INFLUENCE OF ORGANISATIONAL STRATEGY ON IMPLEMENTATION OF ELECTRONIC PROJECT MONITORING INFORMATION SYSTEM IN PUBLIC TERTIARY INSTITUTIONS IN KENYA

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ABSTRACT

The principal objective of the study reported in this article was to empirically assess on the influence of organisational strategy on the implementation of Electronic Project Monitoring Information System (e-ProMIS) in Public Tertiary Institutions in Kenya. The population of the study 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 show that majority of the public tertiary institutions in Kenya applied 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 was 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. Results from inferential statistics 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.

Key Words: **Organizational Strategy, Web-Based Project Management System, Monitoring and Evaluation**

INTRODUCTION

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. 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). 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 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 and 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). 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 and 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, Gupta & Sharma, 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, Gupta & Sharma, 2011). However, information on WPMS from these countries is in form of reports from the government and hence empirical studies seem to be lacking.

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 organisational strategy could be influencing the implementation process. Researchers have discussed how to implement WPMS in developed countries (Nitithamyong and 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 focussed 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 like organisational strategy and how they influence adoption and implementation of ICT based technologies.

Literature Review

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. 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 (Bhat, 2012). 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.

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.

Methodology

The study employed a mixed mode approach to conduct cross sectional descriptive survey. This approach was chosen because of its suitability for obtaining robust data set and results (Kothari, 2004). The population of the study was 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. The total target population was 460 as indicated in Table 1.

Table 1: Target Population

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

The calculation in Table 1 indicate that there was a total population of 460 members of staff from the 35 tertiary institutions made up of 105 e-ProMIS trained staff and 355 deputy principals, registrars and HODs. 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.

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. 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. The sample size and sampling procedure is indicated in Table 2.

Table 2: **Sample Selection of Respondents**

Respondents	**TOTAL**	**SELECTED NUMBER**
e-ProMIS Trained Staff	105	105
Deputy Principals, Registrars, HODs	355	105
Total	**460**	**210 (45.65%)**

Table 2 indicates that a sample of 210 members of staff made up of 105 e-ProMIS trained staff and 105 deputy principals and HODs was selected.

Data was collected using questionnaires. To ensure reliability of the research instrument self-administered approach was used in data collection and Cronbach coefficient Alpha was determined so as to measure internal consistency of the research instrument. The result of the

Cronbach coefficient Alpha were 0.764 on the section of implementation of e-ProMIS and 0.785 on the organizational strategy section of the questionnaire. According to the rule of the thumb provided by George and Mallery (2003) coefficients greater than $\alpha > 0.7$ are acceptable. Data was analysed through data clean up, data reduction, data differentiation and data explanation. Parametric testes were used because they are more powerful and able to reduce chances of committing type II error, less likely to not reject a null hypothesis which should be rejected. Hypothesis was tested using correlation and regression analysis.

Operationalization of the independent and dependent variables

Operational definition of the independent and dependent is provided here. The independent variable of this study was organisational structure while the dependent variable was implementation of e-ProMIS as indicated in Table 3

Table 3. Summary of Variables, indicators, Measurements and Measurement Scales

Variable	Indicators	Measurements	Measurement scales
Independent			
Organisational Strategy	**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	A composite index was obtained by calculating the average of the total sum of the response over the five scales measuring this variable..	Interval
	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	A composite index was obtained by calculating the average of the total sum of the response over the five scales measuring this variable.	Interval

	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 response over the five scales measuring this variable.	Interval
Dependent Variable			
Implementation of E-ProMIS	• Registered on e-ProMIS platform • Number of projects uploaded into the system • Frequency of uploading data • Use e-Pr0MIS internally	A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the five scales measuring this variable.	Interval

Findings

Descriptive and inferential statistics of the influences of organisational strategy on implementation of e-ProMIS was done.

Descriptive Analysis

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

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 great extent; To a great extent; To a moderate extent; To a little extent and To a very little extent from which to choose. The findings are presented in Table 4.

Table 4: 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 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.

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 great extent; To a great extent; To a moderate extent; To a little extent and To a very little extent from which to choose. The responses are presented in Table 5.

Table 5: 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 5 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.

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 great extent; To a great extent; To a moderate extent; To a little extent and To a very little extent from which to choose. The findings are presented in Table 6.

Table 6: 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 6 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.

Overall analysis on Organizational Strategy

The overall findings on the extent to which tertiary institutions utilise organisational strategy are shown in Table 7.

Table 7: 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 7 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.

Correlational Analysis of Organizational 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 8.

Table 8 Correlation Matrix for organizational 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 8 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.

Regression Analysis and Hypotheses Testing

The 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 objective, the following hypothesis was tested using simple linear regression model.

Hypothesis

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 9.

Table 9: 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 9 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

Discussion

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.

Conclusion

The study investigated the influence of organisational strategy on the implementation of Electronic Monitoring Information System in Public Tertiary Institutions in Kenya. 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.

Implications of the Research Findings

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 organisational strategy had an influence on implementation of e-ProMIS. This implies that if organisation have the right strategy, implementation of e-ProMIS and other e-government systems would be effective. Policy makers should ensure that public institutions adopt the right strategies that support e-government systems.

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. The geographical distribution of the public tertiary institutions covering the entire country made it difficult to access. This limitation was mitigated by hiring

and training research assistants to help in data collection in each region. The researcher divided the country into regions namely; Nairobi, Mt Kenya, Kakamega, Bungoma, Rift valley, Eastern, Coast, Kisumu, Kisii and had a research assistant in each of the regions. North Eastern became difficult to penetrate due to the prevailing Alshabaab terrorist attacks during the period of study. However, the North Eastern region had only one Tertiary institution, North Eastern Province technical training institute.

Some of the respondents also 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. 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. The study involved all public tertiary institutions which are spread all over the country. 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.

References

Bhat, A. B., Verma, N., Rangnekah, S., & Barua, M. K. (2012).Leadership style and team processes as predictors of Organisational learning. *Team Performance Management,* Vol. 18 No. 7/8, pp. 347-369.

Chen, Y.N., Chen, H.M.,& Huang, W. (2006). E-Government Strategies in Developed and Developing Countries: An Implementation Framework and Case Study. *Journal of Global Information Management* 14(1) 23-46.

Gakuu, C.M. (2006). *Analysis of the factors and attitudes that influence lecturers' readiness to adopt Distance Education and the use of ICT in teaching: The case of the University of Nairobi*. An unpublished PhD thesis of the University of Nairobi.

Gakuu, C.M., & Kidombo, H.J., (2010). Pedagogical integration of ICT in selected Kenyan secondary schools. *Journal of Continuing, Open and Distance Education. University of Nairobi.*Vol.1 pp. 73-95.

George, D., & Mallery, P., (2003) *SPSS for Windows Step by Step: A Simple Guide and Reference 11.0 Update (4th Ed.).* Boston; Allyn & Bacon.

Gichora, D. (2005). Factors affecting the successful implementation of ICT projects in government. *Electronic journal of e-government* volume 3, issue 4 175-184

Ibua, M.P (2014). *The influence of institutional factors on the relationship between employee characteristics and employee outcomes in public corporations in Kenya.* (Unpublished doctoral thesis). University of Nairobi.

Kandie, P. Y. (2009). *The influence of organisational strategy, institutional factors and performance of Small and Medium Enterprises (SMEs) in Kenya*. Unpublished PhD thesis, School of Business, University of Nairobi.

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*. An unpublished PhD thesis of the University of Nairobi.

Krejcie, R. V. & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*. Vol. 30, pp 607-610.

Madanoglu, M. Okumus, F. &Avci, U. (2014).Building a case against strategic equifinality; Hybrid ideal type service organizations in a developing country. *Management Decision,* Vol. 52 No. 6, pp. 1174-1193.

Mbwesa, J. K. (2010). Faculty perception on the effectiveness of Wedusoft as a learning management system. *Journal of Continuing, Open and Distance Education. University of Nairobi.*Vol.1 pp. 25-42.

Miles, R. & Snow, C. (1978), *Organizational Strategy, Structure and Process*, McGraw-Hill, New York, NY.

Mintzberg, H. (1983), *Structure in Fives: Designing Effective Organizations.* Prentice Hall, Englewood Cliffs, NJ.

Mulwa, A. S. (2012). *The influence of institutional and human factors on readiness to adopt. E-Learning in Kenya: The case of secondary schools in Kitui district*. An unpublished PhD thesis of the University of Nairobi.

Nitithamyong, P., & Skibniewski, M. J. (2011). Success factors for the implementation of web based construction project management systems; A cross-case analysis. *Construction Innovation* Vol. 11 No. 1, pp. 14-42

Ronoh J.B. (2013*). Business strategy, organizational structure, human resource strategic orientation and performance of large private manufacturing firms in Kenya*. An unpublished PhD thesis of the University of Nairobi.

Samuelson, O. (2008), "The IT-barometer – a decade's development of IT use in the Swedish construction sector", *Journal of Information Technology in Construction*, Vol. 13, pp. 19.

Singh, M. K., Gupta, A. K., & Sharma, S. A. (2011) Web Based Project Monitoring system CPWD. Info Jyothi Software Consultancy, Chennai

Sivagnanasothy, V. (2007). *Institutionalization of Monitoring and Evaluation System in Sri Lanka – Lessons learnt, Best practices, Issues, Challenges and the Way Forward*. Ministry of Plan Implementation

Thorpe, T. and Mead, S. (2001), "Project-specific web sites: friend or foe?" *Journal of Construction Engineering and Management*, Vol. 127 No. 5, pp. 406-13.