Implementing factors on finance information systems: How do they influence usage?

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Abstract. *Finance information systems (FISs) store and provide timely, accurate and consistent financial data for management and decision-making. Many organizations especially in developing world however fail to attain desired success during implementation and usage of the FISs despite the fact that many success factors for implementation have been suggested. This study thus investigated the usage of FISs with the aim of finding out how factors presumed to influence implementation impact usage. The presumed factors included; top management support, effective communication, evaluation of staff performance, technical support, project management, change management program, effectiveness of IT unit and flexibility of consultants. The study focused on universities in Uganda, which is a developing country. Out of the nine factors that were investigated only top management support, technical training and flexibility of consultants exhibited a positive impact with only top management support being significant. The rest of the factors exhibited negative impact and only effective IT unit being significant.*

Keywords: CSFs, Critical success factors. Developing Countries, Finance Information Systems, Implementation, Usage.

1. Introduction

A finance information system (FIS) can be described as a set of automation solutions that enables users to plan, execute and monitor budgets by assisting in prioritization, execution, and reporting of expenditures and revenues (Dener, Watkins, & Dorotinsky, 2011). FISs are usually comprised of many accounting modules and according to Khemani and Diamond (2005) they consist of; General ledger, budgetary accounting, accounts payables, accounts receivables and noncore modules can include; Payroll system, budget development, procurement operating and capital budgets, working capital reports, cash flow forecast and project ledgers.

Contextually while FISs have many benefits, it has been found that putting them in place can be costly and in most cases requires a lot of training and commitment by the people involved (Mulira, 2007). As a result, many organizations find difficulties to attain the desired success when implementation is done. Pan, Hackney, and Pan (2008) state that there is still a significant body of evidence that many information systems implementation projects end in failure. Mulira (2007) as well says that many critical success factors for IS implementation have been suggested, however actual evidence to devise solutions for failed projects has not been clearly established. This paper presents research that was done aiming at answering the following question; How do factors involved in implementation of a FIS impact usage of the system?

The next section shortly presents the factors investigated. Section 3 then presents the two different phases of the study, first the quantitative study done among 7 universities in Uganda and then the follow-up qualitative validation study among 4 of these universities. The results of the quantitative study are also presented in that section which then is discussed in relation to the findings in the qualitative study in section 5. The final section then presents conclusions in relation to the 9 factors and the research question investigated.

2. Factors influencing FISs implementation

In a study on usage of finance information systems in developing countries Kiwana, Johansson, and Carlsson (2015) presented nine factors which were perceived to be of influence to implementation of FISs in Ugandan Universities. These included; top management support, effective communication,

evaluation of staff performance, technical support, project management, change management program, effectiveness of IT unit and flexibility of consultants. These factors are described shortly below.

Top management support: Conceptually, D. Hansen, Mowen, and Guan (2007) as well as Shaqrah (2015) describes top management support as the extent at which top managers in an organization provide direction, authority, and resources during and after acquisitions of IT systems. vom Brocke (2007) Illustrates that top management support is the degree to which senior management understands the importance of the information systems function and the extent to which they get involved in the information system activities. For purposes of successful usage of FISs, Zwikael (2008) considers top management support as an area that has high impact. This is in congruence with D. R. Hansen and Mowen (2007) who ascertained that FIS projects success or failure relies more on top management willingness and commitment. Motwani, Subramanian, and Gopalakrishna (2005) also indicate that top management is very critical since it is top managers who set the direction and rhythm under which an organization runs and as well control funds utilization. This means that they would always have a decisive role on whether they support system implementation or not (Motwani et al. (2005). The views of Motwani et al. (2005) are complemented by what Wee (2000) who had found out that the role of top managers are fundamental in IS implementations since they ordinarily have the duty to publicly and explicitly identify the IS project as a top priority. In relation to the arguments discussed above Fui-Hoon Nah, Lee-Shang Lau, and Kuang (2001) mention that an organisation that implements with a cautious, evolutionary and bureaucratic strategy registers greater success because this way top management is able to develop a shared vision for the organisation and also be able to communicate the new system more effectively to the employees.

Effective communication: Communication in respect to information systems implementations includes formal promotion of project teams and advertisement of the project progress in the rest of the organization (Gerdin, 2005). According to Sajady, Dastgir, and Nejad (2012) employees and all other stakeholders should be told in advance about the scope, objectives, activities and updates, and they should admit that change would occur. According to Lester (1998), effective communication is one of the most important factors that can account for success of a project. Lester further says that the effectiveness of project communication depends on the quality of the communication flows.

Education and training: According to James (2011) the basis of education and training in implementation of FIS relies on creating awareness on the 'to do' part of the software. James argues that employees need training and re-skilling to understand how a system can change business processes. James's main argument is that educating employees should be considered a top priority at the beginning of a project to ensure successful implementation of the new system. Kumar and van Hillegersberg (2000) assert that such training should be embroiled in an induction process covering orientation and on-boarding. This can facilitate the socialization of new employees in the organisation to the use of the FISs. Further, Berard (2005) ascertained that effective orientation and on boarding are important components in helping new appointees to quickly take charge in using the FIS. Seibert, Kraimer, and Liden (2001) in line with Berard (2005) argues that implementation of FIS needs to be made as a practice or part of the operational processes which must be undergone through by all employees both new and old.

Evaluation of staff performance: Dhillon (2007) posits that regular evaluation of staff performance today should be used as a vital tool to identify the work potential of an employee instead of choosing the best individual in the organization. And Easttom II (2011) argues that it is important that performance of employees in using FIS is continually assessed. Similarly, Barlow, Hersen, Barlow, Nock, and Hersen (2009) ascertains that regular evaluation of staff performance is regarded widely as a necessary attribute of improving usage of information systems and as part of an over-riding value set of efficiency. Congruently, Qureshi and Hassan (2013) support the above view while arguing that regular evaluation of staff performance forms a baseline for setting objectives and helps in giving a clear picture to employees and clearly explains, what is expected from them.

Project management: According to Rosario (2000) project management is about minding the scope and the overall engineering process of an organization programs. Fui-Hoon Nah et al. (2001) state that the scope must be clearly defined and should include the amount of systems to be implemented, the involvement of business units and amount of business process reengineering that is needed. Mullins (2003) further says that project planning is the first stage in project management and implementation since it is important in the process of determining the project needs of an entity and

the timing of their acquisition and their funding such that the entity operations are met as required in an efficient way.

Change management program: Fui-Hoon Nah et al. (2001) say that at the beginning of a project it is important to start change management and continue with it throughout the entire system life cycle. Fui-Hoon Nah et al. (2001) further argue that a culture with shared values and common aims is conducive for success and organizations should have a strong corporate identity that is open to change. This argument brings out the fact that organizations should possess cultural values that are not static and which do not promote resistance to change. Oliver, Rosario, and Pentland (2000) say that users must be trained, and concerns must be addressed through regular communication, working with change agents, leveraging corporate culture and identifying job aids for different users. Oliver et al. (2000) conclude this while asserting that without a change management program and forecasts, there is a very high failure rate among information systems projects.

Effective IT unit: Literally an IT unit is a department in an organization that is mandated with managing information systems. Judge, Jackson, Shaw, Scott, and Rich (2007) argue that one of the biggest challenges of implementation of information systems especially in developing worlds is lack of IT units in the organizations. Upadhyay, Jahanyan, and Dan (2011) show that executives with relevant skills and knowledge background tend to be more productive, more proactive, become more participative in IT/IS projects, and have more favourable views of IT but these are basically lacking in developing worlds since the units there are often ignored and the work is done by semi-skilled or portfolio staffs. Mishra, Boynton, and Mishra (2014) investigated the influence of IT units on IT use in large organizations and asserted that IT units directly and positively influence an organization's extent of IT use. They used managerial IT knowledge construct to reflect the knowledge IT managers have on strategic business issues and knowledge line managers have on potential opportunities of IT/IS to improve the firm's productivity. Their findings showed that managerial IT knowledge was important in promoting high levels of IT use within the business units.

Technical support: Technical expertise refers to the extent to which internal and external mediating entities such as vendors and consultants provide knowledge, training, maintenance, and other technical support to the adopting organization (McShane & Von Glinow, 2008). Thong et al. (2006) says that when the level of external expertise is high, the success level of the adopted IT systems tends to be high. And Sedera, Gable, and Chan (2004) found that external expertise is strongly related to FIS success,. Overall, the impacts of FIS system on the individuals, sub-units, and the entire organization is reported to be positive when quality vendors/consultants having favorable attributes, i.e., credibility, cooperative, etc. are engaged (Gefen (2004); Ridings, Gefen, and Arinze (2002); Ko, Kirsch, and King (2005):

Flexibility of consultants: Consultants are very important in the process of implementing and using information systems in an organization (Poston & Grabski, 2001). Paston and Grabski further indicate that the most commonly-cited impact of flexibility in consultation towards success of FIS has been that of more effective organizational change management. Stefanou (2001), notes that flexibility of consultants is very important in implementation of FIS, however, he adds that organizations need to hold employee workshops which can identify problems and develop solutions towards the FIS use. He adds that solutions need to be focused on providing the workforce with a much fuller awareness of the implementation by supplying information on what is required. (Rossak & Ng, 1991) asserts that system design concepts, methods and tools usually focus on improving the process of development and maintenance without paying much attention to the system's subsequent integration into a larger system framework. This produces a situation where the resulting product functions according to a specification targeted to a specific project with predefined boundaries. In order to avoid this there is therefore need to have sizeable room for flexibility during systems implementations if desired integrations are always to be achieved in the future.

In this paper we present results from a study that investigated how the above mentioned factors impact usage of the FISs and the circumstances in which this happens.

3.   Research Methodology

This research employed a combination of qualitative and quantitative approaches in collecting and verification of the study findings, thus constituting a mixed-model research (Saunders & Lewis, 2009).

The rationale of this approach as argued by Eisenhardt and Graebner (2007) is that triangulation made possible by multiple data collection methods provides stronger substantiation of constructs.

As a first step, an exploratory study was undertaken at a single university namely Makerere University to find out factors that influence implementation of FISs and this took a qualitative approach. The emergent results were compared with extant literature and hypotheses were developed, then a quantitative field study was conducted to find out the extent at which the found results through the exploratory study could be confirmed to be true or galvanized and also to find out the relationship between implementation and use of FISs. And lastly a qualitative validation study was conducted to explain the findings from the quantitative survey.

In employing mixed methods, it is possible to overcome a number of challenges that would be faced by single based studies like limited knowledge, biases, and inflexibilities, but rather, it would become imperative to integrate qualitative and quantitative data, sampling techniques (Greene, 2008). Quantitative and qualitative research methods made it easier to apply differing designs, sampling techniques, data collection methods and validity studies to capture a detailed understanding of the study objectives and components. The mixed methods approach was advantageous because it helped to complement the strengths of a single design, to overcome weaknesses of a single design, to address the questions at different levels and to address the theoretical perspective at different levels also.

3.1   Quantitative study design

The quantitative study was carried out in seven Ugandan universities with aim of finding out how factors perceived to influence FIS implementation later on impact its usage. A construct of Use was borrowed from DeLone and McLean (2003) and the above mentioned factors were brought together into a framework that would help to explain the impact of the factors on the use of the FISs.

It was hypothesized that the nine factors that influence the implementation of FIS impact positively the usage of the FIS, as shown in Figure 1.

Fig.1: Conceptual framework

The impact is assumed to be in terms of; Dependency, Frequency of use, Amount of use and , Nature of use, (DeLone & McLean, 2003). To test this the following nine hypotheses were formulated:

- H1: Top Management support during implementation influences positively the use of FIS systems.
- H2: Effective Communication within the organization during implementation influences positively the use of FIS systems.
- H3: Evaluation of Staff Performances during implementation influences positively the use of FIS systems.
- H4: Education and Training of staff during implementation influences positively the use of FIS systems.
- H5: Technical Support for staff during implementation influences positively the use of FIS systems.
- H6: Project Management during implementation influences positively the use of FIS systems.
- H7: A Change Management Program during implementation influences positively the use of FIS systems.
- H8: Effective IT Unit during implementation influences positively the use of FIS systems.
- H9: Flexible Consultants during implementation influences positively the use of FIS systems.

Table 1 presents background information on the seven universities that were included in the quantitative study, while table 2 presents the distribution of the respondents.

Table 1. Background information about investigated universities

University		System being used	Duration (Years)	Staff Enrolment	Students' Population
Makerere University	Mak	Integrated Tirtiary System (ITS)	7	5000	40000
Kyambogo University	KYA	Navision and e-compus for foes collection	5	2000	20000
Makerere University Business School	MUBS	Sage Accounting plus other internally developed system	5	1000	15000
Uganda Management Institute	UMI	Navision	6	800	5000
Mbarara University	MUST	Patel	4	1500	10000
Busitema University	BUSI	Pastel	4	900	12000
Uganda Christian University	UCU	Focus and SAP	6	1000	10000

Table 2. Distribution of Respondents

University	No of Respondents	Percentage
Mak	23	18.0
KYA	21	16.4
MUBS	21	16.4
Busi	20	15.6
MUST	17	13.3
UMI	11	8.6
UCU	15	11.7
Total	128	100.0

The study used a structured questionnaire consisting of a series of closed-ended questions to collect data. The questionnaires were issued to staff in finance departments of the various universities that were using the FISs. All the questions were based on a 5 point Likert scale: (1=Poor, 2=Fair, 3=Good, 4=Very Good and 5=Excellent). The questions that were used in the questionnaire and their sources are presented in Table 3.

Table 3. Investigated implementation factors and its related survey questions

Construct	Measure	Source
Top Management Support	Through participation in implementation process. e.g. attending implementation meetings	Ragu-Nathan, Apigian, Ragu-Nathan, and Tu (2004)
	Through Swift Decisions making	
	Through Demand for regular implementation progress reports	
Effective Communication	There is a clear communication channel on all issues that pertain to the system	Amoako-Gyampah and Salam (2004)
Evaluation of Staff Performance	There are regular Staff performance evaluations on system use	
Education and Training	There was adequate training on FIS use	Amoako-Gyampah and Salam (2004)
	Refresher training on FIS use is provided from time to time	
Technical Support	Quick support service is provided	Amoroso and Cheney (1991)
Project Management	There is a clear mechanism of addressing issues and problems that arise	
Change Management Program	I was taken through a change management/sensitization program before using the system	

Construct	Measure	Source
Effective IT unit	The institution has an IT unit responsible to support the IT system operations including the FIS	Antony, Leung, Knowles, and Gosh (2002)
Flexible consultants	The suppliers/consultants are always willing to incorporate desired new changes into the system without much difficulty	

To understand the level of usage, the respondents were introduced to different items for them to have their say. These were; Dependency on the system, Frequency of Use, Amount of use and Nature of use of the system and a 5 point Likert scale was used to measure the responses (1=Strongly Disagree, 2=Disagree, 3=uncertain, 4=Agree and 5=Strongly Agree). The following Table 4 details the questions that were asked in order to measure usage of the implemented FIS.

Table 4 Questions included in the questionnaire investigating usage

Rate the following statements with regard to the use of your FIS	Source
Dependency: My work fully depends on the system	Petter, DeLone, and McLean (2008)
Frequency of use: I use the system all the time	
Amount of use: I generate and prepare all my financial reports form the system	
Nature of use: The system is used almost by everybody in the accounts department	

The questionnaire was piloted amongst selected judges who were seasoned researchers and experts in the field of information systems, after which they were modified to improve their validity and reliability (Amin, 2005).

The convergent validity of the scale items was assessed using three criteria. First, the factor loadings which should be greater than 0.50 as proposed by Hair, Black, Babin, Anderson, and Tatham (2006). Secondly, the composite reliability for each construct which should exceed 0.70. And lastly, the Average variance extracted (AVE) for each construct should be above the recommended cut-off of 0.50 (Fornell & Larcker, 1981).

In the study, the factor loadings revealed support for convergent validity for the nine constructs. All loadings were greater than 0.50 with most loadings exceeding 0.60. The factor loadings ranged from 0.54 to 1.0. Items with loadings less than 0.70 can still be considered significant, but more of the variance in the measure is attributed to error (Hair et al., 2006). The high factor loadings give reason to conclude that the measures have convergent validity. All constructs factor loading exceeded the 0.50 cut-off as indicated in table 5 under column heading "AVE", with the exception of use (AVE=0.5404). This therefore, meant that all variables considered for this study were convergent or similarly related and valid to be used. However, the use dimensions were found to have adequate convergent validity based on their high composite reliability (>0.70) (Anderson & Gerbing, 1988). See Table 5 below.

Table 5. Summary of PLS quality (AVE, R Square, Composite Reliability and Cronbach's Alpha)

	AVE	Composite Reliability	R Square	Cronbach's Alpha
Evaluation of Staff Performance	1	1	0	1
Change Management	1	1	0	1
Flexibility of Consultants	1	1	0	1
Effective Communication	1	1	0	1
Effective IT Unit	1	1	0	1
Project Management	1	1	0	1
Top Management Support	0.6863	0.8658	0	0.7815
Training and Education	0.7064	0.8265	0	0.6054
Technical Support	1	1	0	1
USE	0.5404	0.8196	0.5038	0.7043

The next step in investigating construct validity was to determine the reliability of the construct items. A measure of internal consistency or composite reliability is a composite alpha value. This value was used to assess the reliability of the nine constructs. Construct reliability coefficients should all exceed

the 0.70 lower limits (Hair et al. (2006); Rossiter (2002)). However, Nunnally, Bernstein, and Berge (1967) and Srinivasan (1985) suggest that values as low as 0.50 are acceptable for initial construct development. Additionally, Van de Venn and Ferry (1980) state that acceptable values may be as low as 0.40 for broadly defined constructs. The composite reliability and Cronbach's alpha values for the studied constructs were computed by Smart PLS and ranged from 0.8196 to 1 and 0.6054 to 1.0, respectively as indicated in Table 5.

As per Table 5 it can clearly be seen that almost all the variables used in this research were reliable since it obtained the Composite Reliability and Cronbach's Alpha values more than 0.7. All values fall within the acceptable range to conclude good reliability. The data that was collected was analysed using PLS and the process involved summarizing the information collected so as to establish the relationships between the factors that influence implementation and the use of the FIS.

The last step in the construct validation process was to assess discriminant validity. Discriminate validity was assessed by examining the cross loadings of each item in the constructs and the square root of AVE calculated for each construct. All the items should have higher loading on their corresponding construct than the cross loadings on the other constructs in the model. The square root of AVE for all factors should be greater than all the correlations between that construct and other constructs.

In regard to data analysis and outputs it was descriptive statistics and then relationships between each of the nine factors and the use construct that were generated. And this paper presents results for only the relationships which were generated through structural equation modelling (SEM) with use of PLS

3.2   Qualitative validation study design

The qualitative validation study was carried out in four out of the seven universities that participated in the quantitative study. Data was gathered through focus group interviews based on results that were obtained from the quantitative study. Four sets of interviews were conducted in four universities, as presented in Table 6. The focus group interviews were done to explore and understand the meaning of quantitative study results that could not be explained statistically. The interviews were based on results from the quantitative study presented in Table 7.

Table 6. Details of Informants Interviewed.

University	People Interviewed	FIS found
Kyambogo University (KYA)	4 people were interviewed and they included: two Administrative Assistants, one Accounts Assistant and one Revenue Collection Assistant	Navision being used for recording of payments and e-Campus and academic records being used for fees collection. Integration of the 2 systems is being done. For final reports they use Excel.
Makerere University Business School (MUBS)	2 people were interviewed, both working as Assistant Directors of Finance	Internally developed system for especially recording fees collections
Uganda Christian University (UCU)	4 people were interviewed and they included: two Administrative Assistants, one Accounts Assistant and one Revenue Collection Assistant	Focus being used for all accounts transactions and then a new system SAP being implemented.
Uganda Management Institute (UMI)	4 people were interviewed and they included: one Senior Accounts Assistants, one Accounts Assistant, One Payroll Officer and one Stores Assistant	Navision being used for all accounts functions

4.   Presentation of Results

This section presents results from both the quantitative study and validation study and these are presented in sub sections 4.1 and 4.2 respectively.

4.1 Quantitative field study results

The model was assessed using three criteria: 1) path coefficients (β); 2) path significant (p-value); and 3) variance explain (R). Following Chin and Newsted (1999), bootstrap re-sampling method was employed to test the statistical significance of each path coefficient. One hundred and twenty-eight (128) randomly selected sub-samples were performed to estimate the theoretical model and hypothesized relationships.

Table 7. Path coefficients along with their bootstrap values, 'T' values

Factors	β – Values	T Statistics (|O/STERR|)	P Values	Relationship
Top Management Support	0.6451	7.081	0.00001	Positive and Significant
Effective Communication	-0.0359	0.3448	0.730815	Negative and Not Significant
Evaluation of Staff Performance	-0.1462	1.5473	0.124279	Negative and Not Significant
Education and Training	-0.1729	0.9534	0.342199	Negative and Not Significant
Technical Support	0.1923	1.8743	0.063187	Positive and Not Significant
Project Management	-0.1155	1.2964	0.197188	Negative and Not Significant
Change management program	-0.0063	0.0667	0.946925	Negative and Not Significant
Effective IT Unit	-0.2254	2.4276	0.016601	Negative and Significant
Flexible Consultants	0.0115	0.1364	0.891721	Positive and Not Significant

The criterion put forward by Rossiter (2002) states that for the structural model all paths should result in a t-statistic value greater than 1.96 and latent variable R- Squares (R^2) greater than 50%. Significance was considered at 0.05. In table 7 the column for β values represents the impact of the factor on use of the FIS. The range is from -1 to 1 whereby a negative figure means that the impact is negative whereas a positive figure that the impact is positive. And the columns for T statistics and P values each represent the levels of significance For an item to be significant the value of the T statistic had to be greater than 1.96 or the P value had to be less than 0.005. The results that are shown in the column label "Relationship" indicates that only two factors were significant, that is top management support and effective IT unit. The rest of the factors were not significant.

4.2 Validation study results

Findings from the validation study are presented here below. The presentation is given per factors beginning with top management support.

Top Management Support: It was found that in all four universities that were visited, top management would support the implementation processes of the FISs by for example; participating in needs identifications, sourcing for consultants, coordinating the development of system updates with consultants, pushing the adoption of FISs across all the university departments, ensuring effectiveness of controls in the system such that no other system could be used. It was found though that Kyambogo University top management was not very keen at providing financial support towards the implementation task.

Effective communication: It was found that in Kyambogo University communication on issues of implementation was not there at all during their FIS implementation such that people had to find their own ways around issues. But also in the other universities where communication was reported to have always been effective it was found that at times this would negatively affect usage of the FISs. This was the case especially in places where users were experiencing difficulties in using the FISs. In such places whenever users would receive instructions like for example to generate some reports they would instead use other software tools which would be simpler for them to use to do the work within the given time frames. This would therefore affect the usage of the actual FISs.

Staff Performance Evaluation: At Kyambogo University it was reported that they did not have a performance evaluation system for staff. At Makerere University Business School staff evaluations would be conducted, and during the exercises people would get opportunity to speak out and discuss their challenges, and this would help boost the use rate of the system. At Uganda Christian University, they had two systems and supervisors would focus more on the users' abilities to perform duties given to them irrespective of the system being used. A person would therefore only use a system that he or she is most comfortable with. At Uganda Management Institute they had an appraisal system but they had a feeling that the FIS itself would evaluate a user basing on the extent at which he or she would be using it.

Education and Training: It was found out that at Kyambogo University users took too long to start using the FIS after doing training and that affected their abilities to use the systems. At Makerere University Business School training was done off station which turned out to be inadequate to users because with this method user were trained on examples as opposed to doing actual work. At Uganda Christian University it was found that the more users would be trained the more they would discover short comings in the system, and as a consequence the less they would want to rely on the system. At Makerere University Business School it was found that the system they were using at the time of the interview had been developed internally so people were being trained progressively as the system was being developed. The informants also said that new staff would be trained by old staff and all problems would be solved within the department through knowledge sharing. At Uganda Management Institute it was reported that training did boost the use rate of the system significantly. It was also reported that users would get refresher training and new staff members would always also be trained.

Technical Support: Two universities that is Uganda Management Institute and Uganda Christian University had consultants who would offer technical support and users would contact them only through the IT units. At both Kyambogo University and Makerere University Business School they had some people in their respective finance departments who had technical skills such that they would always help their colleagues whenever they would get problems. In addition, at Makerere University Business School they had at least one person with such skills in each department.

Project Management: It was found that by virtue of working under a project management environment implementation teams would try to work within the set timelines but many times this would compromise on the use rate of the system because when timelines are set many times users resort to using other tools that can deliver results much more quickly. And in some universities it would be difficult for people to work within set schedules and timelines because of problems like absenteeism from duty by some people during execution of various critical activities and therefore the use rate of the FISs would be affected.

Change Management: At Kyambogo University and Uganda Christian University they had a problem with the change management program in that in many cases people would equate a new system to loss of job. On the other hand, Uganda Management Institute information that was picked was that if a university was strict on staff performance then with or without change management the use rate of the FIS would not be affected

Effective IT Unit: In Makerere University Business School it was found that in order to achieve and ensure maximum effectiveness of the IT unit one of the IT staff was stationed right in the finance department. At Uganda Christian University people in the IT unit were not very conversant with the user functions of the system. This would frustrate the users and as a consequence they would keep trying to get other systems. At Kyambogo University it was found that staff in the IT unit had a conflict of interest that would affect their performance because the university was using two systems, one developed by the IT unit itself and another that had been outsourced. At Uganda Management Institute it was found that the IT unit was essential because the people in the unit had been trained by the consultants during implementation.

Flexibility of Consultants: It was found that Kyambogo University, Uganda Christian University and Uganda Management Institute that consultants who were always willing to work on needs of users in coordination with the IT units. And at Makerere University Business School the university had a contract with the consultants so they were never reluctant to work on any issues, the informants said.

5. Discussion

This section presents a discussion of the study results in relation to available literature and as discussions are made the findings from the validation study are incorporated as well.

In regard to Top management support the result for impact on FIS use is positive. This was in line with the earlier hypothesis stated. This suggests that support, commitment, authority, and direction from top management for the system and for the various people affected by the system's implementation is necessary in ensuring overall use of the system. In context of the study, this result permits the suggestion that FIS use would continue to be enhanced not only at the implementation phase, but also at latter stages in the software's lifecycle as long as top management support and commitment is high during implementation. This is in congruence with D. R. Hansen and Mowen (2007) who ascertained that FIS projects success or failure relies heavily on top management willingness and commitment. Furthermore, Motwani et al. (2005) also in-line with the above scholars indicate that top management is very critical since it is the top managers who set the direction in which the organization runs as well as controlling funds utilization. This means that they would always have a decisive role on whether they support the system implementation or not. These are complemented by what Wee (2000) found out that the role of top managers is fundamental since they have the duty to publicly and explicitly identify the project as a top priority.

In respect to effective communication the result from the quantitative study indicated this factor as not being significant. This result was contrary to what earlier literature indicates. Burt (2000) for example, argues that effective communication is key and is the basis for realizing success in any IT project because it lies in the powers of communication or message that flows from the top to the implementers, to have the job well-done in time, efficiency and effectively. Mintzberg (2013) shares the same opinion and says that that the primary onus of ensuring effective internal communication lies with the project's managers. The reason of this contradiction can be picked from the results of the validation study which showed that in for example Kyambogo University communication was minimal during the FIS implementation and each user would find his or her own way around the issues. Also in some universities where communication was said to have been very evident at times this turned out to have no impact or negative impact on the usage of the FISs. This was the case especially in places where users were experiencing difficulties in using the FISs. In such situations it was found that whenever users would be instructed to generate certain reports within some timelines they would in some instances resort to using other software tools which would be simpler for them to use and be able to do the work within the given timelines.

In respect to evaluation of staff performance the result from the quantitative indicated this factor as non-significant. This result however is contrary with what earlier studies. Barlow et al. (2009) for example, ascertains that regular evaluation of staff performance is regarded widely as a necessary attribute for improving the usage of information systems, and part of an over-riding value set of efficiency. Congruently, Qureshi and Hassan (2013) support the above view while arguing that regular evaluation of staff performance forms a baseline for setting the objectives and helps in giving a clear picture to employees and clearly explains, what is expected from them. On the other hand, during the validation study it was found that at Kyambogo University staff appraisals were not being conducted. At Uganda Christian University staff appraisals were being conducted but results would never be produced. At Makerere University Business School staff appraisals were optional, although according to the informants the exercise would give opportunity to people to speak out and discuss their challenges At Uganda Christian University, they had two systems and the supervisors would focus more on the individual's ability to perform duties given to them irrespective of the system they would be using. People would therefore end up using only a system they were most conversant with. At Uganda Management Institute it was found that appraisals were being conducted although the informants believed that it was the FIS itself that would evaluate a user basing on the extent or level at which that person would be using it.

With training and education, the result from the quantitative indicated this as a non-significant factor. This was found to be contrary to some of the previous literature. Ridings et al., (2002) for example ascertained that employees need training and reskilling to understand how a new system changes FIS adoption and use. Hall (2012) indicated that educating employees should be considered as top priority at the beginning of the project to ensure successful implementation of the new system. Kumar and van Hillegersberg (2000), says that introduction and on board training in software facilitate easy socialization of new employees in an organisation and implementation of FIS, It prepares employees on how to use and implement FISs and it also establishes work relations. Aceituno (2005) in a further

illustration asserts that training of employees in financial information systems provides receivable management solutions to financial service institutions both in the government and private sector. On the other hand, picking from what was found during the validation study, in some universities users would take too long to start using the FISs after training and this would affect their abilities to use the systems. It was also found that in some universities the training was done while staff were off their desks which would turn out to be inadequate because with this method the users would be trained on examples as opposed to being shown how to use the system to do actual work. Also in some universities it was found that the more the users would be trained the more they would discover short comings in the system, and therefore the less they would want to rely on the system.

With respect to technical support the result from the quantitative study indicated this as a non-significant factor. However, what was gathered during the validation study was that all universities had arrangements for technical support and in one university namely, Kyambogo University it was found that even some members of staff would offer support to their fellow colleagues. This affirms that the systems' benefits tend to be highly realized when quality vendors/consultants are engaged as argued by Ridings et al. (2002) and Gefen (2004). This information can be interpreted to mean that the engagement of quality external sources of expertise (i.e., vendors/consultants) for FIS acquisitions can compensate for an organization's inability to fully understand how the system supports its business vision (i.e., organizational goals and mission) and where top managers show low support for the software. Two possible explanations can be put forward in support of the foregoing proposition: 1) Attewell (1992) who says that the diffusion (and subsequent success) of complex IT systems hinges upon the elimination of knowledge barriers between the adopting organization and the providers of the software. It is logical to expect that organizational members would want to attach more importance to the external sources of expertise that are capable of providing them with the knowledge and support needed for getting most out of the acquired systems, 2) Vendors and consultants of specialized, complex systems such as FIS are usually versed about how their products can be used to support business objectives across the vast number of industries and may provide such information to organizational members, including top managers who may in turn use it for organizational planning purposes (Davenport, 1998).

Regarding project management, the result from the quantitative study indicated this as non-significant factor. This was found to be contrary to some earlier literature. Mullins (2003) for example, argues that project management is a critical component in determining the success of FIS projects. He ascertained that there must be enough consideration of project plans, controls, monitoring and evaluation. These must be adhered to, if success of such projects is to be realized. Howard (2001) adds that projects executed in the software industry are characterized by high uncertainty, need to use state-of-the-art system, rapid changes, a high need for interpersonal skills; high importance of organizational structure, large number of request changes during the project life cycle, high use of virtual teams, high importance of group learning and high influence of matrix organizational structure if they are to succeed. Bondarouk (2006) concludes by confirming that project stakeholders must be consulted in the project management process to ensure that the quality of a project is enhanced. The contradiction between this discussion and the fact that project management was found not to be significant can be explained by picking on what was found during the validation study. For example, at Uganda Management Institute, it was mentioned that in some cases it was difficult to administer the project management function because some activities that would strictly need to be done when everybody was around would fail to take off because it would not be easy to get all people around at the same time to work on a given task.

In regard to change management program the result from the quantitative study indicated this as non-significant factor. This result resonates very well with what was found during the validation study. The informants at Kyambogo University for instance said that they never had a clear change management program. They said that the problem they had with a change management program was that in many cases people would equate the new system with loss of jobs. At Uganda Management Institute the informants said that it was an administrative policy that with or without a change management program people had to use the FIS otherwise they would risk losing their jobs. On the other hand Fui-Hoon Nah et al. (2001) say that change management is an important starting point at the project phase and should continue throughout the entire life cycle and further argues that a culture with shared values and common aims is conducive to success and organizations should have a strong corporate identity that is open to change. In this context, this argument brings out the fact that organizations should possess cultural values that are not static and that do not promote resistance to change. Oliver et al. (2000) further argues that users must be trained, and concerns must be

addressed through regular communication, working with change agents, leveraging corporate culture and identifying job aids for different users if the implementation of FIS is to be successful. Wallace, Keil, and Rai (2004) also asserts that the development of a new system must be carefully managed and orchestrated, and the way a project is executed is likely to be the most important factor influencing its outcome.

Regarding effective IT unit, the result from the quantitative study indicated that this factor had a negative impact on usage. Contrary to this Robbins and Coulter (2012) indicate IT units act as leaders of implementing information system and this kind of leadership becomes instrumental and accountability to change management

And on the other hand Kwena (2013) agitates that some organizations in developing world do have IT units but they are not effective and this has had a negative effect on usage of FIS. And also picking on what was found during the validation study there are two reasons that can be used to explain why the effective IT unit was found to have a negative impact. The first reason was based on the issue of some universities having more than one finance management applications and more so when the IT units have preferences amongst those applications. In this kind of situation, the IT unit could decide to favour and promote some particular applications at the detriment of others. This would become more pronounced when some of the applications are developed by staff in the IT unit as the issue of conflict of interest would very strongly set in. The second reason comes from the fact that many users have a perception that IT units by themselves can solve all IT problems including user problems which is not necessarily true because user problems usually are issues for the software providers. So when a user with such a perception contacts the IT unit for help on some user problem issue and the unit fails to handle, it would not go well in the user's mind.

In regard to flexible consultants the result from the quantitative study indicated this to impact positively on usage but not significant. There are two arguments picked from the validation study that can be used to explain why the impact would be positive. Firstly, the experience that many actors have in implementing and using FIS systems in the Ugandan universities is still relatively low because most of these technologies are new to many people and at the same time most of the universities are new as well. Therefore, it is not easy for many of the decision makers and IT managers in these institutions to develop complete and comprehensive FIS requirements specifications at a single time. Many times it is during the time of using the systems that people discover deviations and missing gaps that would have to be sorted out before the systems become usable. Also because of limited experience most people are unable to understand and fully comprehend the capabilities of the new systems before they themselves start using them. This therefore means that the need to adjust the systems from time to time while being used is inevitable. This is what exactly necessitates the need to have consultants who are easy to work with, who are flexible and who are committed to their work otherwise the implementation and use of the systems could fail. Secondly, considering how the business of IT items is conducted in many developing countries including Uganda where almost all items have to come from outside the country and with a lot of bureaucratic formalities involved, many times the procurement processes of items like FISs take too long to be concluded and in many cases this occurs when already some of the supporting technologies like the hardware and operating systems have changed. This would in many cases require for adjustments to be made on the items before they could be installed. With such challenges if the consultants are not flexible enough and corporative the entire project could fail. These observations are in congruence with Hussein, Selamat, Mamat, and Abdul (2005) who argue that the most commonly-cited benefit being derived from flexibility in consultation mechanisms has been that of more effective organizational change management and implementation of financial information systems. This is based on the fact that organizations need to hold employee workshops which can identify problems and develop solutions focused on providing the workforce with a much fuller awareness of the implementation of FIS by supplying information on what is required (Sedera, Gable, & Chan, 2003).

6.   Conclusions

In this section we present conclusions on the research question: *"How factors involved in implementation of a FIS later on influence usage of the system?"* from the study on the nine factors perceived as being important during implementation of FIS in developing countries.

In the virtue to explain the circumstances under which top management support impact the usage of FISs, it is clear that the role of top management lies more in initiating the idea and supporting the

implementation of FIS in the primary stages, sourcing for consultants, coordinating the development of system updates with the consultants, pushing for adoption of the FISs across all departments, ensuring the effectiveness of controls in the system such that for example no other system could be used.

Regarding effective communication, it can be deduced that where users were not very conversant with the system or when the system itself was not easy to use, effective communication would affect the usage rate of the FISs because users would instead look for simpler ways of producing what was being demanded from them, meaning that they to some extent actually select to use other systems.

In relation to the factor staff evaluation two scenarios can be deduced from the findings, one was that through the process of staff evaluation, users would get opportunity to discuss and get solutions about issues regarding their system use. Secondly for universities that had more than one system it was found that performance evaluation would be based on the system that a user would be most conversant with. This would mean that for purpose of aiming to get high scores the users would end up concentrating on a single particular system and ignoring others which could also include the main FIS.

When it comes to training and education it can be concluded that in some universities there were prolonged delays between the times when people would be trained and the times when they would start using the systems. This would negatively affect the use rate of the systems because people would forget what they would have been trained on. Secondly training that would be done when people are not doing actual work would not benefit much because at the end of training people would get difficulties in relating what they actually do with the functionalities in the system. Thirdly if the system was not thoroughly tested before acceptance some faults could surface while people would be using the system and when this would persist, the use rate would drop. Therefore, it is worthwhile to understand that until education and training is practiced in an effective real-life style, there would not be impact on usage.

From the study it can be concluded that regarding technical support all universities had arrangements for technical support and while some universities had consultants others had staff amongst themselves that would handle the technical issues in addition to doing their own work. From this it can be claimed that it is actually unclear, if there exist or not exist technical support which ordinarily would be expected to be given by hired consultants, if there is any effect on usage.

Regarding the factor project management, it can be deduced that in some universities project management was not adequately done. In universities where they attempted to do it, it would be difficult for people to work within the set schedules and timelines because of problems like frequent absenteeism from duty by some users during the execution of the various critical activities. This would happen especially in places where supervisors would have laxities. This could probably explain why the relationship is shown as having a negative impact, but it is important to say that it was not significant.

From the change management factor, it can be concluded that the idea of change management itself would not have an impact on usage because some people would equate a new system with job loss. And also it was found that when the university administration would get strict on people's performance then with or without change management the use rate of the FIS would not be affected.

Regarding effective IT unit, it can be concluded that the impact on FIS usage would get affected when staff in the unit are not conversant with the user functionalities in the system. The usage rate would also be affected when in addition to the FIS the institution had other parallel systems and more so if some of the parallel systems were developed by staff in the IT unit. From this it can be said that if the IT unit is more effective they might influence the user to use other systems which explains that there could be a negative impact on usage of a specific system.

Finally, from the factor flexible consultants it can be concluded that it is very important for universities in Uganda to take seriously into consideration the issue of flexibility when soliciting for suppliers. This is mainly because of the fact that IT experience by many of the actors in the country especially in systems implementations is still relatively low. Secondly being dependent on imported technologies and when the procurement processes are not efficient because of many bureaucracies usually involved many imported items arrive for installation when already some of the supporting technologies

like operating systems have changed. These kind of challenges would require a lot of flexibility from consultants if these challenges should have a chance to be resolved quickly.

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