in Public Tertiary Institutions in Kenya

The fifth objective of the study was to establish the influence of organisational staff capacity on implementation of Electronic Project Monitoring Information System (e-ProMIS). The literature and empirical evidence had suggested that organisational staff capacity in ICT and e-ProMIS training would be associated with implementation of e-ProMIS. Organisational Staff capacity was an independent variable in the study and had two indicators namely level of ICT skills and e-ProMIS training. Data was collected using 7 items, each consisting of a statement that was measured on a five point Likert-type scale. Composite index for the two indicators was computed and used in testing the hypothesis. To satisfy the fifth objective, the following hypothesis was tested using simple linear regression model.

Hypothesis Five

H_0: Organisational Staff Capacity has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

H_1: Organisational Staff Capacity has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

The null hypothesis was tested using the following linear regression model:

$y= a + \beta_5 x_5 + e$

Where ;

y = Implementation of E-ProMIS

a= Constant

β_5 = Organizational staff capacity

e = error term

The results are presented in Table 4.45.

Table 4.45: Regression results of influence of staff capacity on implementation of e-ProMIS

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	P-Value
	B	Std. Error	Beta		
(Constant)	1.140	.136		8.356	.000
Staff capacity	.553	.050	.655	10.962	.000

Predictors: (Constant), ICT skills, e-ProMIS training

Dependent Variable: Implementation of e-ProMIS

R= 0.655

R square=0.429

F(1,160)=120.161 at level of significance p = 0.000<0.05

The study findings on Table 4.45 indicates that r is equal to 0.655, meaning that staff capacity has a strong influence on implementation of e-ProMIS. The value of R squared is 0.425, indicating that staff capacity explains 42.5% of the variation in the implementation of electronic project monitoring information system in public tertiary

institutions in Kenya. The β coefficient of staff capacity is 0.655. These results show that staff capacity had strong influence on implementation of e-ProMIS (β=0.655, t=10.962, p=0.000<0.05). The results imply that one unit change in the implementation of e-ProMIS is explained by 65.5% changes in staff capacity.

The F –statistic was (1,160) =120.161 at level of significance p = 0.000<0.05suggesting that there was a statistically significant relationship between staff capacity and implementation of electronic project monitoring information system in public tertiary institutions in Kenya. Based on the research findings we reject the null hypothesis that organisational staff capacity has no statistically significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya and conclude that organisational staff capacity has a statistically significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

Using the statistical findings the regression model can be substituted as follows;

y= 1.140+0.655S

Where y=Implementation of e-ProMIS

B= Staff capacity

The findings are consistent with those of previous studies that indicated positive and significant relationship between staff ICT capacity and implementation of electronic based technologies (Mutula & Brakel, 2007; Haug et al., 2011; Eze et al., 2012). Findings from Mutula & Brakel (2007) confirm that staff capacity on ICT skills was found to be antecedent of implementation of informational technology. The authors further allude to the fact effective training on the use of IT based technology has a strong direct effect on the implementation of information based technology. ICT skills and knowledge possessed by staff account for a significant variance in the implementation of e-ProMIS. Haug et al (2011) in their study reported a significant relationship between knowledge of staff and IT implementation. They further noted that ICT skills of employees are related to the ICT acquaintance and positively impact IT implementation. Technology competency and implementation of IT was reported to be positively related by Eze et al., (2012) in their study of Universities in Nigeria. Findings from a study by Mulwa (2012) reported that human resource capacity had little influence on the readiness to adopt e-learning by

secondary schools. However, the author noted that readiness to adopt e-learning based on the availability of adequate electronic equipment was positively influenced by teachers' training in ICT and ability to operate computers but influenced negatively by teachers' limited access to computers. This is taken to mean that ICT skills of the teachers were significant to readiness to adopt e-learning only that access to computers was limited.

4.6.6 Analysis of Joint Influence of Organisational Internal Context on Implementation of e-ProMIS

In this study a combination of organisational strategy, organisational structure, organisational leadership, organisational culture and staff capacity was referred to as organisational internal context. The joint influence of these factors on implementation of e-ProMIS is tested using inferential statistics in this section.

4.6.6.1 Correlational Analysis of Organisational Internal Context and Implementation of e-ProMIS

Correlational analysis using Pearson's Product Moment technique was done to determine the relationship between organisational internal context and implementation of e-ProMIS. This was meant to identify the strength and direction of the relationship between the independent variable and dependent variable. The results are presented in Table 4.46.

Table 4:46 Correlation Matrix for Organisational Internal Context and implementation of e-ProMIS

		Organisational Strategy	Organisational Structure	Organisational Leadership	Organisational Culture	Staff Capacity
Implementation of e-ProMIS	Pearson Correlation	.497**	.553**	.516**	.447**	.655**
	Sig. (2-tailed	.000	.000	.000	.000	.000
	N	162	162	162	162	162

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

The research findings on Table 4.46 on the correlation analysis indicate positive and significant coefficients between the variables. Staff capacity had a strong and significant positive relationship on implementation of e-ProMIS (r=.665, p-value<0.01), while other variable had a moderate and significant positive correlation on implementation of e-ProMIS. These are organisational structure (r=.553, p-value<0.01), organisational leadership (r=.516, p-value<0.01), organisational strategy (r=.497, p-value<0.01), and organisational culture (r=.447, p-value<0.01). This implies that organisational internal context has a positive influence on the implementation of e-ProMIS.

4.6.6.2 Regression Analysis of Organisational internal Context on Implementation of e-ProMIS in Public Tertiary Institutions in Kenya

The sixth objective of the study was to determine the joint influence of organisational internal context on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The literature and empirical evidence had suggested that organisational internal context would be associated with implementation of e-ProMIS. Organisational internal context was a combination of independent variables in the study. Data was collected using and measured on a five point Likert-type scale. Composite index for each of the factors was computed and used in testing the hypothesis. To satisfy the sixth objective, the following hypothesis was tested using simple linear regression model.

Hypothesis Six

H_0: Organisational internal context has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya

H_1: Organisational internal context has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

The null hypothesis was tested using the following linear regression model:

$$y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

y = Implementation of E-ProMIS

$\beta_{1....}$ B_5 = Beta coefficient

X_1 = Organisational Strategy

$X_{2=}$ Organisational Structure

$X_{3=}$ Organisational Leadership

$X_{4=}$ Organisational Culture

X_5 = Staff Capacity

e = error term

Table 4.47: Regression results of influence of organisational internal context on implementation of e-ProMIS

Model	R	R Square	Std. Error	F	P-Value
	.747	.557	.25063	39.272	.000
		Unstandardized Coefficients	**Standardized Coefficients**	**t**	**P-Value**
	B	**Std. Error**	**Beta**		
(Constant)	.690	.140		4.942	.000
Overall strategy	.111	.043	.165	2.619	.010
Organizational structure	.105	.048	.154	2.190	.030
Organizational Leadership	.121	.048	.167	2.512	.013
Organizational Culture	.108	.031	.200	3.442	.001
Staff capacity	.277	.063	.328	4.390	.000

a. Predictors: (Constant), Overall Strategy, Organizational structure, Organizational Leadership, Organizational Culture, Staff capacity,

b. Dependent Variable: Implementation of e-ProMIS

The results in Table 4.47 indicates that organisational internal context explained 55.7% of the variation in the implementation of e-ProMIS (R-square=.557). The F values were statistically significant (F= (5,156) 39.272, p= (0.000<0.05) suggesting that organisational internal context has a statistically significant influence on the implementation of e-ProMIS. Beta coefficients indicate that staff capacity had the strongest influence (.328) followed by organisational culture (.200), organisational leadership (.167), organisational strategy (.165) and lastly organisational structure (.154).

Based on the research findings, this study rejects the null hypothesis that organisational internal context has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya and conclude that organisational internal context has a significant influence on the implementation of

Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

Using the statistical findings in Table 4.37 the regression model one can be substituted as follows;

y= 0.690+0.165ST+0.154S+0.167L+0.200C+0.328SC

Where y=Implementation of e-ProMIS

ST= Organisational strategy

L=Organisational structure

L=Organisational leadership

C=Organisational Culture

SC= Staff capacity

The findings of this study are consistent with those of Kyobe (2011) that indicated a positive and statistically significant relationship between three of the organisational internal context factors in influencing ICT adoption in South Africa. Kyobe (2011) empirically proved that capacity to adopt and use ICT was the most significant of the organisational internal context. This is in agreement with the findings of this study that show staff capacity as the most influential factor among the organisational internal context. The study further highlighted the need for education on ICT and support from government and other organisations to make adoption of ICT successful.

Feng et. al., (2014) in their study on institutional influence, cognitional and competence of top managers and innovative firms reported a statistically significant influence of institutional factors on adoption of new technology. The study suggests that the industry-specific knowledge is necessary for successful catching-up in technological capabilities. They indicated that not only for the technological management but also for the effective construction of innovative organisations the top managers' understanding of related complex technology be highly relevant.

Walker and Peansupap (2005) in their study on factors affecting ICT diffusion observed that organisational internal context are among the key factors influencing ICT diffusion. A study by Nganga (2014) indicated that contextual factors predict the relationship between performance contracting system and organisational performance. A study by Ibua (2014) showed that the relationship between institutional factors and organisational performance was positive and statistically significant. The study concluded that the

strategy adopted, the structure and leadership style adopted must be aligned to achieve better results.

4.6.7 Analysis of moderating influence of availability of ICT Infrastructure on the relationship between organisational internal context and implementation of e-ProMIS

The study investigated availability of ICT infrastructure in tertiary institutions as a moderating variable. Indicators selected were availability of desk top computers, laptop computers, internet connectivity, data storage portable devices, digital cameras, mobile networks, electricity supply and stand by generator or solar energy. Respondents were given seven items and requested to indicate the level of availability rated on a five point Likert scale ranging from: To a very great extent (VGE); To a great extent (GE); To a moderate extent (ME); To a little extent (LE) and To a very little extent (VLE). The results are presented in Table 4.48 and Table 4.49.

Table 4.48: Frequencies and Percentages for Availability of ICT Infrastructure in Tertiary Institutions

Statement	VLE F (%)	LE F (%)	ME F (%)	GE F (%)	VGE F (%)	Total F (%)
Desk top computers for staff	15 (6.3)	21 (13.0)	50 (30.9)	48 (29.6)	28 (17.3)	162 (100)
Laptop computers for staff	48 (29.6)	59 (36.4)	39 (24.1)	8 (4.9)	8 (4.9)	162 (100)
Internet connectivity	25 (15.4)	10 (6.2)	39 (24.1)	46 (28.4)	42 (25.9)	162 (100)
Data storage portable devices	29 (17.9)	69 (42.6)	36 (22.2)	22 (13.6)	6 (3.7)	162 (100)
Digital cameras	65 (40.1)	42 (25.9)	29 (17.9)	19 (11.7)	7 (4.3)	162 (100)
Mobile networks	34 (21.0)	69 (42.6)	32 (19.8)	21 (13.0)	6 (3.7)	162 (100)
Electricity supply	9 (5.6)	7 (4.3)	14 (8.6)	41 (25.3)	91 (56.2)	162 (100)
Stand by generator / solar energy	23 (14.2)	8 (4.9)	19 (11.7)	33 (20.4)	79 (48.8)	162 (100)

The research findings in Table 4.48 show that majority of respondents from public tertiary institutions in Kenya indicated that to a very little extent availability of digital cameras (40.1%), to little extent availability of laptop computers for staff (36.4%), data storage portable devices (42.6%) and mobile networks (42.6%), to a moderate extent availability of desk top computers for staff (30.9%), to a great extent availability of internet connectivity (28.4%) and to a very great extent availability of electricity supply and stand by generator / solar energy (48.8%) had influence on implementation of e-ProMIS.

Table 4.49: Means and Standard Deviation for Availability of ICT Infrastructure in Tertiary Institutions

Infrastructure	n	Min	Max	Mean	SD
Desk top computers for staff	162	1.00	5.00	3.33	1.18
Laptop computers for staff	162	1.00	5.00	2.19	1.07
Internet connectivity	162	1.00	5.00	2.36	1.35
Data storage portable devices	162	1.00	5.00	2.43	1.05
Digital cameras	162	1.00	5.00	2.14	1.20
Mobile networks	162	1.00	5.00	3.43	1.07
Electricity supply	162	1.00	5.00	4.22	1.13
Stand by generator / solar energy	162	1.00	5.00	3.85	1.44
Availability of infrastructure	**162**			**3.00**	**0.76**

The research findings in Table 4.49 indicates that desk top computers for staff in tertiary institutions were available to a moderate extent (M=3.33, SD=1.18). Availability of laptop computers for staff was to a little extent (M=2.19, SD=1.07), internet connectivity (M=2.36, SD=1.35), data storage portable devices (M=2.43, SD=1.05) and digital cameras(M=2.14, SD=1.20., The results further indicate that availability of mobile networks to very great extent (M=3.43, SD=1.40), electricity supply to a very great extent (M=4.22, SD=1.31) and alternative source of electricity such as stand by generator and solar energy to great extent (M=3.85, SD=1.43). Cumulatively tertiary institutions in Kenya have availability of ICT infrastructure to moderate extent (M=3.00, SD=0.76).

4.6.7.1 Correlational Analysis of Organisational Internal Context and Availability of ICT Infrastructure

Correlational analysis using Pearson's Product Moment technique was done to determine the relationship between organisational internal context and availability of ICT infrastructure. It was meant to identify the strength and direction of the association between the independent and moderating variables. Table 4.50 summarizes the results.

Table 4:50 Correlation Matrix for Organisational Internal Context and Availability of ICT Infrastructure

		Organizational Strategy	Organizational structure	Organizational Leadership	Organizational Culture	Staff capacity
Availability of ICT infrastructure	Pearson Correlation	.205**	.471**	.287**	.115	.397**
	Sig. (2-tailed	.009	.000	.000	.145	.000
	N	162	162	162	162	162

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

The correlation results in Table 4:50 indicate positive and significant coefficients between some organisational internal context and availability of ICT infrastructure. However, organizational strategy had no relationship (r=205, p-value<0.01); while organisational culture showed an insignificant relationship (r=115, p-value>0.01) with availability of ICT infrastructure. Organizational structure had a strong relationship (r=471, p-value<0.01) while organizational leadership and staff capacity had weak relationship (r=.287, p-value<0.01) and (r=.397, p-value<0.01) respectively.

4.6.7.2 Inferential Analysis of Moderating Influence of Availability of ICT Infrastructure on the relationship between organisational Implementation of e-ProMIS

The seventh objective of the study was to examine the moderating influence of availability of Information Communication Technology infrastructure on the relationship between organisational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. Availability of ICT infrastructure was a moderating variable in the study and was indicated by availability of desktop computers, laptop computers, internet connectivity, data storage devices, digital cameras, mobile network, electricity and standby generator or solar energy. Data was collected using 8 items, each consisting of a statement that was measured on a five point Likert-type scale. Composite index for the two indicators was

computed and used in testing the hypothesis. To satisfy the seventh objective, the following hypothesis was tested using stepwise multiple regression model.

Hypothesis seven

H_0: The strength of the relationship between organisational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya is not dependent on availability of Information Communication Technology

H_1: The strength of the relationship between organisational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya is dependent on availability of Information Communication Technology

The null hypothesis was tested using the following stepwise multiple regression model:

$$y = a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_1\ X_2\ X_3\ X_4\ X_5\ X_6 + e$$

Where;

y = Implementation of E-ProMIS

a = Constant

$\beta_{1....7}$ = Beta coefficient

$X_{1\ ....5}$ = Organizational internal context

X_6= Availability of ICT infrastructure

e = error term

In testing this hypothesis, the moderating influence was computed using stepwise method advocated by Baron and Kenny (1986). This involved testing the influence of the independent variable (Organisational strategy, organisational structure, organisational leadership, organisational culture and staff capacity) on the dependent variable in step one, and introducing the moderator (availability of ICT infrastructure) in step two. Moderation is assumed to take place if the influence of interaction between the independent variable and moderator on dependent variable test is significant.

Step One: Influence of Organisational Internal Context on Implementation of e-ProMIS

In the first step, organisational internal context were regressed on implementation of e-ProMIS. The results are presented in Table 4.51.

Table 4.51: Regression results of influence of organisational internal context on implementation of e-ProMIS

Model	R	R Square	Std. Error	F	P-Value
1	.747	.557	.25063	39.272	.000

	Unstandardized Coefficients		Standardized Coefficients	t	P-Value
	B	Std. Error	Beta		
1 (Constant)	.690	.140		4.942	.000
Overall strategy	.111	.043	.165	2.619	.010
Organizational structure	.105	.048	.154	2.190	.030
Organizational Leadership	.121	.048	.167	2.512	.013
Organizational Culture	.108	.031	.200	3.442	.001
Staff capacity	.277	.063	.328	4.390	.000

c. Predictors: (Constant), Staff capacity, Organizational Culture, Overall Strategy, Organizational Leadership, Organizational structure

d. Dependent Variable: Implementation of e-ProMIS

The results in Table 4.51 indicates that organisational internal context explained 55.7% of the variation in the implementation of e-ProMIS (R-square=.557) in model one. The F values were statistically significant (F= (5,156) 39.272, p=0.000<0.05) that organisational internal context influence implementation of e-ProMIS.

Using the statistical findings in Table 4.38 the regression model one can be substituted as follows;

y= 0.690+0.165ST+0.154S+0.167L+0.200C+0.238SC

Where y=Implementation of e-ProMIS

ST= Organisational strategy

L=Organisational structure

L=Organisational leadership

C=Organisational Culture

SC= Staff capacity

Step Two: Influence of organisational Internal Context and Availability of ICT Infrastructure on Implementation of e-ProMIS.

In step two the influence of the moderator (availability of ICT infrastructure) was introduced on the relationship between organisational internal context and implementation of e-ProMIS. The results are presented in Table 4.52.

Table 4.52: Regression results for influence of availability of ICT infrastructure on the influence of organisational internal context on implementation of e-ProMIS

Model	R	R Square	Std. Error	Change Statistics		
				R Change	F Change	P-Value Change
1	.747	.557	.25063	.557	39.272	.000
2	.772	.597	.23998	.039	15.152	.000

	Unstandardized Coefficients		Standardized Coefficients	t	P-Value
	B	Std. Error	Beta		
2 (Constant)	.609	.135		4.507	.000
Overall Strategy	.114	.041	.169	2.798	.006
Organizational structure	.047	.048	.069	.972	.333
Organizational Leadership	.122	.046	.169	2.646	.009
Organizational Culture	.114	.030	.212	3.804	.000
Staff capacity	.237	.061	.280	3.868	.000
Availability of ICT infrastructure	.111	.029	.229	3.893	.000

a. Predictors: (Constant), Staff capacity, Organizational Culture, Overall Strategy, Organizational Leadership, Organizational structure, Availability of ICT infrastructure.

b. Dependent Variable: Implementation of e-ProMIS

The results in Table 4.52 indicate that the introduction of a moderator (availability of ICT infrastructure) and interaction term in model two increased the value of R squared by 0.039. Thus implementation improves the goodness of fit by only 3.9%. This implies that organisational internal context and availability of ICT infrastructure explains 3.9% variation in implementation of e-ProMIS. The F-values remain statistically significant at

(F= (6,155) 15.152, p=0.000<0.05). Thus from the results it can be concluded that availability of ICT infrastructure has a statistically significant moderating influence on implementation of e-ProMIS in the tertiary institutions in Kenya. These results suggest that availability of ICT infrastructure acted as a moderator in the relationship between organisational internal context and implementation of e-ProMIS. Based on the research findings we reject the null hypothesis that the strength of the relationship between organisational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya is not dependent on availability of Information Communication Technology. We conclude that the strength of the relationship between organisational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya is dependent on availability of Information Communication Technology.

Using the statistical findings in Table 4.52 the regression model two can be substituted as follows;

$$y= 0.609+0.169ST+0.069S+0.169L+0.212C+0.280SC+0.229I+ \varepsilon$$

Where y=Implementation of e-ProMIS

ST= Organisational strategy

L=Organisational structure

L=Organisational leadership

C=Organisational Culture

SC= Staff capacity

I= Availability of ICT infrastructure

ε= Error term

Although studies relating to the moderating influence of availability of ICT infrastructure seem to be limited, there are many studies based on availability of ICT infrastructure and its influence on implementation of IT based systems that have a linkage to this study. A study by Chen et al., (2006) on the e-government strategies in developed and developing countries reported a positive relationship between ICT infrastructures and implementation of e-government systems. They further explained that the differences in e-government implementation between developed and developing countries is largely explained by differences in availability of ICT infrastructure. The insufficient ICT infrastructure in developing countries largely explains the difficulties organisations experience in

implementation of e-government strategies (Chen et al., 2006). In support of this, a study by Lau (2012) postulated that lack of sufficient ICT infrastructure is an important barrier to implementation of e-government systems in the public sector. He explained that the inability to provide the public institutions with modern ICT equipment hold back e-government projects. Studies in Kenya have explained inadequate ICT infrastructure as a reason for failure of ICT implementation (Gichoya, 2005; Gakunu, 2004). They have mentioned infrastructure as a barrier or inhibitors of implementation in the country. A study by Mulwa (2012) confirmed the important role of ICT infrastructure on determining the readiness to adopt e-Learning. Her findings show that internet connectivity, availability of sources of energy and availability of e-learning equipment had a significant positive influence on the readiness to adopt e-learning. Lumumba (2007) had also established that internet connectivity has an influence on the effective implementation of e-learning.

4.6.8 Analysis of mediating influence of staff attitude on the relationship between organisational internal context and implementation of e-ProMIS

The study investigated the role of staff attitude as a mediator between organisational internal context and implementation of e-ProMIS in tertiary institutions in Kenya. Perceived usefulness and perceived ease of use were conceptualised as indicators of staff attitude.

4.6.8.1 Perceived usefulness of e-ProMIS

To measure perceived usefulness of e-ProMIS, respondents were given nine items in the instrument rated on a five point Likert scale ranging from: Strongly disagree (SD); disagree (DA); neutral (NT); agree (AG); strongly agree (SA) from which to choose. The results are presented in Table 4.53 and Table 4.54.

Table 4.53: Frequencies and Percentages for Perceived Usefulness of e-ProMIS

Statement	SD F (%)	DA F (%)	NT F (%)	AG F (%)	SA F (%)	Total F (%)
a) e-ProMIS improves quality of my work	20 (12.3)	90 (55.6)	25 (15.4)	0 (0)	27 (16.7)	162 (100)
b) e-ProMIS gives me greater control of my work	20 (12.3)	81 (50.0)	40 (24.7)	0 (0)	21 (13.0)	162 (100)
c) e-ProMIS enables me to accomplish tasks quickly	20 (12.3)	92 (56.8)	31 (19.1)	0 (0)	19 (11.7)	162 (100)
d) e-ProMIS supports critical aspects of my work	20 (12.3)	81 (50.0)	52 (32.1)	3 (1.9)	6 (3.7)	162 (100)
e) e- ProMIS improves performance of my work	25 (15.4)	59 (36.4)	57 (35.2)	0 (0)	21 (13.0)	162 (100)
f) e-ProMIS enhances effectiveness	21 (13.0)	87 (53.7)	26 (16.0)	0 (0)	28 (17.3)	162 (100)
g) e-ProMIS makes it easier to do my job	20 (12.3)	81 (50.0)	52 (32.1)	3 (1.9)	6 (3.7)	162 (100)
h) e-ProMIS increases productivity	20 (12.3)	94 (58.0)	25 (14.4)	0 (0)	23 (14.2)	162 (100)
i) e-ProMIS is overall useful to me	31 (19.1)	85 (52.5)	28 (17.3)	0 (0)	18 (11.1)	162 (100)

The research findings in Table 4.53 show that most of the respondents from public tertiary institutions in Kenya disagreed that e-ProMIS improves quality of their work (55.6), gives them greater control of their work (50.0%), enables them to accomplish tasks quickly (56.8%), supports critical aspects of their work (50.0%), improves performance of their work (36.4%), enhances effectiveness (53.7%), makes it easier to do their job (50.0), increases productivity (58.0%) and that e-ProMIS is overall useful to me (52.5%). This implies that they perceived e-ProMIS as not useful to their work.

Table 4.54 Means and Standard Deviations for Perceived Usefulness of e-ProMIS

Statement	n	Min	Max	Mean	SD
a) e-ProMIS improves quality of my work	162	1.00	4.00	2.53	1.23
b) e-ProMIS gives me greater control of my work	162	1.00	4.00	2.51	1.13
c) e-ProMIS enables me to accomplish tasks quickly	162	1.00	4.00	2.42	1.10
d) e-ProMIS supports critical aspects of my work.	162	1.00	5.00	2.36	0.86
e) e- ProMIS improves performance of my work	162	1.00	4.00	2.60	1.16
f) e-ProMIS enhances effectiveness.	162	1.00	4.00	2.55	1.25
g) e-ProMIS makes it easier to do my job.	162	1.00	5.00	2.35	0.86
h) e-ProMIS increases productivity.	162	1.00	4.00	2.46	1.16
i) e-ProMIS is overall useful to me.	162	1.00	5.00	2.31	1.19
Perceived usefulness of e-ProMIS	**162**	**1.00**	**5.00**	**2.45**	**0.97**

The research findings in Table 4.54 indicates that respondents from tertiary institutions disagreed with the following statements; that e-ProMIS improved quality of their work (M=2.53, SD=1.23), e-ProMIS gave them greater control of their work (M=2.51, SD=1.13), that e-ProMIS enabled them to accomplish tasks quickly (M=2.42, SD=1.10) and that e-ProMIS supported critical aspects of my work (M=2.35, SD=0.86), that e-ProMIS enhances effectiveness(M=2.55, SD=1.25), that e-ProMIS made it easier to do their job(M=2.35, SD=0.86), that e-ProMIS increased their productivity(M=2.46, SD=1.16) , and that e-ProMIS was in the overall useful to them (M=2.31, SD=1.13). Further, the respondents were neutral (M=2.60, SD=1.16) on the statement that e-ProMIS improved performance of their work. Cumulatively respondents from tertiary institution disagreed (M=2.45, SD=0.97) on usefulness of e-ProMIS in relation to their work. This implies that they have a negative attitude towards e-ProMIS.

4.6.8.2 Perceived Ease of Use of e-ProMIS

To measure perceived ease of use of e-ProMIS respondents were given eleven items in the instrument rated on a five point Likert scale ranging from: Strongly disagree (SD);

disagree (DA); neutral (NT); agree (AG); strongly agree (SA) from which to choose. The results are presented in Table 4.55 and Table 4.56.

Table 4.55: Frequencies and Percentages for Perceived Ease of Use of e-ProMIS

Statement	SD F (%)	DA F (%)	NT F (%)	AG F (%)	SA F (%)	Total F (%)
a) e-ProMIS is awkward to use	20 (12.3)	50 (30.9)	46 (28.4)	30 (18.5)	16 (9.9)	162 (100)
b) e-ProMIS is difficult to learn	26 (16.0)	40 (24.7)	54 (33.3)	26 (16.0)	16 (9.9)	162 (100)
c) Use of e-ProMIS is frustrating	26 (16.0)	34 (21.0)	56 (34.6)	29 (17.9)	17 (10.5)	162 (100)
d) I find it easy to get e-ProMIS do what I want	20 (12.3)	81 (50.0)	52 (32.1)	3 (1.9)	6 (3.7)	162 (100)
e) e-ProMIS is rigid and inflexible to use	7 (4.3)	31 (19.1)	29 (17.9)	62 (38.3)	33 (20.4)	162 (100)
f) It is easy to remember how to use e-ProMIS	15 (9.3)	90 (55.6)	33 (20.4)	0 (0)	24 (14.8)	162 (100)
g) e-ProMIS takes a lot of mental effort	6 (3.7)	31 (19.1)	52 (32.1)	52 (32.1)	21 (13.0)	162 (100)
h) Use of e-ProMIS is clear and understandable	36 (22.2)	94 (58.0)	30 (18.5)	0 (0)	2 (1.2)	162 (100)
i) It takes effort to be skilful in using e-ProMIS	6 (3.7)	26 (16.0)	28 (17.3)	73 (45.1)	29 (17.9)	162 (100)
j) e- ProMIS is overall easy to use	36 (22.2)	94 (58.0)	30 (18.5)	0 (0)	2 (1.2)	162 (100)
k) It is impossible to use e-ProMIS without help	9 (5.6)	35 (21.6)	30 (18.5)	74 (45.7)	14 (8.6)	162 (100)

The research findings in Table 4.55 show that majority of the respondents from public tertiary institutions disagreed with the statements that e-ProMIS is awkward to use (30.9%), they find it easy to get e-ProMIS do what they want (50.0%), it is easy to remember how to use e-ProMIS (55.6%), use of e-ProMIS is clear and understandable (58.0%) e- ProMIS is overall easy to use (58.0%). They were neutral that e-ProMIS is difficult to learn (33.3%), use of e-ProMIS is frustrating (34.6%) and that e-ProMIS takes a lot of mental effort (32.1%). Further the respondents agreed that e-ProMIS is rigid and inflexible to use (38.3%), it takes effort to be skilful in using e-ProMIS (45.1%) and that it is impossible to use e-ProMIS without help (45.7%).

Table 4.56: Means and Standard Deviations for Perceived ease of Use of e-ProMIS

Statement	n	Min	Max	Mean	SD
a) e-ProMIS is awkward to use.	162	1.00	5.00	2.83	1.18
b) e-ProMIS is difficult to learn.	162	1.00	5.00	2.79	1.19
c) Use of e-ProMIS is frustrating	162	1.00	5.00	2.86	1.20
d) I find it easy to get e-ProMIS do what I want	162	1.00	5.00	2.35	0.85
e) e-ProMIS is rigid and inflexible to use	162	1.00	5.00	3.51	1.14
f) It is easy to remember how to use e-ProMIS	162	1.00	4.00	2.56	1.15
g) e-ProMIS takes a lot of mental effort.	162	1.00	5.00	3.31	1.04
h) Use of e-ProMIS is clear and understandable	162	1.00	4.00	2.00	0.72
i) It takes effort to be skilful in using e-ProMIS	162	1.00	5.00	3.57	1.07
j) e- ProMIS is overall easy to use	162	1.00	4.00	2.00	0.72
k) It is impossible to use e-ProMIS without help.	162	1.00	5.00	3.30	1.08
Perceived ease of use of e-ProMIS	**162**	**2.00**	**5.00**	**2.82**	**0.56**

The research findings in Table 4.56 indicate that respondents from tertiary institutions were neutral on the statements that e-ProMIS is awkward to use (M=2.83, SD=1.17), e-ProMIS is difficult to learn (M=2.79, SD=1.19), use of e-ProMIS was frustrating (M=2.86, SD=1.20) and that e-ProMIS took a lot of mental effort (M=3.31, SD=1.04). Further the respondents disagreed with the statements that they found it easy to get e-ProMIS do what they wanted (M=2.35, SD=0.86), e- ProMIS was overall easy to us (M=2.00, SD=0.72), use of e-ProMIS was clear and understandable (M=2.00, SD=0.72) and that it was easy to remember how to use e-ProMIS (M=2.56, SD=1.15). Respondents agreed with the statements that e-ProMIS was rigid and inflexible to use (M=3.51,

SD=1.14), it took effort to be skilful in using e-ProMIS (M=3.57, SD=1.07)and that it was impossible to use e-ProMIS without help (M=3.30, SD=1.07). On the overall the respondents from tertiary institution were neutral (M=2.83, SD=0.56) on perceived ease of use of e-ProMIS.

4.6.8.3 Overall analysis on Staff Attitude Towards e-ProMIS

The overall findings on staff attitude on the two indicator, perceived usefulness and perceived ease of use as found in public tertiary institutions are shown in Table 4:57.

Table 4.57: Means and Standard Deviations Staff Attitude towards e-ProMIS

Type of Culture	N	Min	Max	M	SD
a) Perceived Usefulness	162	1.00	5.00	2.45	0.97
b) Perceived ease of use	162	1.00	5.00	2.83	0.55
Staff Attitude	**162**			**2.66**	**0.63**

Table 4.57 shows that the overall mean for staff attitude towards e-ProMIS was 2.66 and standard deviation of 0.63. This implies that most of staff in tertiary institutions had negative attitude toward the usefulness and ease of use of e-ProMIS.

4.6.8.4 Inferential Analysis of the Mediating Influence of Staff Attitude Towards e-ProMIS on relationship between organisational internal context and Implementation of e-ProMIS

The seventh objective was to determine the mediating influence of staff attitude on the implementation of electronic project monitoring information system in public tertiary institutions in Kenya. Hypothesis seven was tested using stepwise regression. A composite score of staff attitude was computed. The Baron and Kenny (1986) four step models was used in testing the hypothesis. In the first step organisational internal context and staff attitude regression coefficient (beta) were examined to determine the direction and whether it was statistically significant. If the relationship is not significant there can be no mediation. In the second step, organisation internal context were regressed on implementation of e-ProMIS and the beta examined to ascertain if it is statistically significant. If it is statistically significant then we proceed to step three. The third step involved regressing staff attitude on implementation of e-ProMIS to confirm whether or

not it is significant. In the fourth step the influence of internal context on implementation of e-ProMIS was evaluated while controlling the mediator. A previously significant relation between the independent and dependent variables should be no longer significant. To establish the mediating influence of staff attitude on implementation of e-ProMIS the hypothesis was formulated as follows:

Hypothesis seven

H_0: The strength of the relationship between organizational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya is not dependent on staff attitude.

H_1: The strength of the relationship between organizational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya is dependent on staff attitude.

Step one: Staff attitude and Organisational Internal Context

In the first step staff attitude was regressed against organisational internal context. The composite score of the five organisational internal context were computed and used in the regression. The results are presented in Table 4.58.

Table 4.58: Regression results for organisational internal context on staff attitude

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**P-Value**
	B	Std. Error	Beta		
(Constant)	.848	.312		2.718	.007
Organizational Internal Context	.677	.116	.421	5.863	.000
Predictors: (Constant), Organisational internal context					
Dependent Variable: Staff attitude					
R= 0.421					
R square=0.177					
F(1,160)=34.374 at level of significance p = 0.000<0.05					

The results in Table 4.58 indicate that organisational internal context had a statistically significant influence on staff attitude. The β coefficient of organisational internal context was 0.421. The result indicates that organisational internal context and staff attitude had a positive linear relationship. The F ratio was F= (1,160) 34.374, p-values 0.000<0.05) which indicated that the influence of organisational internal context on staff attitude was statistically significant. This allowed us to move to the next step.

Step two: Organisational Internal Context and Implementation of e-ProMIS

In the second step implementation of e-ProMIS was regressed against organisational internal context. The composite score of the five organisational internal context were computed and used in the regression. The results are presented in Table 4.59.

Table 4.59: Regression results of organisational internal context on implementation of e-ProMIS

Model	Unstandardized Coefficients		Standardized Coefficients	t	P-Value
	B	Std. Error	Beta		
(Constant)	.741	.138		5.386	.000
Organizational Internal Context	.702	.051	.736	13.763	.000

Predictors: (Constant), Organisational internal context

Dependent Variable: Implementation of e-ProMIS

R= 0.736

R square=0.542

F(1,160)=189.417 at level of significance p = 0.000<0.05

The results in Table 4.59 show that organisational internal context had a statistically significant influence on implementation of e-ProMIS. The results indicated that β of organisational internal context was 0. 736. Further, the result indicated that organisational internal context and implementation of e-ProMIS had a positive linear relationship. The F ratio was F= (1,160) 189.417, p-values 0.000<0.05 which indicated that the influence of organisational internal context on implementation of e-ProMIS was statistically significant. This allowed us to move to step three.

Step Three: Staff attitude towards e-ProMIS and Implementation of e-ProMIS

In step three, the influence of staff attitude on implementation of e-ProMIS was tested before organisational internal context were introduced into the equation. The results are presented in Table 4.60.

Table 4.60 Regression results of Staff attitude on implementation of e-ProMIS

Model	Unstandardized Coefficients		Standardized Coefficients	t	P-Value
	B	Std. Error	Beta		
(Constant)	2.036	.119		17.155	.000
Organizational Internal Context	.218	.043	.369	5.017	.000

Predictors: (Constant), Staff attitude

Dependent Variable: Implementation of e-ProMIS

R= 0.369

R square=0.136

F(1,160)=25.168 at level of significance p = 0.000<0.05

The results in Table 4.60 indicate that staff attitude had a statistically significant influence on implementation of e-ProMIS. The results indicate that β of staff attitude was 0. 369. The results further indicate that staff attitude and implementation of e-ProMIS had a positive linear relationship. The F ratio was F= (1,160) 25.168, p-values 0.000<0.05 which indicated that the influence of staff attitude on implementation of e-ProMIS was statistically significant. This allowed us to move to step four.

Step Four: Organisational Internal Context, Staff Attitude and Implementation of e-ProMIS.

In step four all the three variables namely, organisational internal context, staff attitude and implementation of e-ProMIS were entered into a multiple regression equation to test for mediation. The results are represented in Table 4.61.

Table 4.61 Regression results of Staff attitude on implementation of e-ProMIS

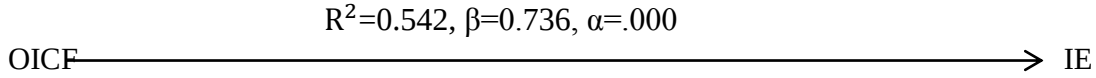
Model	R	R Square	Std. Error	Change Statistics		
				R Change	F Change	P-Value Change
1	.739	.546	.25131	.546	95.738	.000
2	.748	.559	.23087	.013	1.138	.341

	Unstandardized Coefficients		Standardized Coefficients	t	P-Value
	B	Std. Error	Beta		
1. (Constant)	.705	.141		5.018	.000
Organizational Internal Context	.673	.056	.706	11.993	.000
Staff attitude	.042	.035	.072	1.219	.225
2. (Constant)	.670	.142		4.735	.000
Organizational Internal Context	.470	.250	.493	1.881	.062
Staff Attitude	.031	.037	.053	.841	.402
Organizational Strategy	.014	.068	.021	.210	.834
Organizational Leadership	.026	.080	.036	.328	.744
Organizational Culture	.017	.062	.032	.279	.780
Staff Capacity	.173	.092	.204	1.885	.061

a. Predictors: (Constant), Staff attitude, Organisational Internal Context
b. Predictors: (Constant), Staff attitude, Organisational Internal Context, Organisational Strategy, Organisational Culture, Staff capacity, Organisational Leadership
c. Dependent Variable: Implementation of e-ProMIS

The regression results presented in Table 4.61 reveal that 54.6% (R^2=.546) of variation in implementation of e-ProMIS is explained by organisational internal context. The F-ratio was F (2,159) =95.738, p-values 0.000<0.05 which indicate it was statistically significant. When the interactive term was introduced the R^2 changed to 55.9% (R^2=.559) and F by 1.138, P-values 0.341>.05. Model two was not statistically significant. This fulfils the third condition as advanced by Baron and Kenny (1986) that when path **(a)** and (**b)** are controlled, a previously significant relation between the independent and dependent variable is no longer significant. The mediated relationship is represented in Figure 5.

Part A: Overall Direct Effect



Part B: Path Diagram for mediation influence of staff attitude

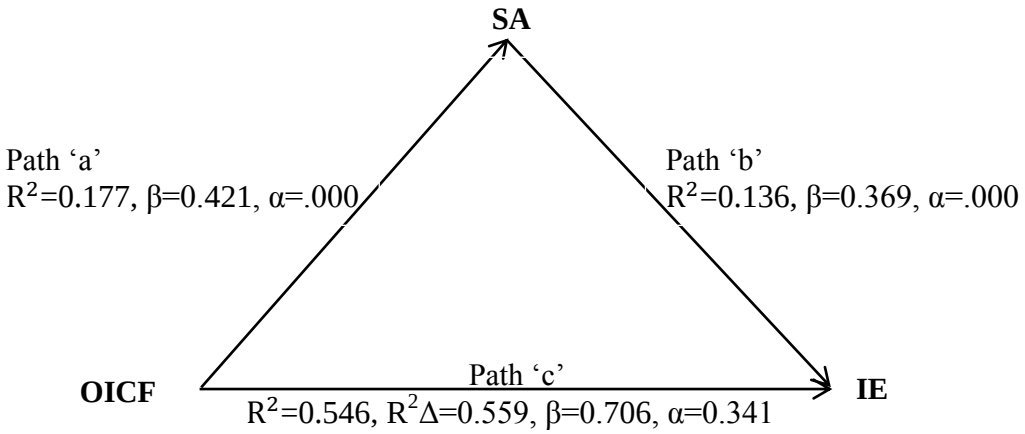


Figure 5: Path Analysis of Mediating influence of Staff Attitude on the Relationship between Organizational Internal Context and Implementation of e-ProMIS

Where:

OIF- Organizational Internal Context

SA- Staff Attitude

IE- Implementation of e-ProMIS

In Figure 5, Part A represents direct relationship between organizational internal context and implementation of e-ProMIS. Part B shows a path diagram for mediation influence of staff attitude. It comprises three paths; Path "a" represents where organizational internal context was regressed on staff attitude. Path "b" captures regression of staff attitude on implementation of e-ProMIS. Path "c" is where organizational internal context, staff attitude and implementation of e-ProMIS were entered into the regression equation. The overall results reveal that R^2 increased from .546 to .559 and the findings were statistically insignificant (p-value=.341). All the three conditions set by Baron and Kenny (1986) were met. Based on the research findings we rejected the null hypothesis that the strength of the relationship between organizational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya is not dependent on staff attitude and conclude that the strength of the relationship

between organizational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya is dependent on staff attitude.

These findings of the study support the results by Abdrdo et al. (2009) who reported that there was a mediating effect of perceived ease of use and perceived usefulness in the relationship between information systems use and outcome, including benefits and satisfaction. A study by Ohme (2014) on the acceptance of mobile government from citizens' perspective, reported that perceived usefulness was the strongest predictor for the attitude and the intension to use e-government services. Jones et al (2014) reported the importance of attitude towards ICT adoption represented by the participants' perception of the value of the ICT adoption. A study by Mazzoleni et al. (1996) found out that attitude had a significant positive relationship with the frequency of information systems use, and Ruland and Ravn (2003) found that perceived ease of use and perceived usefulness had a significant relationship with satisfaction in the use of information systems. A study by Gakuu (2006) reported a relationship between lecturers' attitude and readiness to adopt distance education and use ICT in teaching. A study by Keiyoro (2010) also explained the role of attitude in the use of ICT in teaching and learning of science subjects in secondary schools.

In an open ended question in the research instrument, respondents noted that there was difficulty in accessing the e-ProMIS online platform, poor internet connectivity in their institutions, lack of proper training and follow up by the Ministry of Education, Science and Technology and the National Treasury, reluctance by the administration to share information to be uploaded and that e-ProMIS implementers have other responsibilities and hence implementation of e-ProMIS is an extra responsibility. This could be contributing to the negative attitude that staff members had towards the system. The respondents further suggested that enhanced accessibility to the e-ProMIS platform, making it user friendly , more training for implementers, enhanced follow up by the government and donor agencies, designating a specific office to handle e-ProMIS and provision of reliable internet in the institutions will help to improve the implementation of the system.

CHAPTER FIVE
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of findings, conclusions and recommendations. In summary of findings, results and remarks for each of the hypothesis in the study are presented for the seven research objectives. The conclusions presented in this section are guided by the research objectives and informed by the findings, analysis, interpretation and discussions in the study. Based on the conclusions made, the theoretical implication of the study and recommendations of the study to policy, practice and methodology are examined. It also presents the limitations of the study and outlines proposed areas of future research.

5.2 Summary of the Findings

The broad objective of this study was to determine the influence of the organisational internal context on the implementation of electronic project monitoring information system in public tertiary institution in Kenya. Seven specific objectives were developed and addressed through testing seven hypotheses. The population of the study comprised public tertiary institution in Kenya. Data was collected from various respondents from tertiary institutions. The data collection instrument had some items adapted from other studies and modified to fit this study

Hypotheses were tested using simple, multiple and stepwise regressions. Simple linear regression was employed to determine the influence of each independent variable namely; organisational strategy, organisational structure, organisational leadership, organisational culture and staff capacity on implementation of e-ProMIS which was the dependent variable of the study. Multiple and stepwise regression were performed to determine whether availability of information communication technology infrastructure had a moderating influence on the relationship between organisational internal context and implementation of e-ProMIS. Stepwise regression was also used to determine whether staff attitude had a mediating influence on the relationship between organisational internal context and implementation of e-ProMIS.

The first objective of the study was to establish the extent to which organisational strategy influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The null hypothesis tested was that organisational strategy has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The results were R^2=0.263, F= (3,158)18.840, P=0.000<0.05. The null hypothesis was rejected and was concluded that organisational strategy had a statistically significant influence on the implementation of e-ProMIS in public tertiary institutions in Kenya.

The second research objective of the study was to examine the extent to which organisational structure influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The null hypothesis tested was that organisational structure has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The research findings were R^2=0.311, F= (3,158)23.760, P=0.000<0.05. The null hypothesis was rejected and was concluded that organisational structure had a statistically significant influence on the implementation of e-ProMIS in public tertiary institutions in Kenya.

The third research objective was to establish the extent to which organisational leadership influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The null hypothesis tested was that organisational leadership has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The findings were R^2=0.296, F= (2,159)33.410, P=0.000<0.05. The null hypothesis was therefore rejected and it was concluded that organisational leadership had a statistically significant influence on the implementation of e-ProMIS in public tertiary institutions in Kenya.

The fourth research objective was to examine the extent to which organisational culture influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The null hypothesis tested was organisational culture has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The research findings were R^2=0.254, F=(3,158)17.892, P=0.000<0.05. The null hypothesis was

rejected and was concluded that organisational culture had a statistically significant influence on the implementation of e-ProMIS in public tertiary institutions in Kenya

The fifth research objective was to establish the extent to which staff capacity influences the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The null hypothesis tested was Staff Capacity has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The findings were R^2=0.42, F= (1,160) 120.161, P=0.000<0.05. The null hypothesis was rejected and was concluded that staff capacity had a statistically significant influence on the implementation of e-ProMIS in public tertiary institutions in Kenya.

The sixth research objective was to determine the joint influence of organisational internal context on implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The null hypothesis tested was that organisational internal context has no significant influence on implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The research findings were R^2=0.557, F=39.272, P=0.000<0.05. The null hypothesis was rejected and concluded that organisational internal context had a statistically significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.

The seventh research objective was to examine the moderating influence of availability of Information Communication Technology on the relationship between organisational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The null hypothesis tested was the strength of the relationship between organisational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya was not dependent on availability of Information Communication Technology. The research findings were R^2=0.557, $R^2\Delta$=0.597, f = 54.424, P=0.000<0.05. The null hypothesis was rejected and concluded that the strength of the relationship between organisational internal context and implementation of Electronic Project Monitoring Information System

in Public Tertiary Institutions in Kenya was dependent on availability of Information Communication Technology.

The eighth research objective was to examine the mediating influence of staff attitude on the relationship between organisational internal context on implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. The null hypothesis tested was the strength of the relationship between organizational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya was not dependent on staff attitude. The study findings were R^2=0.546, $R^2\Delta$=0.559, β=0.748 p=0.341>0.05. The null hypothesis was rejected and concluded that the strength of the relationship between organizational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya was dependent on staff attitude.

5.3 Conclusions

This section presents the conclusions made in the study in the context of the findings. The conclusions are made in line with the objectives and hypothesis.

Research objective one was to establish the extent to which organisational strategy influenced the implementation of electronic project monitoring information system in public tertiary institutions in Kenya. The indicators for implementation of e-ProMIS were institutional registration on the e-ProMIS platform, uploading of projects into the e-ProMIS, frequency of uploading data into e-ProMIS, sensitization of members of staff, monitoring of implementation and internal use of e-ProMIS to generate project data. The results from descriptive analysis indicated that majority of the public tertiary institutions are registered on the e-ProMIS platform. However, other indicators of implementation such as uploading data into the system, frequency of uploading and internal utilisation of e-ProMIS showed low uptake of the e-ProMIS. This could be explained by the following challenges that respondents noted; difficulties in accessing the e-ProMIS online platform, reluctance by the administration to share information to be upload, lack of proper training and follow up by Ministry of Education, Science and Technology and The National Treasury on e-ProMIS, poor network connectivity in the institution and that e-ProMIS implementers have other responsibilities in the institutions hence lacking adequate time to concentrate on implementation of e-ProMIS. It can therefore be concluded that the

implementation of e-ProMIS in tertiary institutions is faced with challenges that need to be addressed so as to achieve full implementation.

Organisational strategy was categorized into three main types based on Miles and Snow (1978) typology. Indicators for each of the category were developed and included in the research instrument. Descriptive analysis showed that majority of the public tertiary institutions apply reactor strategy followed by defender strategy and a few of them used prospector strategy. It can therefore be concluded that most of the public tertiary institutions are not able to respond effectively to environment and only adapt when environmental pressures force them. Inferential statistics indicated that organisational strategy had a strong influence on implementation of e-ProMIS. Out of the three types of strategies, defender was found to have a higher influence, followed by reactor strategy. Prospector strategy was found not to have any statistically significant influence on implementation of e-ProMIS. It is therefore concluded that organisations that followed a defender or reactor strategy tend to implement e-ProMIS more than the ones that followed prospector strategy. Overall conclusion is made that organisational strategy had a statistically significant influence on the implementation e-ProMIS.

Research objective two in this study was to examine the extent to which organisational structure influenced the implementation of electronic project monitoring information system in public tertiary institutions in Kenya. Based on the review of literature, organisational structure was categorized into formalization, complexity and centralization. Indicators for each category were included into the research instrument. Descriptive analysis indicated that majority of the public tertiary institutions in Kenya applied centralisation structure followed by complexity and formalization structure. This implies that in most tertiary institutions the right to make decisions and evaluate activities is concentrated to the top level hence little flexibility for staff at the lower level. Organisational structure was found to have a strong influence on the implementation of e-ProMIS. Specifically, formalization structure had more influence on implementation of e-ProMIS than centralization. Complexity structure was found to have no statistically significant influence on implementation of e-ProMIS. It can therefore be concluded that although organisational structure strongly influence implementation of e-ProMIS, organisations that have formalized or centralized structure tend to implement e-ProMIS better. Further it can be concluded that complexity organisational structure is not ideal for implementation of e-ProMIS.

Research objective three in this study was to examine the extent to which organisational leadership influenced the implementation of electronic project monitoring information system in public tertiary institutions in Kenya. Based on the review of literature organisational leadership was categorized into transformational and transactional leadership styles. Indicators for the two styles were adapted from other studies and included into the research instrument. Although the two leadership styles are used in organisations concurrently depending on the prevailing circumstances, descriptive statistics showed that most dominant leadership style in public tertiary institutions was transactional leadership followed by transformational leadership. Inferential statistics indicated that organisational leadership strongly influenced implementation of e-ProMIS. Both leadership styles were found to have a strong positive influence on implementation of e-ProMIS. Therefore, it can be concluded that leaders play a significant role in ensuring implementation of e-ProMIS.

The fourth research objective in this study was to examine the extent to which organisational culture influenced the implementation of electronic project monitoring information system in public tertiary institutions in Kenya. Organisational culture was categorized into bureaucratic, supportive and innovative culture. Indicators for each of the cultural types were adapted from previous studies and include in the research instrument. Descriptive statistics showed that majority of the tertiary institutions had a bureaucratic culture followed by innovative and then supportive culture. It can therefore be concluded that in majority of the tertiary institutions there is hierarchical compartmentalized organised system with clear lines of responsibility and authority. Results from inferential statistics indicated that organisational culture had a strong positive influence on the implementation of e-ProMIS. Bureaucratic and innovative culture was found to have an influence on implementation of e-ProMIS, but supportive culture had a negative influence. It can therefore be concluded that the most ideal cultural background for implementation of e-ProMIS is bureaucratic.

The fifth research objective in this study was to establish the extent to which staff capacity influenced the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. Indicators selected for staff capacity were ICT skills and training in the use of e-ProMIS. Results from descriptive statistics indicated that most of the staff members in tertiary institutions had adequate ICT skills.

However it was revealed that training on use of e-ProMIS was more useful than ICT skills in implementation of e-ProMIS. It can therefore be concluded that although possession of adequate ICT skills is important, specific e-ProMIS training is vital in improving the implementation of e-ProMIS. Results from inferential statistics indicated that staff capacity had a strong statistically significant influence on implementation of e-ProMIS. It can therefore be concluded that provision of ICT skills and e-ProMIS training to staff would greatly improve implementation of e-ProMIS.

Research objective six was to determine the joint influence of organisational internal context on implementation of e-ProMIS in public tertiary institutions in Kenya. These organisational internal context were organisational strategy, organisational structure, organisational leadership, organisational culture and staff capacity. Results from both descriptive and inferential analysis had shown that organisational internal context has a statistically significant influence on implementation of e-ProMIS. Of the five factors, staff capacity indicated a higher influence than the other four.

The seventh research objective was to examine the moderating influence of availability of Information Communication Technology infrastructure on the relationship between organisational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. Indicators selected were availability of desk top computers, laptop computers, internet connectivity, data storage portable devices, digital cameras, mobile networks, electricity supply and stand by generator or solar energy. Using results from descriptive statistic it can be concluded that public tertiary institutions in Kenya are moderately equipped as respondents indicated availability of desk top computers, electricity, portable devices among others. However availability of internet connectivity was cited as one of the main challenges. It can therefore be concluded that there is need for availing internet connectivity to public institutions so as to support implementation of e-ProMIS among other forms of e-government systems. Results from inferential statistics indicated that availability of ICT infrastructure had a positive and statistically significant moderating influence on the relationship between organisational internal context and implementation of e-ProMIS. It can therefore be concluded that availability of ICT infrastructure plays a critical role in the implementation of e-ProMIS and should therefore made available to all public institutions implementing e-government systems.

The eighth research objective in this study was to examine the mediating influence of staff attitude on relationship between organisational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya. Staff attitude was categorized into perceived ease of use and perceived usefulness of e-ProMIS. Indicators were developed on the two categories and included in the research instrument. From descriptive statistics it can be concluded that most of the members of staff in tertiary institutions had a negative attitude towards the usefulness and ease of use of e-ProMIS. They found it difficult to input data into the e-ProMIS data base and also did not find the usefulness of the system. Based on the test of hypothesis it can be concluded that staff attitude has a statistically significant mediation influence on the relationship between organisational internal context and implementation of e-ProMIS.

5.4 Contribution to Knowledge

Table 5.1 summarizes the contribution of the study to knowledge.

Table 5.1: Contribution to Knowledge

Objective	Findings	Conclusion	Contribution to Knowledge
To establish the extent to which organisational strategy influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	Organisational strategy has an influence on implementation of e-ProMIS	Defender and reactor strategies have a statistically significant influence on implementation of e-ProMIS. Prospective strategy does not.	The study has empirically proved the influence of different types of organisational strategy on implementation of e-ProMIS.
To examine the extent to which organisational structure influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya	Organisational structure has an influence on implementation of e-ProMIS	Formalization, Centralization and Complexity structure have a statistically significant influence on implementation of e-ProMIS.	The study has empirically proved the influence of different types of organisational structure on implementation of e-ProMIS.
To establish the extent to which organisational leadership influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	Organisational leadership has an influence on implementation of e-ProMIS	Both transformational and transactional leadership styles of leadership have a statistically significant influence on implementation of e-ProMIS.	The study has empirically proved the influence of different types of organisational leadership styles on implementation of e-ProMIS.
To examine the extent to which organisational culture influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	Organisational culture has an influence on implementation of e-ProMIS	Bureaucratic and innovative cultures have a statistically significant influence on implementation of e-ProMIS while supportive culture does not.	The study has empirically proved the influence of different types of organisational culture on implementation of e-ProMIS.
To establish the extent to which staff capacity influences the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	Staff capacity has an influence on implementation of e-ProMIS	Staff capacity is important in implementation of e-ProMIS.	The study has empirically proved that training of staff on implementation of new Information technologies is more important than skills in ICT packages.

To determine the joint influence of organisational internal context on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	Organisational internal context has a joint influence on implementation of e-ProMIS.	Staff capacity has more influence on implementation of information communication technology than organisational strategy, organisational structure, organisational leadership and organisational culture.	The study has brought together factors related to organisational internal context and empirically proved how they influence implementation of e-ProMIS.
To examine the moderating effect of availability of Information Communication Technology on the influence of organisational internal context on implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	Availability of ICT infrastructure has a moderating effect on the relationship between organisational internal context and implementation of e-ProMIS	To effectively implement e-ProMIS, availability of ICT infrastructure is important as it moderates the relationship between organisational internal context and the implementation process.	The study has empirically proved that availability of ICT infrastructure has a moderating effect on implementation of e-ProMIS. No other study had considered availability of ICT infrastructure as a moderating variable
To examine the mediating influence of staff attitude on the influence of organisational internal context on implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	Staff attitude has a statistically significant mediating effect on the relationship between organizational internal context and implementation of e-ProMIS.	Perceived ease of use and perceived usefulness determine the attitude of staff towards a new technology.	The study has empirically proved the mediating effect of staff attitude. No other study has done this.

5.5 Recommendations

This section presents recommendations made from the study based on findings. Recommendation on policy and practice are contained in this section.

5.5.1 Recommendations for Policy

Considering that the government of Kenya is moving towards implementation of e-government in various aspects of service delivery including e-ProMIS, e-procurement and filling of tax through itax among others, this study has implications to the government,

implementing agencies and citizens. The study findings have indicated that each of the organisational context investigated had an influence on implementation. The study revealed a statistically significant relationship between organisational strategies, organisational structure, organisational leadership, organisational culture and staff capacity on implementation of e-ProMIS. This implies that if organisation have the right strategy, structure, leadership and culture, implementation of e-ProMIS and other e-government systems would be effective. Policy makers should ensure that public institutions adopt the right strategies, structure and culture that support e-government systems. Leadership training is also important as a communication channel to ensure support of the adoption and implementation of new technologies. The implementation of e-ProMIS would be difficult without the support of the organisational leaders,

Findings from the study also indicated the need for policy makers to ensure adequate equipping of public institutions with the relevant ICT infrastructure that supports implementation of the e-systems. For implementation to be effective, availability of ICT infrastructure in implementing institutions becomes critical. Although most of the institutions indicated availability of desktop computers, the respondents cited challenges emanating from lack internet connectivity and difficulties accessing the online systems due to congestion or the servers not working properly. Policy makers also need to address the issue of training of the implementers. Results on staff capacity showed a statistically significant influence on implementation of e-ProMIS. This implies that policy makers need to design a training curriculum that would equip the implementers with the necessary knowledge and skills to implement the new systems. Clear understanding of the new technology is imperative for implementation to be effective.

The findings also showed a statistically significant mediation effect of staff attitude on the relationship between organisational internal context and implementation of e-ProMIS. Considering that the findings from this study also indicated that majority of the respondents had a negative attitude towards e-ProMIS based on perceived usefulness and perceived ease of use, it is necessary for policy makers to develop strategies for changing the attitude of the implementers to ensure it becomes positive. There is therefore need to embark on training programmes to educate staff members and citizens on the usefulness of the new technologies and how to use them. In addition, a close monitoring system should be put in place to check on the level of implementation of new technological

systems and address the challenges that are negatively affecting the implementation process. Considering that majority of the respondents indicated conflicting roles with their other responsibilities resulting to over burdening of implementers, it is the recommendation of this study that policy makers consider creating an office for implementation of e-government systems in public institutions. This would effectively improve the implementation process.

5.5.2 Recommendations for Practice

The findings from this study provide a strong indication that implementation of e-ProMIS is influenced by organisational context namely organisational strategy, organisational structure, organisational leadership, organisational culture, staff capacity and staff attitude. This implies that public and private organisations need to align their internal context so as to embrace new technologies. In this era of digital systems, organisations have to adopt strategies, structure, leadership styles and a culture that is conducive for implementation of the new electronic systems. Leaders and implementers need to emphasize on capacity building that will equip their members of staff with knowledge and skills on implementation of the new IT systems in order to bridge the digital divide.

For organisations to be effective and efficient in implementation of the electronic systems they must analyse their internal dynamics so as to position themselves strategically to embrace electronic technology. Public institutions can apply the findings of this study in areas of human resource development such as training, strategic development and cultural development. The study provides further insight into how staff attitude influences implementation of new technologies. The study recommends attitudinal change trainings so that members of staff are not expected to implement systems that they do not see the usefulness in ensuring effective performance of their roles. Resources should also be invested in availing ICT infrastructure that is necessary for supporting implementation of IT based technologies.

5.5.3 Recommendations of the Study on Methodology

This study used pragmatic paradigm to support its mixed mode approach. Cross-sectional survey was carried out using questionnaire as the data collection instrument. Data was analysed using descriptive statistics, correlation and hypotheses tested using simple linear regression, multiple and stepwise regression. A key departure from most other studies was to test hypotheses using data from types or categories of the main variable rather than

the composite of the main variable under study. This was done on organisational factors like organisational strategy, organisational structure, organisational leadership and organisational culture. The advantage with this approach is that it was able to identify and isolate the type or category of each organisational factor that was statistically significant instead of a general conclusion on the broad organisational factor. This was found to provide in-depth information on each of the organisational factors. Another implication of the findings from this study for the methodology is the need to use mixed mode research approach. This allows the researcher to compare results obtained from both descriptive statistics and inferential statistics in order to provide a detailed interpretation.

5.6 Suggestions for Further Study

Arising from some of the implications and limitations of this study recommendation for further study are made. While this study successfully established the influence of organisational internal context on implementation of e-ProMIS, it also presented rich prospects to examine in future research. The findings from this study revealed that staff attitude mediated the relationship between organisational internal context and implementation of e-ProMIS. Further research can also investigate other variables that could mediate this relationship between organisational factors and implementation of electronic systems. Further to this, staff attitude should be studied as an independent variable to establish its influence on implementation of e-ProMIS. The joint influence of organisational internal context was also left out in this study and hence recommended to be considered in future studies.

Given that this study focussed on public tertiary institutions in Kenya, it is recommended that a similar study be replicated covering other public institutions that are implementing the e-ProMIS. This study can also be replicated in other developing countries to determine if the same results can be obtained. Considering that the government of Kenya is in top gear in its endeavour to implement other e-government systems, it is recommended that future research should target implementation of the entire e-government systems in order to give cross-e-government system comparison. However, other e-government systems like e-Procurement and the compulsory electronic filling of tax returns (itax) should benefit from independent studies. In addition future studies need to test the influence of monitoring and evaluation practices on the implementation of e-government systems.

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APPENDICES

Appendix I : Letter of Introduction

Kirema Nkanata Mburugu
School of Education and External studies
University of Nairobi
Tel: 0722 347 057
kirema.mburugu@yahoo.com
2nd March 2015

The Principal
……..

Dear Sir/Madam

RE: ACADEMIC RESEARCH

I am a Ph.D. candidate in Project Planning and Management (Monitoring and Evaluation speciality) in the School of Education and External Studies of the University of Nairobi. I am collecting data for my research on: **"Influence of Organisational Internal Context on the Implementation of Electronic Project Monitoring Information System (e-ProMIS) in Tertiary Institutions in Kenya".**

Your institution has been randomly selected to be part of this study. I kindly request you to allow my research assistant to collect data on my behalf from your institution by administering questionnaires to Deputy Principal(s), Registrar(s), HODs and members of staff trained by the Ministry of Education, Science and Technology on implementation of Electronic Project Monitoring Information System (E-ProMIS).

The information given will be treated with confidentiality and will only be used for this study.

Thank you and God bless.

Yours faithfully

Mr. Kirema Nkanata Mburugu
Ph.D. Candidate- UON

Appendix II: Questionnaire for Respondents from Tertiary Institutions

I kindly appreciate your time and cooperation in completing this questionnaire. This will take you just a few minutes to complete. The questionnaire aims at capturing data on: "***Influence of Organisational Internal Context on the Implementation of Electronic Project Monitoring Information System (E-ProMIS) in Public Tertiary Institutions in Kenya"***. This is purely an academic research for my doctoral studies in Project Planning and Management (Monitoring and Evaluation) in the University of Nairobi. The results will hence not be traceable to you or any individual person. I therefore urge you to freely answer the questions as honestly as possible. The questionnaire is divided into nine sections. Kindly follow the instructions given at the beginning of each section.

SECTION A: Personal Information

Please fill in the information below by ticking appropriately.

1. Please tick the appropriate category of your institution

   Technical training institute [ ]

   Institute of technology [ ]

   Other (Specify)…….

2. Please indicate your gender.

   Male [ ]

   Female [ ]

3. What is your age bracket?

Below 26 years.	[ ]	26-30 years.	[ ]
31-35 years	[ ]	36-40 years	[ ]
41-45 years	[ ]	46-50 years	[ ]
51-above year	[ ]		

4. What is your highest level of education?

Secondary school	[ ]	Bachelor's degree	[ ]
Certificate	[ ]	Masters	[ ]
Diploma	[ ]	PhD	[ ]

   Other (specify ……..

5. Tick your appropriate category?

   Principal [ ]

   E-ProMIS Implementer [ ]

   Other (specify)……

SECTION B: Implementation of e-ProMIS

6. The questions below refer to the level of implementation of e-ProMIS in your institution. The response ranges as follows: **Strongly agree; Agree; Neutral; Disagree; Strongly disagree.** Please tick the most appropriate response that describes the level of implementation of e-ProMIS in your institution.

Statement	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
a. Our institution is registered into the e-ProMIS platform					
b. Projects constructed in our institution since 2010 have been uploaded into e-ProMIS					
c. We frequently upload our projects into e-ProMIS					
d. Members of staff have been sensitized on use of e-ProMIS					
e. Members of staff are involved in uploading data into e-ProMIS					
f. We monitor implementation of e-ProMIS in our institution					
g. In our institution e-ProMIS is used to generate project reports					

7. What challenges do you experience in implementing e-ProMIS in your institution?

   a. ……
   b. ……
   c. ……
   d. ……
   e. ……

8. Suggest ways in which implementation of e-ProMIS can be made more effective?

   a. ……..
   b. …….
   c. ……..
   d. ……..
   e. ……..

SECTION C: Strategy

9. The questions below refer to the type Organizational Strategy utilized by institutions. The questionnaire is rated on a five point Likert scale ranging from: **To a very great extent; To a great extent; To a moderate extent; To a little extent; To a very little extent**. Please tick **ONLY** the most appropriate response to your organization.

Statement	To a very great extent	To a great extent	To a moderate extent	To a little extent	To a very little extent
I. Prospectors Strategy					
a) We continually redefine our service priorities					
b) We seek to be first to identify new modes of service delivery					
c) Searching for new opportunities for service delivery is a major part of our overall strategy					
d) We often change our focus to new areas of service provision					
II. Defender					
e) We are not quick at developing new products and services					
f) We seek a balance between stable and changing service scope					
g) We watch our competitors closely for new ideas and adopt those which					

appear to be most promising					
h) We seek to maintain stable service priorities					
i) We emphasize efficiency of service provision (e.g. high quality and low cost)					
j) We focus on our core activities					
k) We have no definite service priorities					
III. Reactor					
l) We change provision only when under pressure from external agencies					
m) We give little attention to new opportunities for service delivery					
n) We explore new opportunities only when under pressure from external agencies					
o) We have no consistent response to external pressures					

SECTION D: Organizational structure

10. The questions below provide various indicators of structure in the organization. The response ranges as follows: **Never; Rarely; Occasionally; Frequently; Always.** Please tick the most appropriate response to your organization.

Statement	**Never**	**Rarely**	**Occasionally**	**Frequently**	**Always**
I. Formalization					
a. Codified job descriptions are used by our organization.					
b. Rules and procedures govern decisions and working relationship.					
c. Ranges of variation are allowed within jobs in our organization.					
II. Complexity					
d. Specialist (e.g. lawyers, engineers, IS experts etc) are employed by our organization to either make or assist in making decisions					
e. The level of training required for our lowest level managers and each succeeding level varies					

considerably					
III. Centralization					
f. Lines of communication and responsibilities are clear					
g. Decisions are made by top managers and delegated to middle and low level managers					

SECTION E: LEADERSHIP STYLES

11. The questions below refer to the leadership style of your immediate manager/supervisor. Rate him/her according to how he/she behave towards you or others or in a given situation. The questionnaire is rated on a five point Likert scale ranging from; **Not at all, rarely, occasionally, frequently and always**. Please tick the most appropriate response to your manager's leadership style.

Statement	**Not at all**	**Rarely**	**Occasionally**	**Frequently**	**Always**
I. Transformational Leadership Style					
a). Re-examines critical assumptions to ensure appropriate action					
b). Seeks differing perspectives when solving problems					
c). Gets me to look at problems from many different angles					
d). Suggests new ways of looking at how we do our jobs					
e). Talks optimistically about the future					
f).Talks enthusiastically about what needs to the accomplished					
g).Articulates a compelling vision of the future					
h). Expresses his/her confidence that we will achieve our goals.					
i).Instills pride in being associated with him/her					
j). Goes beyond own self-interest for the good of the group.					
k).His /her actions build my respect for him/her					
l).Displays a sense of power and confidence					

m). Spend time teaching and coaching us.					
n). Treats me as an individual rather than just a member of a group.					
o). Treats each of us as individuals with different needs abilities and inspirations.					
p). Focuses on me for developing my strengths.					
q). Talks to us about his/her most important values and beliefs.					
r).Specifies the importance of having a strong sense of purpose					
s).Considers the moral and ethical consequences of his/her decisions					
t).Emphasizes the importance of having a collective sense of mission					
II. Transactional Leadership Style					
a). Makes clear what I can expect to receive if any performance meets designated standards.					
b). Expresses his/her satisfaction when I do a good job					
c). Focuses attention on irregularities, mistakes, exception and deviations from standards.					
d).Spends his/her time looking to "put out fires"					
e).Keeps tracks of my mistakes					
f). Directs his/her attention toward failure to meet standards					
g). Things have to go wrong for him/her to take action.					
h).Shows he/she is a firm believer in "if it isn't broke, don't fix it"					

SECTION E: Organizational Culture.

12. The questions below refer to types of organizational culture. The questionnaire is rated on a five point Likert scale ranging from: **To a very great extent; To a great extent; To a moderate extent; To a little extent; To a very little extent**. Please tick the most appropriate response to your organization.

Statement	To a very great extent	To a great extent	To a moderate extent	To a little extent	To a very little extent
I. Bureaucratic Culture					
a). Power is centralized at the top					
b).Managers are decision makers and decisions are made autocratically					
c). Managers do not delegate important task					
d). Managers coordinate, organize and monitor people and processes					
e). Jobs are highly standardized and formalized with clearly defined rules, procedures and work processes that are strictly followed.					
II. Supportive Culture					
f). Stability performance and efficient operations are long term goals					
g). Success means dependable delivery, smooth scheduling and low cost					
h).The focus is on internal integration, stability, order and control					
i). Power and decision making is decentralized					
j). An open, safe and friendly working environment where teamwork, support participation and consensus is encouraged.					
k).Leaders are mentors/parental heads, encouraging and sociable					
III. Innovative Culture					
l). Innovation, risk-taking and challenges are embraced and individual initiatives and freedoms are encouraged.					
m). Commitment to experimentation and thinking differently.					
n).The focus is to be on the leading edge/being an industry leader					
o). The long-term emphasis is on empowerment, growth development and job security					
p). Success means gaining unique and new products /services.					

SECTION G: AVAILABILITY OF ICT INFRASTRUCTURE.

13. The questions below refer to availability of ICT infrastructure in your institution. The questionnaire is rated on a five point Likert scale ranging from: **To a very great extent**; **To a great extent; To a moderate extent; To a little extent; To a very little extent.** Please tick the most appropriate response to describe availability of the following ICT infrastructure in your organization.

	To a very great extent	To a great extent	To a moderate extent	To a little extent	To a very little extent
a). Desk top computers for staff					
b). Laptop computers for staff					
c). Internet connectivity					
d). Data storage portable devices e.g. flash disks, CDs					
e). Digital cameras					
f). Mobile networks					
g). Electricity supply					
h). Stand by generator / solar energy					

SECTION H: STAFF ATTITUDE

14. The questions below describe your attitude towards E-ProMIS. It is rated on a five point Likert scale ranging from; **strongly agree, agree, neutral, disagree, strongly disagree.** Please tick the most appropriate response on how you perceive E – ProMIS.

Statement	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
I. Perceived usefulness					
a). e-ProMIS improves quality of my work					
b). e-ProMIS gives me greater control of my work					
c). e-ProMIS enables me to accomplish tasks quickly					
d). e-ProMIS supports critical aspects of my work.					
e). e- ProMIS improves performance of my work.					
f). e-ProMIS enhances effectiveness.					
g). e-ProMIS makes it easier to do my job.					
h). e-ProMIS increases productivity.					
i). e-ProMIS is overall useful to me.					

II. Perceived ease of use.					
j). e-ProMIS is awkward to use.					
k). e-ProMIS is difficult to learn.					
l).Use of e-ProMIS is frustrating					
m). I find it easy to get e-ProMIS do what I want					
n). e-ProMIS is rigid and inflexible to use					
o). It is easy to remember how to use e-ProMIS					
p). e-ProMIS takes a lot of mental effort.					
q).Use of e-ProMIS is clear and understandable					
r). It takes effort to be skillful in using e-ProMIS					
s).e- ProMIS is overall easy to use					
t). It is impossible to use e-ProMIS without help.					

SECTION I: Staff capacity

15. The questions below refer to your ICT skills and e-ProMIS training and its relevance in the implementation of e-ProMIS. The response ranges as follows: **Very great extent, Great extent, Minimal extent, Very minimal extent and No extent.** To what extent do your skills in the following ICT areas help in implementation of e-ProMIS?

Statement	**Very great extent**	**Great extent**	**Minimal extent**	**Very minimal extent**	**No extent**
a. Word processing (Ms Word)					
b. Spread sheet (Excel)					
c. Presentation software (Power Point)					
d. Data base (Acess)					
e. Use of internet					
f. Skills got from e-ProMIS training					

THANK YOU

Appendix III: List of Tertiary Institutions that Participated in the Study

1. Bumbe Technical Training Institute
2. Rwika Technical Training Institute
3. Meru Technical Training Institute
4. Maasai Technical Training Institute
5. Michuki Technical Training Institute
6. Matili Technical Training Institute
7. Kitale Technical Training Institute
8. Kabete Technical Training Institute
9. Kenya Technical Teachers Training College
10. P.C Kinyanjui Technical Training Institute
11. Rift Valley Technical Training Institute
12. Kaimosi Institute of Science and Technology
13. Nyandarua Institute of Science and Technology
14. Bushiangala Technical Training Institute
15. Sigalagala Technical Training Institute
16. Shemberere Technical Training Institute
17. Nkabune Technical Training Institute
18. Sang'alo Institute of Science and Technology
19. Kiambu Institute of Science and Technology
20. Siaya Institute of Science and Technology
21. Keroka Technical Training Institute
22. Gusii Institute of Science and Technology
23. Ramogo Institute of Advance Technology
24. Kisumu National Polytechnic
25. Kisiwa Technical Training Institute
26. Wote Technical Training Institute
27. Nyeri Technical Training Institute
28. Thika Technical Training Institute
29. Mathenge Technical Training Institute
30. Kiirua Technical Training Institute

Appendix IV: Summary of Research Objectives, Hypotheses and Results

Objective	Null Hypotheses	Alternative Hypotheses	Results	Remarks
To establish the extent to which organisational strategy influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	1. **H_0:**Organisational Strategy has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	1. ***H_1*:** Organisational strategy has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	R^2=0.263 F=(3,158)18.840 P=0.000<0.05	H_0:Rejected
To examine the extent to which organisational structure influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya	2. **H_0:**Organisational Structure has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	2. ***H_1*:**Organisational structure has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Mt. Kenya	R^2=0.311 F=(3,158)23.760 P=0.000<0.05	H_0:Rejected
To establish the extent to which leadership influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	**3. H_0:**Organisational Leadership has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	3. ***H_1*:**Organisational leadership has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya	R^2=0.296 F=(2,159)33.410 P=0.000<0.05	H_0:Rejected
To examine the extent to which	**4. H_0:**Organisational Culture has no	4. ***H_1*:**Organisational culture has a		

organisational culture influence the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya	R^2=0.254 F=(3,158)17.892 P=0.000<0.05	H_0:Rejected
To establish the extent to which staff capacity influences the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	**5. H_0:** Staff Capacity has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	5. $\boldsymbol{H_1}$**:** Staff capacity has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	R^2=0.42 F=(1,160)120.16 1 P=0.000<0.05	H_0:Rejected
To determine the joint influence of organisational internal context on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	6. H_0:Organisational internal context has no significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya	6. $\boldsymbol{H_1}$**:** Organisational internal context has a significant influence on the implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	R^2=.557 F=(5,155)39.272 p= (0.000<0.05)	H_0:Rejected
To examine the moderating influence of availability of Information Communication Technology on the relationship between	7. H_0**:** The strength of the relationship between organisational internal context and implementation of Electronic Project Monitoring	7. $\boldsymbol{H_1}$**:** The strength of the relationship between organizational internal context and implementation of Electronic Project Monitoring	R^2=0.557 $R^2\Delta$=0.597 F=(5,155)54.424 P=0.000<0.05	H_0:Rejected

organisational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	Information System in Public Tertiary Institutions in Kenya is not dependent on availability of Information Communication Technology	Information System in Public Tertiary Institutions in Kenya is dependent on availability of Information Communication Technology infrastructure.		
To examine the mediating influence of staff attitude on the relationship between organisational internal context on implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya.	8. **H_0:** The strength of the relationship between organizational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya is not dependent on staff attitude.	8. ***H_1*:**The strength of the relationship between organizational internal context and implementation of Electronic Project Monitoring Information System in Public Tertiary Institutions in Kenya is dependent on staff attitude	R^2=0.546 $R^2\Delta$=0.559 β=0.748 p=0.341>0.05	H_0:Rejected

Appendix V: Research Permit

THIS IS TO CERTIFY THAT:
MR. KIREMA NKANATA MBURUGU
of UNIVERSITY OF NAIROBI, 0-60100
eMBU,has been permitted to conduct
research in *All Counties*

on the topic: *INFLUENCE OF ORGANISATIONAL INTERNAL CONTEXT ON THE IMPLEMENTATION OF ELECTRONIC PROJECT MONITORING INFORMATION SYSTEM IN PUBLIC TERTIARY INSTITUTIONS IN KENYA*

for the period ending:
8th February,2016

Permit No : NACOSTI/P/15/5665/4896
Date Of Issue : 10th February,2015
Fee Recieved :Ksh 2,000

.....
Applicant's Signature

.....
Secretary
National Commission for Science, Technology & Innovation

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit
2. Government Officers will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No. A 4214

CONDITIONS: see back page

Appendix VI: Sensitization on E- Promis 2013

APPENDIX D: SENSITIZATION ON E-PROMIS 2013

MINISTRY OF HIGHER EDUCATION, SCIENCE AND TECHNOLOGY

Telegrams: "SCIENCE TECH", Nairobi
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Ref: MOHEST/FIN/11/4/Vol.XIV (31) 20th March 2013

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Dear,

RE: SENSITIZATION ON E-PROMIS MONITORING AND EVALUATION OF PROJECTS

As you may be aware, public institutions are required to upload information in the e-promis for monitoring, analysis and reporting on the projects you are implementing. Likewise designated officers from your institution were trained to be the lead persons in managing the e- promis.

Analyses for backend reports generated from the e-promis have revealed shortcomings in adequacy and accuracy of captured information on projects. The shortcomings include among others, lack of project codes, approval dates, funding sources and specifications of project location. Despite the shortcomings, the e-promis platform has been upgraded with enhanced features to improve the interface with the public financial management system.

In view of the foregoing, it is necessary to enhance the capacity of the e-promis project officers from all Institutions in this Ministry. The aim of this is to build capacity of staff and enhance the quality of project information and monitoring. To achieve this, a sensitization exercise has been organized for all project officers in State corporations and tertiary institution under this Ministry.

You are therefore requested to identify and facilitate three officers to participate in the sensitization exercise. The officers should be competent in ICT and conversant with the projects in the Institution. To ensure consistency and continuity, it would be preferable that those who were previously trained on e-promis attend. The identified officers should ensure that all the on-going projects are uploaded in the e-promis platform before the stipulated dates. Detailed guidelines and the sensitization programme are hereby attached for your reference.

The officers should bring with them a laptop computer, a modem and any other information on your projects not yet uploaded in the system.

PROF. CRISPUS M. KIAMBA, CBS, MBS
PERMANENT SECRETARY

Encl: Training Schedule

REPUBLIC OF KENYA

MINISTRY OF HIGHER EDUCATION, SCIENCE AND TECHONOLOGY

WORK PLAN : e-PROMIS TRAINING, RE-SENSITIZATION AND UPLOADING OF PROJECT DATA

TARGET GROUP: STATE CORPORATIONS AND TERTIARY INSTITUTIONS

18th – 23rd FEB 2013		**MOMBASA**
Training of Ministry M&E, Project Officers and Committee Members		
Dates 2nd to 6th April 2013		**Venue: KSMS/Utalii Hotel**
• University of Nairobi • Jomo Kenyatta University of Agriculture & Technology • Kenyatta University • Technical University of Kenya • Maasai Mara University • South Eastern Kenya University • Cooperative University College	• Multimedia University College • Higher Education Loans Board • Commission for University Education • National Council for Science & Technology • National Biosafety Authority • Kenya Technical Teachers College	• Kabete Technical Training Institute • Nairobi Technical Training Institute • Thika Technical Training Institute • Paramount Chief Kinyanjui Technical Training Institute • Maasai Technical Training Institute • Kiambu Institute of Science and Technology • Wote Technical Training Institute
ELDORET 8th to12th April 2013		**Venue: Rift Valley Technical Training Institute**
• Egerton University • Moi University • University of Kabianga • Technical University of Eldoret • Laikipia University • Matili Technical Training Institute	• Eldoret Polytechnic • Kitale Technical Training Institute • Kaiboi Technical Training Institute • Sang'alo Institute of Technology • Ol-lessos Technical Training Institute	• Kisiwa Technical Training Institute • Rift valley Technical Training Institute • Nyandarua Technical Training Institute • Rift valley Institute of Science and technology

Mombasa 15th to 19th April 2013			**Venue: Mombasa Technical Training Institute**
• Technical University of Mombasa • Pwani University	• Coast Institute of Technology • TaitaTaveta University College`	• Mombasa Technical Training Institute	
Nyeri 22nd to 27th April 2013			**Venue: Nyeri Technical Training Institute**
• Meru University of Science & Technology • DedanKimathi University of Technology • Chuka University • Karatina University College • Nyeri Technical Training Institute	• North Eastern Province Technical Training Institute • Mathenge Technical Training Institute • Michuki Technical Training Institute • Kiirua Technical Training Institute • Nkabune Technical Training Institute	• Meru Technical Training Institute • Rwika Institute of Technology • Muranga University College • Embu university College • Wote Technical Training Institute • Kirinyaga University	
29th April to 3rd May 2013			**Venue: Kisumu polytechnic**
• Maseno University • JaramogiOgingaOdinga University • MasindeMuliro University of Science & Technology • Rongo University College	• Kisii University • Kisumu Polytechnic • Sigalagala Technical Training Institute • Bushiangala Technical Training Institute • Ramogi Institute of Advanced Technology • Gusii Institute of Technology	• Siaya Institute of Technology • Mawego Technical Training Institute • Bumbe Technical Training Institute • Keroka Technical Training Institute • Friends College Kaimosi • Shamberere TTI	
6th to 10th May 2013 2013			**Venue: Naivasha/Great Rift**
E-ProMIS report finalization for submission to: 1. **Ministry of Planning, National Development and Vision 2030** 2. **Controller of Budget** 3. **Ministry of Finance**			