OFFSHORE SOFTWARE DEVELOPMENT AND IMPLEMENTATION PROJECTS IN PUBLIC ORGANIZATIONS: A CASE OF KENYA POWER AND LIGHTING COMPANY

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ABSTRACT

Offshore software development is a modern business approach for producing high quality and customized software. The objective of this study was to identify various critical success and failure factors that have a positive impact on OSD projects in public organizations. The study performed a Literature Review process for the identification of success and failure factors in the implementation process of OSD projects. A descriptive research was adopted and data collected via questionnaires was analyzed through SPSS. The study identified success factors top management support, technology, training and competence, organizational resource and the funds management that are generally considered important when implementing OSD projects. The results also reveal the similarities and differences in the factors identified in different studies. Top management support, technology, training and competence, organizational resource and the funds management should not be considered as the only factors in the implementation of OSD projects. Other factors have to be addressed in order to have the OSD projects implementation successful in public organization.

Key Words: Offshore software development, implementation projects, public organizations, Kenya Power and Lighting Company

Introduction

KPLC is a limited liability company responsible for the transmission, distribution and retail of electricity bought in bulk from Kenya Electricity Generating Company Limited (KENGEN) and the Independent Power Producers (IPPs) throughout Kenya. It was created back in 1954 then known as Kenya Power and lighting Company (KPLC) for the purpose of transmitting power from Uganda through the Tororo-Juja line. It was then managed by the East Africa Power & Lighting company (E.A.P&L). In 1964 EAP&L sold its Tanzania's shares to the government of

Tanzania and hence it operations were limited to Kenya. This again prompted a change of its name to Kenya Power & Lighting Company Ltd (KPLC) in 1983. Throughout this time KPLC was in charge of power generation, transmission and distribution. However, in 1997, the power generation part was split off from KPLC functions hence leaving KPLC with the responsibility of transmission and distribution of power (KPLC, 2013). KPLC owns and operates the national transmission and distribution grid, and retails to more than 2,200,000 customers throughout Kenya.

Statement of the Problem

The advent of globalization has seen the rise of business competition across the globe. The energy sector in Kenya, which is part of the key pillars of vision 2030 contribute over 4% of GDP, has been no exception (KPLC, 2010). Statistics from republic of Kenya (2012) show that software development and implementation is a major challenge due to high failure rate in public sector (Rok, 2013). Data available from the World Bank (WB) show that KPLC was associated with very low offshore software development and implementation with a 50 percent success rate (WB, 2012). The purpose of the study was to determine factors influencing offshore software development and implementation projects. There was therefore need to establish a model that takes into consideration the Success and Failure Factors (SF) and the best practices for offshore software development and implementation projects in public organizations so as to address the challenges facing organizations developing and implementing offshore software development projects.

General Objective of the Study

The general objective of this study was to analyze the factors, which influence the success and failure factors of offshore software development project implementation in the public organization in Kenya.

Specific Objectives

1. To determine the effect of top management support on offshore software development and implementation projects in Kenya Power and Lighting Company.
2. To determine the effect of technology support on offshore software development and implementation projects in Kenya Power and Lighting Company.
3. To analyze the effect of staff training on offshore software development and implementation project in Kenya Power and Lighting Company.
4. To analyze the effect of Organizational Resources on offshore software development and implementation project in Kenya Power and Lighting Company.
5. To explore the effect of funds mismanagement on offshore software development and implementation project.

Literature Review

According to (Bruque-Camara *et al*., 2004) Top management support positively affected IT adoption in public organizations. We can well define the relationship between the top management support and the projects performance, by arguing that the senior management teams are crucial determinants of projects implementations. This view is supported by studies of top management support in the public sector (Certo *et al.,* 2006). The evidence, that top management support promotes information technology project success and in particular the OSD projects, previous studies fails to offer insights into the background of the top management support of such projects.

Conceptual Framework

A conceptual framework is a logically developed and elaborated network of interrelationships among variables integral in the dynamics of a situation being investigated. It explains the theory underlying these relationships and describes the nature and direction of these relationships. A variable is a measurable characteristic that assumes different values among the subject. It is therefore a logical way of expressing a particular attribute in a subject (Mugenda & Mugenda, 2003). A dependent variable is the variable of the primary interest to the researcher.
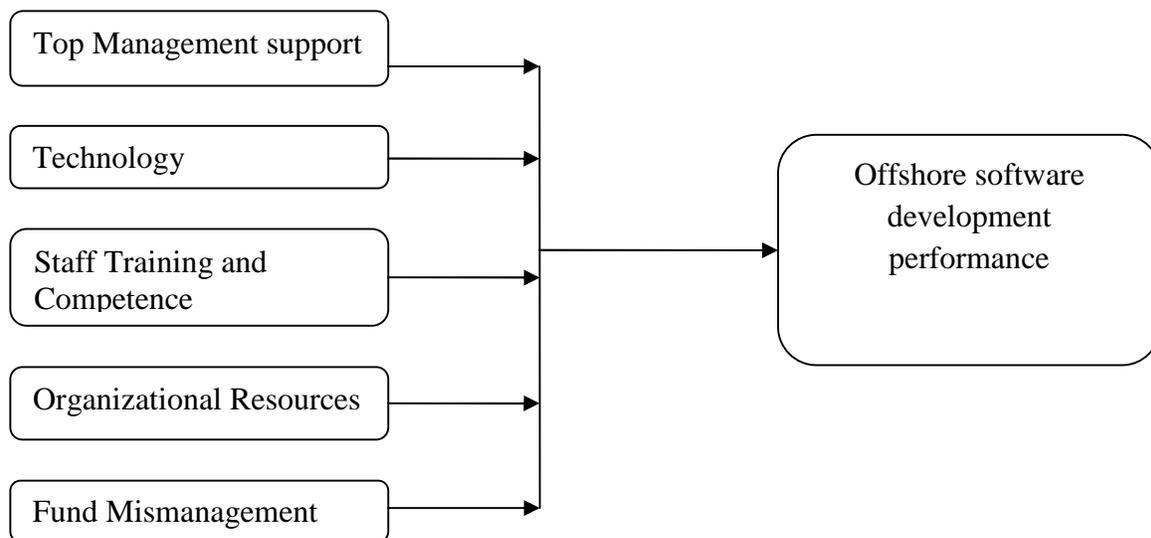
Independent variables   *Dependent variables*

Figure 2.1: Conceptual Framework

Review of Variables

Top Management support

Involving employees and effective use of their idea enable top management to achieve optimal process operation (Champy & Weger, 2005) suggest that education and training policies depend on a firm's management culture and forms of management-led organizational change. While such policies are affected by a firm's market, production technologies and strategic goals,

managers have the discretion to pursue varied strategies regarding three issues: entry-level education and training, employee development, and company-school relations. The author's survey of 406 firms in 1991 indicated that there are two management characteristics; innovation commitment and resistance to change.

Technology

Customer relationship management technology has been, and still is, offered as on-premises software that companies purchase and run on their own IT infrastructure. In contrast with conventional on-premises software, cloud-computing applications are sold by subscription, accessed via a secure Internet connection, and displayed on a Web browser. Companies don't incur the initial capital expense of purchasing software; neither must they buy and maintain IT hardware to run it on (Jeff, 2007). Kaplan & Duchon (2008) stated that resource management and development must support an organization's strategies. Tools and workflows can be complex to implement, especially for large enterprises.

Staff Training and Competence

A broad definition of training includes any attempt, within or outside the organization, to increase job-related knowledge and skills of either managers or employees (Fjermestad & Saitta, 2005). Although this definition captures important parameters, the Skills Assessment report also emphasizes specifically the need to distinguish between formal and informal training approaches. Training in itself is a difficult concept to quantify, but (Goodman & Dean, 2002) believes that the practice of providing sweeping generalizations to cover such institutions like banks are in many ways dissimilar makes things even more confusing.

Organizational Resources

Porter (1990) argues that managing people is a major contributing factor to the success of OSD-related organizational change. Rajkumar & Mani (2001) discusses some elements of human change management which he describes as the more difficult challenge, and explains how OSD represents a danger to people when it introduces new job structures and definitions, and forces employees to change their work style. Adelakun & Jennex (2003) and (Arendt *et al*., 2005) classify the human factor as a major dimension that OSD-related improvements should focus on. Hammer & Champy (1993) recognize the importance of the human resource when they state companies are not asset portfolios, but people working together to invent, sell and provide service. However, they fail to demonstrate how to reengineer the human resource in conjunction with OSD related processes.

Funds Mismanagement

Corruption in the fund management of projects can include a wide range of practices including: duplication of payments, alteration of invoices, lack of supporting records, inflation on cost of items, unauthorized payments (Frantz, 2004). This would result to cost escalations and consequence failure of the project. Mismanagement of funds refers to instances where a person

fails to observe laws or guidelines when handling finances for another person or organization (LaMance *et al.,* 2012). For example, if one uses the funds for the person's own personal use

Research Gap

The literature on the factors influencing the success and failure of OSD project conducted so far does not address developing market such as Africa, rather on the European, American and Asia-pacific which have different social economic, culture and political aspects.

This study widely considered the top management support, technology, staff training and competence, organizational resources and fund mismanagement as major contributing factors to the success or failure rate of OSD, however there was little literature available that gives these factors similar weight. This study therefore adds to the literature by establishing the factors affecting the OSD projects in developing world hence filling the study gap.

Methodology
Research Design

Orodho (2003) defines a research design as the scheme, outline or plan that is used to generate answers to research problems. Further (Donald, 2009) notes that a research design is the structure of the research, it is the ''glue '' that holds all the elements in a research project together. For the purposes of this study, the researcher applied a descriptive research design, which according to (Kothari 2004), is used when the problem has been defined specifically and where the researcher has certain issues to be described by the respondents about the problem.
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Study Population

The target population was composed of management and union staff currently working at Kenya Power and Lightning Company regional headquarters. Currently the entire population at KPLC regional Headquarters is 631. This population was considered adequate for the study since all strategic issues such as software development trickle down to all branches countrywide from the headquarters. For purpose of this study the target population was stratified through top management level, senior officer level and low level management.

Data Collection instruments
The researcher administered a survey questionnaire to each member of the target sample. The questionnaire was carefully designed and tested with a few members of the population for further improvements. This was done in order to enhance its validity and accuracy of data collected for the study. Qualitative interviews can be conducted in different ways, such as the informal conversational interview, the guided interview and the standardized open-ended interview. The informal conversational interview allows the interviewer to be highly responsive to individual differences and situational changes.

Data Collection Procedure

In this study the questionnaire was used. The researcher administered the questionnaire individually to all sampled employees. The interview questions were sent through email and others were hand delivered. The two ways were chosen since not all KPLC employees have emails. The face to face interview which is said to be more useful because it allows researcher and interviewee to react to 'non-verbal' signals, was not considered in this study. The researcher exercised care and control to ensure all questionnaires issued to the respondents were received and to achieve this, the researcher maintained a register of questionnaires, which were sent, and those that were received. In this study, all interviewee were interviewed through questionnaires.

Data Analysis

Quantitative data collected was analyzed by the use of descriptive statistics using SPSS v16 and presented through percentages, means, standard deviations and frequencies. The information was displayed by use of bar charts, graphs and pie charts and in prose-form. Content analysis was used on the data that is qualitative nature or aspect of the data collected from the open ended questions. Baulcomb, (2003), content analysis uses a set of categorization for making valid and replicable inferences from data to their context. The data was broken down into the different aspects of factors that influence the success and failure of the OSD projects. This offered a systematic and qualitative description of the objectives of the study.

Research Results

Response Rate

Forty five questionnaires were administered to the target population, and only thirty five were returned representing a 77.8% achievement response rate. 75% response rate is considered good or adequate for any study (Kaplowitz et al., 2004). It is important to note that high response rates assure more accurate results in any study and has been presumed to be an important factor.

Top Management Support

The researcher therefore sought to establish if top management support affects the implementation of OSD at KPLC. On the extent to which management support affects the implementation of OSD at KPLC, majority (29%) of the respondents indicated that management support affects the implementation of OSD at KPLC to a moderate extent, 26% to a great extent, 25% to a very great extent, 15% to a little extent while only 5% indicated that management support affects the implementation of OSD at KPLC to no extent.

Technology

The study sought to establish the extent to which technology affects the implementation of OSD at KPLC. Findings revealed that technology affects the implementation of OSD at KPLC to a moderate extent as shown by 29%, 26% to a great extent, 25% to a great extent, 25% to a very great extent, 26% to a little extent, and 26% to no extent.

Summary

The study further revealed that technological advancements or frequent technological improvements contributed to the success of implementation of OSD at KPLC to a great extent; product/ programs changes to a great extent; technological knowledge to a great extent; that technological equipment to a great extent; development capabilities contributed to the implementation of OSD at KPLC to a great extent. it was established that compatibility of the different systems affected the implementation of OSD at KPLC to a great extent; that roadblocks to collaboration between departments also failed the implementation of OSD at KPLC; that a mismatch between software tools and institution needs affected the implementation of OSD at KPLC to a moderate extent; that installation of new systems posed financial challenge in the implementation of OSD at KPLC; that lack of proper knowledge posed a challenge in implementation of OSD at KPLC to a moderate extent.

Conclusions

The results showed that the OSD project in KPLC was successful with regard to organization resource, but less successful with regard to top management support, technology, funds management, and training. This leads to the conclusion, that in order to increase the success of an OSD project, extra attention should be given to top management support, technology, training and budgeting.

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