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Assessment of Stakeholders Participation in The Implementation of Information and Communication Technology Software Projects: A Case of Jomo Kenyatta University of Agriculture and Technology

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Abstract
Acknowledging people who will directly or indirectly benefit from a project is significant for its success. Projects whether small or large must place more weight on participation of stakeholders to build awareness, set realistic expectations, raise support, minimize resistance and ensure successful implementation and user adoption. Information and Communication Technology (ICT) projects are no different. Getting people to embrace the change and a completely new way of operations of software systems like Customer Relationship Management (CRM), has been an uphill task because of factors like failure to involve the stakeholders and improper change management. The study categorized stakeholders into three; managers, administrators and technical staff. It adopted quantitative and qualitative research approach. We found out that managers are the key decision makers who facilitate the procurement of systems; administrators are the end users while the technical team provides support and maintenance of the systems. We propose that right from problem identification, to system specification all the way to installation of software (implementation) stakeholders must be brought on board.

Key words: Information and Communications Technology (ICT), Information Technology, Software, Customer Relationship Management System (CRM) and Stakeholders.

Introduction

The management of such high number of students has been a great task calling for complex software management systems that can handle student's academic records. Software systems are important because they provide information needed by organizations to be more effective, efficient and accurate. The application of this systems range from allowing organizations to keep track of records, checking on the latest trends among others. A good example of such system is a Customer Relation Management (CRM) System. ((Baran, Galka, & Strunk, 2008)) define CRM as "a software package that is intended to integrate and manage all aspects of customer interactions within an organization and so considerably improve the ability of the

organization to handle customer service, sales, marketing, online transactions and orders." CRM in Institutions of Higher learning (IHL) focuses on automating and improving the institutional processes associated with managing customer relationships, it takes a very customer-centric view of the entire life cycle, which means that a CRM business strategy places the customer at the center of the organization's universe. From the perspective of the customer, a CRM business strategy allows interaction with the college or university from a single entity that has a complete understanding of their unique status. In the case of a student, this might be seen through the interaction with and between the admissions, registration, financial aid, student accounts, and housing offices according to (Grant & Anderson, 2002).

One key important element for the development of any software system is the understanding of the System Requirements Specification (SRS) document alternatively known as a Business Needs Specification. This document has the description of what you want the system to do. The (SRS) document describes all data, functional and behavioral requirements of the software under production or development. The audiences for this document include the system developers and the users. The system developers use this document as the authority on designing and building system capabilities. The users on the other hand review the document to ensure the documentation completely and accurately describes the intended functionality. The first part of the SRS is stakeholder list which should be prioritized. *Stakeholder* here is a person, organization, a group of persons, or even a document (standard, legal act), which is the source of the requirements. It is important to add the organization top management to the stakeholder list to make sure that there is no misunderstanding as well as get their support. The head management may have very different view onto the problem domain than the employees at the bottom of the hierarchy, the end users usually have more realistic view because they interact with the system on a daily routine basis hence understand the problems and a way out to those problems. Owing to complexities that come with these software projects, stakeholders have to be involved so that they own the project and thus increase their success rate. This research looked at the role of stakeholders in the implementation of ICT software projects, a case of Jomo Kenyatta University of Agriculture and Technology (JKUAT) - Kenya, Customer Relations Management system.

Problem statement

Automation of operations in organization is a reality of the 21st century in an effort to beat competition and remain in the business. Organizations are adopting modern technologies for improving efficiency and effectiveness of their activities through software systems. However this has not gone without challenges. Getting people to embrace the change and a completely new way of operations has been an uphill task because of factors like failure to involve the stakeholders in these projects as well as failure to manage change effectively. Despite the many solutions that ICT software projects provide, some projects fail from the onset, during the development cycle or during the actual implementation stage. In JKUAT, the procurement of the CRM system was intended to facilitate the management of students' records and hence improve service delivery. The intention was excellent because one of the objectives of any learning institution is to offer quality services as per the policies that exist. After the

implementation of this system, the usage is still minimal. This research therefore sought to critically look at the stakeholders' role in the implementation of the system by finding out whether the stakeholders were involved in the system acquisition and implementation and whether they were adequately prepared for the adjustment and changes made to their daily routine work.

Objectives

The general objective of this study was to assess the role of stakeholders in the implementation of ICT software projects.

Literature Review

This chapter contains literature materials from a number of educational researchers in their publications and books. Stakeholder involvement in the implementation of ICT project was the focus of this review.

Theoretical and Conceptual Framework

This research will be guided by the Salience model of stakeholder analysis. Stakeholder salience in (*Managing Stakeholder Engagement*, 2007) "is the degree to which managers give priority to competing stakeholder claims" A perfect stakeholder status is determined by the simultaneous presence of three factors according to (Mitchell, Agle, & Wood, 1997). This model uses three factors to describe classes of stakeholders: stakeholder power (ability to impose their will on other stakeholders), urgency (level of need for attention), and legitimacy (appropriateness of the stakeholder's participation at given times).

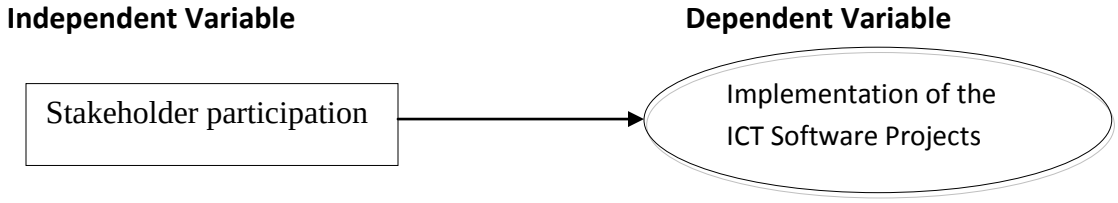

Figure 1: Conceptual Framework

Stakeholder Participation

Stakeholder participation can be described as a range of practices in which organizations take a structured approach to connecting with stakeholders (Beach, 2009). She adds that the engagement has been used for a variety of organizational purposes: as a way to acquit organizational accountability and responsibility to stakeholders, to obtain stakeholder contributions, control risk, construct organizational image and accomplish managerial control.

In his research (Otieno, 2010) indicated that defining systems such as enterprise resource planning systems (ERPs) will be very difficult especially if stakeholders point of view is not taken seriously. According to (Burton, Malone, & Huq, 2005) stakeholder engagement approaches vary from quite passive interactions, where the stakeholders give information, to "self-

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mobilization", where the stakeholders themselves instigate and design the process. He says that different levels of participation will be appropriate for different stages of the project. He however emphasizes on the importance of stakeholders understanding how they are being involved, how the information they provide will be used and whether they have any power to influence decisions.

(Editors, 1998) attribute Information System development (ISD) project failures to dissatisfaction of stakeholders with either the way the project was undertaken or ultimate product. He says that stakeholder resistance to new technology adoption and their concerns of their association with it and the prevailing power structures have a great impact on the actual implementation of the software products. He further says that project often fail because developers do not know who the "real" stakeholders are. Participation of stakeholders is most crucial at the beginning stages of a project. They give valuable inputs to the development of a project.

According to (Armah, Yawson, & Johanna, 2009), development projects in the 1950s and 1960s failed and this lead to social workers and field activist calling for inclusion of population concerned with the project design and implementation. They say that the notion then was that such projects were unsuccessful because local populations were left out of the decision making process; a state of affairs that tended to perpetuate social inequality. Hence participation was proposed as a mechanism to promote equality through inclusion (empowerment). (Frow & Payne, 2006) assert that engagement of staff to support the various initiatives that encompass the overall CRM programme is important because they have a fundamental role to play within the CRM processes. An organization cannot develop and manage appropriately client focused systems and processes without motivated and trained employees.

Implementation of ICT Software projects

ICT has become everyday entity in all aspects of life and its inception in education is transforming the way universities work. (Sevilla & Shabaya, 2007) point out that university customers (student, sponsor, employer or supplier) are demanding for more accurate information and faster services. Students for example would like to verify their fee balances, sign up in their respective courses, pay fees and possibly print their results on the internet away from campus. On the other hand the staff would like to deliver quality services effortlessness and top management would like to take personal responsibility in the delivery of business benefits. A software system delivering all this aspects can be of great help to institutions.

According (Gichoya, 2005), ICT project implementation is a complex endeavor, a lot of research is therefore needed to name challenges, good practice and solutions for successful implementation. In the development and implementation of ICT software system, there are generally accepted principles to achieve success in these projects (Middleton, 1997). To obtain a successful IT project (Buruncuk & Gülser, n.d.) says that the organizations/ companies should establish requirements of the software for doing their business and select flexible packages for needed customization level. Stakeholders at this point the end users need to be involved.

The involvement of end users is a factor of effective information systems development (Pouloudi, 1999), (Niazi, Wilson, & Zowghi, 2005). Since it has become apparent that successful implementation of information systems in organizations does not only depend on technical

aspects (Markus, 1983) says that end users and managers have been increasingly included in the information systems development process in order to improve the chances of successful system implementation. Lack of user involvement leads to lack of internal ownership which is one of reasons for software project failure according to (Sarantis, Smithson, Charalabidis, & Askounis, 2010). The success of ICT project such as the ERP implementation according to (Kim, Lee, & Gosain, 2005) is assessed by bringing out the overall fulfillment of key stakeholders and by assessing the level to which the implementation achieved the goals and objectives of the organization.

Research Methodology

The study adopted a case study research design. In (Simons, 2009) view, the purpose of undertaking a case study is to explore the particularity and the uniqueness of a single case. Both quantitative and qualitative research approach was used. According to (Mugenda & Mugenda, 1999) quantitative approach focuses on designs, techniques and measures that produce discreet numerical data or quantifiable data. Data collected from the respondents provided quantitative data that was analysed using SPSS. Qualitative analysis was used to blend the quantitative analysis.

The population of the study comprised of staff members in public universities in Kenya. Population according to (Kisilu & Tromp, 2006) refers to an entire group of persons, objects or items from which samples are taken for measurement. For this study, target population consisted of 600 staff in the JKUAT main campus. (Ott & Longnecker, 2010) defines the target population as the complete collection of objects whose description is the major goal of the study.

Data was collected mainly by use of questionnaire method. The collected data was captured in to the Statistical Package for Social Scientists (SPSS) software. Quantitative data analysis which mainly formed numerical values was analyzed using descriptive statistics that is frequency, percentages and means and was presented in summary form using graphs, tables and charts. The qualitative data collected was correlated to check the kind of relationship, positive or negative with the other variables in the study.

Findings and Discussions

Demographic characteristics of sample population

Age of respondents

Table 1

Age of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	25 - 34	36	69.2	69.2	69.2
	35 - 44	13	25.0	25.0	94.2
	45 - 54	3	5.8	5.8	100.0
	Total	52	100.0	100.0	

Table 2

Age of Respondents * Job Category Cross tabulation

Count

		Job Title			
		Managers	Administrators	Technical Team	Total
Age of Respondents	25 - 34	2	8	26	36
	35 - 44	3	5	5	13
	45 - 54	3	0	0	3
Total		8	13	31	52

Participants were asked to tick the age category appropriate to them. 69.2 % of the respondents were in the age bracket of 25-34. From the cross tabulation, majority were in the technical team (26), followed by 8 administrators and 2 managers, this makes 36 of the 52 respondents. The participants of the survey were fairly young. As shown from the two tables above.

Gender differences of the participants in the sample

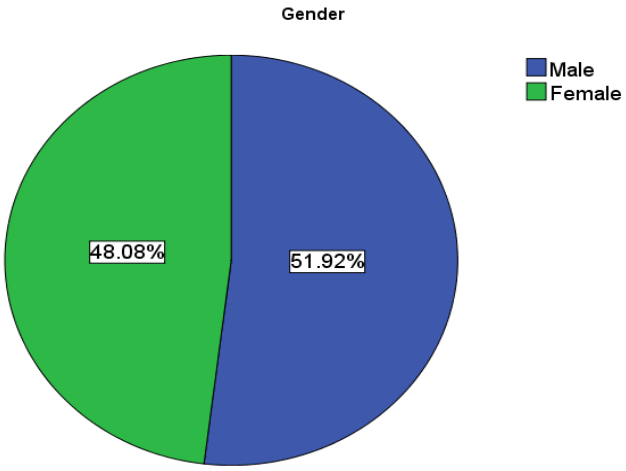

Figure 2

Participants were asked to indicate their gender by placing a mark next to the relevant option provided (male or female). Of the 52 respondents 27 (51.92%) were male and 25 (48.08%) were female. This is a closely equal ratio possibly because men and women have equal chances of employment nowadays.

Categorization of CRM stakeholders

Stakeholder categories

The researcher was able to categorize the stakeholders in this research by asking them to choose their job category.

Table 3

Categories of stakeholders

		Frequency	Percent	Cumulative Percent
Valid	Managers	8	15.4	15.4
	Administrators	13	25.0	40.4
	Technical Team	31	59.6	100.0
	Total	52	100.0	100.0

As a result it was possible to get the different groups; managers, administrators and technical team. This group of stakeholders according to Mishra (2012) is the class to which the software was made for; that is (those whose job is affected, people that use the software and the people who initiate the decision for the software development and implementation).

Further, categorization using the salience model by (Mitchell *et al*., 1997) was carried out; the model categorizes stakeholders in three criterion, power, legitimacy and urgency, which can further be combined to a topology of eight different stakeholder types. The researcher wanted

to find out under which category each of the stakeholders identified fitted in.

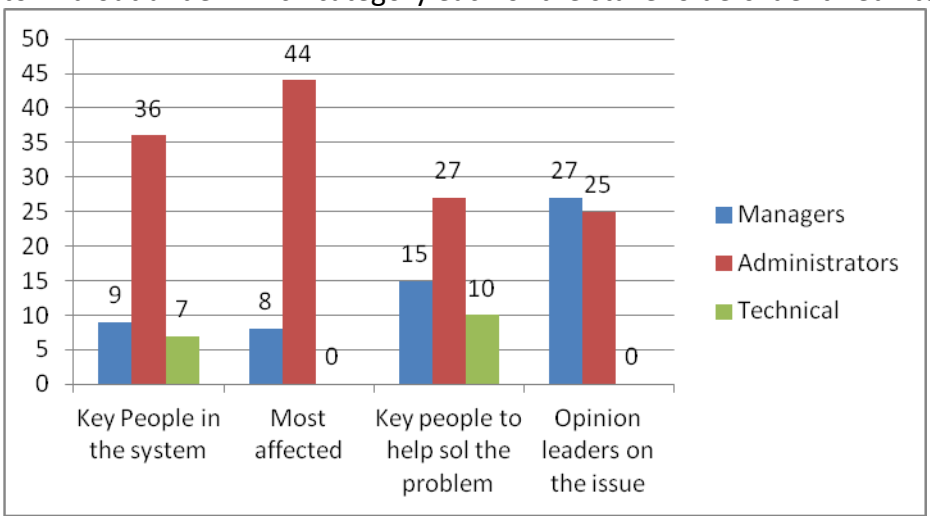

Figure 3

Managers were categorized as dominant that combines both power and legitimacy. They have the power and can influence the project deliverables in terms of material and financial support. They have legitimacy (authority) because of the level of interaction with the project in terms of determining its suitability.

Administrators were categorized as dangerous stakeholders which brings together power and urgency. According to the model this class of stakeholders can affect the project's welfare unless their demands are met. They are powerful because they have the ability to influence the outcome of the CRM project since they are the crucial end users; they are the (most affected, key people in the system, they can help solve the problems since in the long run, they are the ones that use the system on daily basis). They have the urgency attribute because the communication of their requirements and level of attention is imperative.

The technical team was categorized as dependent stakeholders which is a combination of both legitimacy and urgency. These stakeholders are dependent on others to carry out their will, because they lack the power to enforce their stake.

Stakeholders participation

A transformation of all variables under stakeholder participation into a single variable given the name stakeholder involvement, during the implementation of the system was done. This summarizes how they perceived their involvement or lack of it towards the implementation of CRM system with regard to the performance of the system. A correlation was then done against implementation as follows.

Table 4

Correlation

		Mean of participation	Implementation
Stakeholder Participation	Pearson Correlation	1	.705**
	Sig. (2-tailed)		.000
	N	52	52
Project Implementation	Pearson Correlation	.705**	1
	Sig. (2-tailed)	.000	
	N	52	52

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

A positive correlation according to the table shows that it is positive at 0.705 at significance level of 0.000. It furher illustrates that stakeholder involvement was key to success of the project. The fact that a section of stakeholders still face problems (which informed the research) means that stakeholders were not adequately involved. (Editors, 1998) attribute Information System development (ISD) project failures to dissatisfaction of stakeholders with either the way the project was undertaken or ultimate product. He says that stakeholder resistance to new technology adoption and their concerns of their association with it and the prevailing power structures have a great impact on the actual implementation of the software products. This study confirmed this assertion.

Conclusion and Recommendations

Conclusion

Stakeholders have a role to play in the successful implementation of the system. Managers are the key decision makers and finance the procurement of the system; administrators are the end users of the system while the technical team provides support and maintenance of the system. The development of any software system should be a well strategized process; all the stakeholders should be incorporated for successful execution. The implementation of a CRM system should be a means of empowering institutional representatives such as the administrators to deliver better customer service. Future procurement of software systems in ICT projects should bring all stakeholders on board as per this study.

Recommendations

This study recommends that right from problem identification, to system specification all the way to installation of software (implementation) stakeholders must be brought on board. It further recommends involvement of trained project managers to spearhead the process of project implementation in line with best practices.

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