The Factors Affecting The Implementation Of Students’ Records Management System To Higher Learning Institutions In Tanzania A Case Of The Institute Of Accountancy Arusha

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Abstract: This study was designed to find out the factors affecting the smooth implementation of Students’ Records Management System (SRMS) to Higher Learning Institutions. The study followed the single case study and was conducted at the Institute of Accountancy Arusha (IAA). The study specifically wanted to disclose the contribution of SRMS to Higher Learning Institutions on students’ records keeping, the challenges which hinder Higher Learning Institutions from implementing SRMS smoothly, and to recommend the strategies which can be used to overcome those challenges. We used questionnaires, observation, interviews, and reviewed archived document as sources of data. 202 respondents were selected using purposive and random sampling technique from both students and IAA staff. Descriptive statistical analysis was applied in data analysis of this study. The results revealed that the adoption of SRMS to Higher Learning Institutions in manipulating students’ records especially at this technological era is inevitable. In addition, we discussed factors deter the smooth implementation of SRMS to some of the Higher Learning Institutions. Furthermore, in this article we discussed the number of issues which are to be adhered by the system’s stakeholders (such as top management, supporting technical team and end users) in order to implement the SRMS smoothly.

Keywords: Students’ records, Students Records Management System (SRMS), Institute of Accountancy Arusha (IAA),

1. Introduction

1.1 Background to the Study

The concept of the “SRMS” refers to the situation where all the students related information to learning institution (schools, colleges or universities) are entered and kept safely in the computerized system for easy organization, retrieval and control [1]. The old model of keeping all of the students’ personal particulars and academic records (especially to Higher Learning Institutions) into paper files in the wooden shelves is being replaced by computerized systems. These computerized systems are known as Students Records Management Systems [2]. By definition, Student Records Management System is a special management information system for education establishment to manage students’ data. It provides capabilities for students to register their courses, documenting grading, results and other assessment scores, transcripts, build student schedules, track students’ attendance, and manage many other student-related studies data [3], [15], and [16]. This should not be confused with a Learning Management System (LMS) or Virtual Learning Environment (VLE) where course materials, assignments and assessment tests can be conducted electronically. Due to the expansion of new technology and advanced technology in business information around the world, many learning institutions have adopted high technology in communication and keeping of records especially using Records Management Systems and enhancing network management in general operation of their organization. Using Students’ Management Systems effectively to many of learning institutions has led to achieve successful performance on their operations. However, literature shows that planning and management of ICT projects (SRMS being among) have a very poor records in developing countries [4], [5], [6]. According to Choji [2], the use of Students’ Management Systems has not yet been widely used in some of the Higher Learning Institutions especially to the third world countries including Tanzania. This study has tried to examine the factors hindering smooth implementation of SRMS, taking the Institute of Accountancy Arusha as the case study.

1.2 Statement of the Problem

Tanzania has now adopted the use of computerized systems for operations in many of the government and private sectors organizations. Many organizations currently enjoy benefits of technology in both business and academic issues. In Higher Learning Institutions, SRMS is mostly used as the source of information and as the quick, cheap and reliable means of students’ records retrieval and communication, [2]. This reality about the importance of these systems has pushed many of the Higher Learning Institution to go for it rather than continuing with the manual system. Various studies have been conducted in different Higher Learning Institutions and have revealed that the introduction of SRMS has solved a problem of students’ records custody. In the study of contribution of computerized systems to manage students’ data conducted by Choji [2], it was revealed that institutions which have implemented the SRMS appreciate the advantages of this technology and now they tend to provide vacancies in this field. However, the problem of many institutions regarding the use of SRMSs is how to use them smoothly and safely for keeping their vital records, and protect from any malicious programs or users. Some researchers went further to mention the disadvantages of continuing using the manual system. A study made by James,Ain [8] indicates that publication of student’s results in the manual system takes a very long time owing to which students remain idle for months waiting for their results to be published. James [8] study was based on creating an automated students results management system using oracle database, shown the drawbacks of using the manual system in publishing the students results and proposed the system which cloud...
solve the problems associated with using the manual systems, however, he didn’t go further to examine the factors affecting the implementation of SRMS. Kanoni [9] adds that the delay in declaration of results on time (as a result of manual processing) causes big loss to students and sometimes they fail to join further studies, appear in competitive exams or join jobs due to the delay of publication of examination results on time. He comparatively concluded that the introduction of SRMS resolves all these shortfalls. However, with all the advantages of using computerized systems and disadvantages of using manual system, he failed to identify the challenges facing institutions that haven’t managed to shift fully to using computerized system on managing students’ records. The referred studies above have the same direction of showing the benefits of implementing the computerized systems for the purpose of managing records. In addition, all the previous studies are showing the disadvantages of embracing manual system and feel sympathy for Higher Learning Institutions that still keep their records in the manual system. However, all these previous studies have not bothered to assess factors hindering smooth implementation of computerized systems to Higher Learning Institutions, despite the fact that there are still some institutions which struggling to implementing the same system for a long time. This vacuum justifies the reason for undertaking a research to establish the factors hindering smooth implementation of SRMS to Higher Learning Institutions in Tanzania, whereby the Institute of Accountancy Arusha is used as the case study.

1.3 Main Objective
The aim of this study is to determine the factors affecting smooth implementation of SRMS to Higher Learning Institutions in Tanzania with a specific focus to the Institute of Accountancy Arusha (IAA).

Specific Objectives:
- To identify major factors affecting the implementation of SRMS at IAA.
- To find out the strategies that would bring about smooth implementation of SRMS

1.4 Scope of the Study
The study was conducted at the Institute of Accountancy Arusha (IAA). It focused on the departments that can be directly or indirectly, positively or negatively affected by the implementation of the SRMS and it involved both students as well as IAA staff.

2. Literature Review

2.1 Introduction
This chapter focuses on reviewing of relevant literature to develop understanding of concepts and theories related to SRMS implementations. The reviewed literature in this study covers a wide span of SRMSs and narrows down to exploring the challenges relate to implementing the SRMSs.

2.2 Students’ Records
Students’ records are the details associated to a student while at college. These attributes are important in identification of every individual student. It could be said that the core records should comprise only that data which the institute needs to fulfill its obligations to the student over time, [10]. According to JISC InfoNet [10] the core students’ records include three parts. First part of student records are those which provides relationship between the student and the Institution such as admission and enrolment, payment of tuition fees and academic disciplinary proceedings. Second part of student’s records based on the student as a learner, for example program undertaken, academic progress and performance awards. Third part of the students records are about the student as individual and consumer of the services provided by the Institution, such as accommodation, counselling, library and IT support services.

2.3 SRMS
Information systems used to manage students’ data have been referred to in various ways. Some of those ways are Students’ Information Systems (SIS), Students’ Management Information Systems (SMIS), Students’ Data Systems (SDS), Students’ Data Warehouse (SDW), Students’ Academic Information Systems (SAIS), Students’ Information Management Systems (SIMS), or Students’ Administration and Records of Information System (SARIS) [11]. Barrett in [12] insists on the essence of a student information system. He defines SMIS as “an integrated software package that maintains, supports, and provides inquiry, analysis, and communication tools that organize student accountability data into information to support the educational process” (p. 4). A results management system (RMS) is only an aspect of a complete SIS package. The U.S. Department of Education [1] views student data systems as encompassing “hardware and software that provide many different functions to users, such as storing current and historical data, rapidly organizing and analyzing data, and developing presentation formats or reporting interfaces”(pg. 2). Regardless of the brand names these systems may be called, the core functions remain almost the same to all of these; to keep all the students particulars in a systematic manner for easy archival and retrieval.

2.4 Implementation of SRMS to Higher Learning Institution in Tanzania
Vecchioli [13] noted that, organizing and managing students’ records into a cohesive and efficient system using filing system for a long time might seem like an impossible task. For this case, he conducted a study which verified that the manual process involved in generating students’ examination results is very likely to end into a number of human errors. He recommended seeking a way of automating the system for effective operations. In addition, Barrett [12] notes that in an effort to efficiently document and maintain data accountability, schools are relying more on technology in the form of (SMIS). This system is designed to efficiently handle processes like inputting scores, storing results, automatically calculating grade points, and interpreting the student’s overall results. The usual manual process has now reached a level where it is difficult for the available man power to cope with the magnitude of examination work, in the given time. In this regard, Ngoma [11] argues that imbalance between man power availability and the magnitude of work to be done in processing examination results, leads to the delay in the
declaration of examination results especially in this dynamic situation or environment with frequently change of academic calendar. An effective measure, which can improve the efficiency of the examination results processing, is therefore the introduction of computerization, especially with the use of specialized examinations results processing software. In the report of the research work for Students' Examination Result Processing System [14], it was revealed that the effort expended in the process of registration of students and computation of their examination results is enormous. Hence, the need to evolve a computerized process that will effectively and efficiently capture all the important data associated with the registration and examination result processing within the University was inevitable. It is probably from this time that the Higher Learning Institutions (particularly in Tanzania of which IAA is inclusive) started their efforts to automate their students’ records systems.

3. Methodology

3.1 Research Design
The research design for this study followed a series of logical steps from the stated research questions to data collection, analysis and interpretation in a coherent way that gives relevance to the research purpose and the meaning to this study. Specifically, this research followed the Case Study research design. A case study is an appropriate method for investigating trends and specific situations in many scientific disciplines. This method of study is especially useful for trying to test theoretical models by using them in real world situations where this study falls in this category.

3.2 Population of the Study
The population of the study was the system users from IAA. The sampled users were picked from groups of teaching staff, administrative staff and students from different programs (Ordinary Diploma, Bachelor Degree and Masters Programs).

3.3 Sample Size
A sample size of 240 respondents was used. The respondents were from IAA staff, students from Bachelor Degree who are in year II and III, and those from Ordinary Diploma year II. All fresh students (Certificate, Diploma I, Bachelor I, Postgraduate Diploma, and Masters Year I) were not included in this study because they were very new to the IAA learning environment and not familiar with the existing system during our data collection. Out of the 240 expected respondents, 30 were from IAA staff and 210 were students. The total number of returned questionnaires were 202 and they were used for analyzing the results of this study.

3.4 Sampling Techniques
This study used purposive and simple random. The purposive technique was employed due to the fact that the part of IAA population especially new registered students were not all aware about SRMS. Therefore purposive technique was meaningful in order to select the appropriate respondents to provide relevant information about SRMS. In addition, the simple random sampling was used to select sample from the purposively identified population (groups) without bias. This helped to ensure that each member of the targeted population has an equal and independent chance of being included in the sample.

3.5 Data Collection Methods
Data were collected through interview, questionnaire, observation, and documentary. Personal interviews were conducted in order to gather valid and reliable data to the research questions. Clarification was made directly to respondent on issues found to be difficult or not well understood. Questionnaires contained both close and open ended questions were distributed to the respondents who were required to fill in the answers. This method helped to reach some of the respondents who had tight schedules that they would not be accessed during normal working hours for interview. Observation method was also used and it was successful since the researchers were the part of the IAA staff. Documentations from IAA registrar’s office and IT department were used. These were the reports and minutes written when some academic meetings were convened to discuss about SARIS. Other documents were IAA ICT policy, and other documents related to Students’ Records Management Information System.

4. Findings, Analysis and Interpretation
The total returned questionnaires were 202. Out of these 102 were males and 100 were females. This shows that there was almost an equal number of respondents gender. In addition, the respondents were both students and IAA staff. Out of the 202 respondents, 15 were IAA staff and 187 were students. The students were from Diploma II (60 respondents), Bachelor II (63 respondents) and Bachelor III (64 respondents). Number of questions were asked and responded. The answers were analyzed and interpreted as follows: To measure the students’ awareness of SRMS in Higher Learning Institution, the following question was asked and responded as follow: Do the SRMS important in Higher Learning Institutions? The response shows that, about 93% (60% strongly agree and 33% agree) concur with the fact that the SRMS is important in Higher Learning Institutions for keeping students records. Only 7% of respondents disagree that SRMS is important.

i. What are the major factors affecting the implementation of SRMS?
Researchers wanted to know the factors facing Higher Learning Institutions in implementing automated computerized systems for students’ records manipulation. The question required the respondents to mention the possible factors hindering smooth system implementation. The purpose of this question was to find out if there are factors and what are they; which IAA faces in its effort to implement SRMS such as SARIS. The respondents gave the following summarized responses in the table 4.1:
Table 4.1: Factors affecting SRMS Implementation

<table>
<thead>
<tr>
<th>Possible Factors</th>
<th>Respondents (n=168)</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Training</td>
<td>83</td>
<td>49.4%</td>
</tr>
<tr>
<td>Poor preparation for Change</td>
<td>83</td>
<td>49.4%</td>
</tr>
<tr>
<td>Financial difficulties (Budget issue)</td>
<td>17</td>
<td>10.1%</td>
</tr>
<tr>
<td>Lack of Experts</td>
<td>67</td>
<td>39.9%</td>
</tr>
<tr>
<td>Lack of proper support from Management</td>
<td>67</td>
<td>39.9%</td>
</tr>
<tr>
<td>Lack of support from IT department</td>
<td>83</td>
<td>49.4%</td>
</tr>
<tr>
<td>Issues pertaining Policies</td>
<td>16</td>
<td>9.5%</td>
</tr>
<tr>
<td>Cooperation between Departments</td>
<td>15</td>
<td>8.9%</td>
</tr>
<tr>
<td>Personal Interests</td>
<td>15</td>
<td>8.9%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>446</td>
<td><strong>265.5%</strong></td>
</tr>
</tbody>
</table>

Source: Research Data (2017)

The results show a list of factors which all together drag behind the effort to implement SRMS at IAA. The leading factors as per this study were poor preparations for change (49.4% of respondents), lack of support from IT department (49.4% of respondents), and lack of training to users of the system (49.4% of respondents). Other factors which were found to be critical are lack of experts (39.9%) and lack of proper support from top management (39.9%). Additionally, other factors though in fewer percentages are financial difficulties (10.1%), issue of policies (9.5%), poor cooperation between departments (8.9%) and personal interests (8.9%).

Fig. 4.1. Factors Affecting SRMS Implementation

Source: Research Data (2017)

Table 4.2: Strategies for smooth SRMS implementation

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invest enough fund</td>
<td>170</td>
<td>81.15</td>
</tr>
<tr>
<td>Appropriate training to users</td>
<td>130</td>
<td>64.35</td>
</tr>
<tr>
<td>Appropriate system design</td>
<td>124</td>
<td>61.40</td>
</tr>
<tr>
<td>Management involvement</td>
<td>124</td>
<td>61.40</td>
</tr>
<tr>
<td>Others</td>
<td>93</td>
<td>46.04</td>
</tr>
</tbody>
</table>

Source: Research Data (2017)

The question about strategies for smooth implementation of SRMS was also asked through interview, whereby additional explanations were provided by interviewee to emphasize in detail of the same strategies obtained in questionnaire. The study shows that all issues mentioned are important in making smooth implementation of SRMS. 170 (81.15%) respondents out of 202 agreed that there is a need of investing enough fund to facilitate the implementation of the system. 130 (64.35%) also said that there is a need of appropriate training to users and developers if internal human resources are to be used. 124 (61.38%) of respondents said that in order to implement the SRMS smoothly there is a need of making appropriate system design and management support in such project. Other issues mentioned by respondents are to have technical system support team, regular system update, readiness to acknowledge failure and make correction, and keep away personal interest. The response from the interview had the following supplement explanations which provide more clarification of their opinions.

i. What are the strategies that could bring about the smooth implementation of SRMS?

In this question, we are trying to find out various strategies which could solve the difficulties mentioned as factors affecting smooth implementation of SRMS. The question was responded by 202 respondents, whereby respondents were free to choose more than one proposed strategies. Respondents were asked to indicate major strategies to be considered for implementation of SRMS. The study revealed that there are several issues to be addressed seriously in order to come up with the new version of SRMS which will keep sensitive information effectively. The table 4.2 and figure 4.2 illustrate the strategies to be involved to help smooth SRMS implementation process.
- **Appropriate training to user**: Respondents proposed appropriate training to be conducted prior to the acquisition (if the system is outsourced) and a continued training after installation. The training must involve all the stakeholders from end users, decision makers and technical supporting staff. Prior to installation training will prepare the users’ mindset towards the inception of the new system. This will raise the readiness of users to accept the change and accommodate the new system smoothly. Additionally, if the system has to be developed by internal human resources, the training and motivation should be given to the team of system developers prior to the beginning of the project and during every phase if necessary.

- **Appropriate system design**: When the system is designed appropriately to meet the actual needs of the user and solve the problems at hand is likely to be accepted and supported by the stakeholders. The design must consider the attributes of a quality system like usability, supportability, interoperability, scalability, performance and others. Respondents argued that issues of this kind if observed well will favor smooth system implementation.

- **Management involvement**: Responses showed that Management usually incubates all the operations of any organization. Being the case, smooth system implementation will not be realized without management involvement. The respondents capitalized that, fully management involvement on the system implementation is one of the key factors to smooth implementation.

**Recommendation to IAA on smooth implementation of SRMS**

The respondents presented their responses based on the experience and knowledge attained. During data collection, the following question was asked to the respondents, “If you are given a chance to advise IAA on issues to be addressed in order to make smooth implementation of SRMS, what will be your recommendations? Only 98 (provide also its percentage) respondents attempted this question. The responses were organized according to their similarities and established the following distribution in table 4.3.

**Table 4.3: Recommendations towards Smooth implementation of SRMS**

<table>
<thead>
<tr>
<th>Recommendations for Implementation</th>
<th>Respondents (n=98)</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visit to other Institution</td>
<td>36</td>
<td>36.7%</td>
</tr>
<tr>
<td>Current System Technology</td>
<td>16</td>
<td>16.3%</td>
</tr>
<tr>
<td>Inject enough fund</td>
<td>40</td>
<td>40.8%</td>
</tr>
<tr>
<td>Conduct Proper User Training</td>
<td>38</td>
<td>38.8%</td>
</tr>
<tr>
<td>Competence Experts</td>
<td>37</td>
<td>37.8%</td>
</tr>
<tr>
<td>Full ownership to ICT</td>
<td>10</td>
<td>10.2%</td>
</tr>
<tr>
<td>Top Management Involvement</td>
<td>31</td>
<td>31.6%</td>
</tr>
<tr>
<td>Conduct successive Pilot Testing</td>
<td>26</td>
<td>26.5%</td>
</tr>
<tr>
<td>Mutual Participation Involvement</td>
<td>49</td>
<td>49.0%</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td></td>
</tr>
</tbody>
</table>

Source: Research Data (2017)

The recommendations are also represented through the graph as shown in fig 4.3.

**Fig. 4.3. Recommendations towards Smooth implementation of SRMS at IAA**

The table above summarizes the recommendations obtained from the responses given to answer the questionnaires. The responses established some recommendations which in view of the respondents they can help IAA, if adhered to, on implementation of Students’ Records Management smoothly. We analyze these recommendations in the order of priorities as per the frequencies of the results as follow.

- **Mutual involvement**: significant number of respondents’ that is 50% of those who responded on this question supported that, mutual involvement is the crucial factor in making SRMS implementation a success. The respondents mentioned the need for mutual involvement from all the responsible parts in implementing any system. In order to make the SRMS implementation successful, every part must play its role effectively to avoid failing the whole system.

In addition to these recommendations, a review on the secondary data was made from the report produced by the special committee for the so called SARIS (an existing students’ records system at IAA) to evaluate its performance, it was revealed that, the most challenge was the users who do not upload the records such as students’ results, hence it is difficult to evaluate the performance of the system (SARIS Performance Report, 2014). Therefore, lack of mutual participation is one of the major factors hindering the smooth implementation of SRMS.

- **Funding**: Enough project funding was the second by its priority recommendation, whereby 40.8% of respondents agreed that it is one of the important factors to be adhered on SRMS implementation. This means that in order for SRMS project to be successful, the client of the system have to set aside enough fund in order to cater all the costs related to system implementation.
Top Management Involvement: The study revealed that a successful system won’t be born in any organization without a fully involvement of the top management. 31.6% of the respondents indicated that the Institution’s management has to be involved from the preliminary stages to the full operation of the system.

Other recommendations which were also considered as important in implementation of the SRMS are conduct successive pilot test 26.5%, consider current version of the system 16.3%, and 10.2% of the respondents recommended that the custodianship of the system should be moved to ICT department for better management. The study through observation also revealed that the system architecture of the out gone SARIS at IAA was based on structured technology while the current situation need a system built on an object oriented technology.

5. Conclusion and Recommendation

5.1 Conclusion
The study focused on finding out the factors affecting the smooth implementation of SRMS in Higher Learning Institutions in Tanzania. The two specific objectives of this study were to identify the major factors affecting the implementation of SRMS at IAA and to find out the strategies that would bring about the smooth implementation of SMRS The study revealed that the failure of implementing smooth SRMS is due to poor preparations for change, lack of support from IT department, and lack of training to users of the system and lack of management support.

5.2 Recommendations
We recommend to the Higher Learning Institutions to implement the SRMS for better students’ records keeping. In order to implement the SRMS, the organization should consider the following issues:-
- Top Management should be involved in each stage of the system development lifecycle. This will make them aware of what is going on in each stage and what is needed so that they can immediately support.
- Enough funds must be set aside in order to facilitate all issues which need financial attention from early stages of the system development lifecycle to full operation and maintenance stage.
- All users of the system must undergo a proper user training which will prepare them for the change, and at the same time make them aware of what will be the do’s and don’ts of the system.
- There must be mutual involvement of all the system users. This includes but not limited to taking their view and opinions of how they think the system should be. It is on mutual involvement also that all parties should fulfill their obligations required in order to make the system a success.
- The institution should involve competent experts in implementing the system. Competent experts will help to implement a bug free system and have satisfying explanation on almost every aspect of the system.
- The acquisition of the system must consider the current system or technology in order to avoid acquiring an obsolete system and hence to overcome the implementation challenges.

6. References


