

**STRATEGIC APPROACHES TO ADDRESS THE CHALLENGES FACED IN USING  
ELECTRONIC DOCUMENT MANAGEMENT SYSTEM: A CASE OF STAFF OF  
KEBBI STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY  
ALIERO, NIGERIA.**

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**A THESIS SUBMITTED TO THE SCHOOL OF COMPUTING AND  
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THE REQUIREMENT FOR THE AWARD OF THE MASTERS  
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INTERNATIONAL UNIVERSITY, UGANDA.**

**April, 2019**

## DECLARATION

This thesis is my original work and it has not been presented for a degree or any other academic award in any university or institution of learning.

.....

Sagir Muhammad Aliero

.....

Date

## **APPROVAL**

I affirm that the work presented in this thesis was carried out by the candidate under my supervision.

.....  
**Dr. Yakubu Ajiji Makeri**

.....  
**Date**

## **DEDICATION**

I dedicate this work to my beloved father Muhammadu Buhari Aliero who always makes difficulties to become a reality in my life. I thank you so much BABA. And also to my mother, Hajia Rabiya Muhammad Buhari, thank you for all your prayers. And lastly my Grandmother Late Hajia Maimuna Buhari who had always wished me the best in life. I wish you were alive, you would have definitely been proud of your little grandson. And lastly my fiancé Rabiya Sulaiman.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

BI	Behavioral Intention
CVI	Content Validity Index
D&M	DeLone & McLean Model
EDMS	Electronic Document Management Systems
ERMS	Electronic Record Management Systems
ICT	Information and Communication Technology
IQ	Information Quality
ISO	International Standard Organization
ISS	Information Systems Success
KIU	Kampala International University
KSUSTA	Kebbi State University of Science and Technology, Aliero
SERVQUAL	Service Quality
SPSS	Statistical Package for Social Sciences
TAM	Technology Acceptance Model

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## ABSTRACT

This study was to establish the challenges faced by the Staff of KSUSTA while using electronic document management system with the view of coming up with strategic approaches to address the challenges. The following objectives guided the study: i) to establish the challenges faced by the Staff of KSUSTA in using EDMS; ii) to propose strategic approaches to address the challenges faced by the Staff of KSUSTA in using EDMS; and iii) to examine the effect of the strategic approaches on the use of EDMS amongst the Staff of KSUSTA after a period of 4months. Descriptive survey design was used in this study. The study population of this study was 2108 employees of KSUSTA and the target population was 575 participants from records department, ICT department, Computer department, Library and Engineering department (i.e. administrators, lecturers and technical non-teaching staff). The sample size of 236 was determined by Slovene's formula. Data analysis was done using frequency and percentage tables. Mean and Standard deviations were also used. Regression analysis was used as well. The study revealed that the overall assessment of the challenges affecting the use of EDMS in KSUSTA, was Moderate (overall average mean=3.19, Std=1.050). The study revealed that strategic approaches adopted to address the challenges of using EDMS at KSUSTA was assessed by the respondents as satisfactory (overall average mean=3.71, Std=1.005). The study revealed that after adopting the strategic approaches, there was a significant effect on the use of EDMS at KSUSTA (Adjusted  $R^2=0.164$ ,  $p=0.000$ ). The study concluded that the D&M model is effective in measuring the challenges affecting the use of an information system in terms of system quality, information quality and service quality. Furthermore, the use of appropriate strategic approaches can be able to influence the use of an information system if properly adhered to. The study made the following recommendations: the formulation of a written policy guideline for the effective management of EDMS; the adoption of a standard procedure that shall be outlined in a policy document that will serve as a guide to the electronic document managers in the effective management of EDMS; the training and retraining of the staff in order to enable them cope with some of the challenges posed by the rapid development in the area of ICTs; and the urgent need for alternative power supply.

# CHAPTER ONE

## INTRODUCTION

### 1.0 Introduction

This chapter covered the background of the study, problem statement, purpose of the study, objectives and research questions, scope of the study, significance of the study and operational definitions of key terms.

### 1.1 Background of the Study

This section covers the historical perspective, theoretical perspective, conceptual perspective and contextual perspective.

#### 1.1.1 Historical Perspective

Document management has its origins in the late nineteenth century with the invention of the file cabinet in 1898 (Tan et al., 2016). In 1899, Edwin Grenville Seibels devised the vertical file system, in which paper documents were organized in drawers contained in stacked cabinets. These cabinets would remain the main method of document storage in the business world for the greater portion of the twentieth century (Morley & Parker, 2014). However, there remained significant problems with this system. File cabinets took up lots of room, making them a cumbersome means of storage for businesses with limited office space. In addition, searching for specific documents among piles of paper required a great deal of time and energy, as did manually filling out fields on paper. According to Al Shobaki et al., (2017), searching for and modifying documents often took employees, managers, and business owners away from other important responsibilities. To make matters worse, paper documents were often destroyed in disasters like fires and floods, or lost to theft (Yaldir & Polat, 2016). It was in the 1900s that Biel's Photocopy Service began taking its place in the history of document management. Specializing in the use of microfilm to photograph, modify, store, and reproduce unlimited copies of documents. In 1939, Biel's began operating on Elmwood Avenue, Buffalo (United States of America) and early customers included the Buffalo Museum and Erie County Historical Society (Haitham et al., 2016).

However, the history of document management took a dramatic turn in the 1980s, with the increasing availability of computer technology in the western world such as United States of America and Europe, specifically, United Kingdom, France and German (Mahmood1 & Okumus, 2017). The development of servers allowed organizations to store documents electronically in centralized mainframes. This was the beginning of electronic document management systems (EDMS). Meanwhile, the invention of scanners allowed for the conversion of paper documents to digital documents. The rise of personal computers (PCs) gave businesses the ability to create and store documents on computers in the office (Başıbuyuk, 2015).

The development of PCs in 1975 spurred a shift from the physical to digital document management. However, the distribution of personal computers (PCs) was highly unstructured. Network deficiencies resulted in a lack of version control, audit trails, and security. Better systems of document management were needed (Burtylev et al., 2013). In the 1980s, an EDMS could be managed only by a word processing center operator. In the early 1990s, the development of more user-friendly systems allowed knowledge workers to operate DMS on their own. DMS could now be used to collaborate directly with clients. Some companies, such as Biel's Document Management—previously Biel's Photocopy Service—adapted to the new trends by specializing in top-quality document management services (Meurant, 2012).

Furthermore, the implementation of search engine technology soon made locating documents a breeze; full text searching allowed knowledge workers to search an EDMS for documents in the same way a user searches Google for information or media (Ngoepe, 2016). Indeed, it is true that innovative use of the Internet led to the development of cloud technology, eliminating the need for companies to host their documents locally on expensive servers. In the twenty first century, companies and institutions of higher learning can host their documents on the Cloud, which has become a vital part of modern EDMS (Marutha, 2016). By 2006, the software-as-a-service (SaaS) model had EDMS infrastructure built into the Cloud, so that Universities can create, modify, and share documents from anywhere in the world with the touch of a screen (Nengomasha, 2013).

In Africa, before colonialism, the continent had no culture of writing and recordkeeping because there was no systematic means of accumulation and management of archives and records (Asogwa, 2012). However, as soon as African nations were granted political independence in the 1960s, civil service expanded steadily, bringing with it the proliferation of paper records, and more formal ways of working gradually collapsed. Consequently, institutions degenerated into making decisions without referring to records. However, the entrant of Information and communication technology (ICT) in the 1980s and 1990s into records management compounded this situation and made electronic document record keeping practice in many African countries to be different from the methods they had been practicing. Today the culture of electronic document management system is being taken over by several institutions including education sector. According to Wamukoya (2015), sound recordkeeping practices are increasingly being emphasized on and demanded to enhance performance, transparency and accountability in higher institutions of learning hence necessitating the use of EDMS.

In Nigeria, the use of EDMS was first noted in 1990s in government institutions and later in the mid-2000s, private companies and Universities embraced it in their daily activities (Hayatudeen, 2016). However, the fate of EDMS in Nigerian Universities was described as sympathetic; this was confirmed by Abdulrahman (2015):

the administration of records in Nigeria universities is without recourse to the principle of records management...there is no university records manual, no retention and disposal schedule, personnel handling the records are not properly trained in records management, inadequate facilities for the preservation, storage and retrieval of records, no filing manual, inadequate computers to manage the volume of records generated and the attitude of administrators towards records constitute problems to records and records management in Nigeria Universities.

In a separate study, Adamu (2016), revealed that most of the Universities in the Northwestern states of Nigeria manage their electronic records without reference to an outlined document in the form of a policy guideline. Some of the staffs of these Universities revealed the lack of technical know-how and poor management commitment to the plight of EDMS. While others blamed the lack of proper implementation of the 2001 Nigerian National Policy on Information Technology which have as part of its objectives on legislation, “to protect government data, records and information in digital form”, in addition, this policy was expected to provide a road

map and also enforce compliance on all agencies dealing with electronic records within the country. In a similar study, Nwaomah (2015) identified level of training of personnel in records keeping offices as inhibitive to proper records management. He also identified poor infrastructure, undefined policy gap and a poor awareness as reasons for a poor record management in tertiary institutions in Nigeria.

In Kebbi State University of Science and Technology, Aliero (KSUSTA), its growing nature into different schools, departments and units since its creation in 2006 implied much more requirement of manpower to effectively and efficiently manage the affairs of the institution. In the past 12years of KSUSTA's existence, the number of staff in the institution has been drastically increasing because of the institution's expansion. This in turn greatly affected the Central Administration Unit's operations, by increasing the number (quantity) of files they operate on; causing a lot of difficulties in locating a file that belongs to a particular staff from shelves of hundreds of files. This problem coasted the institution to employ more casual staff to manage the files which in the long run also increased the number of files (as each employed casual staff also increased the number of files by his/her own file) (Giro & Salamatu, 2017). However, in 2014, the university adopted the use of electronic document management system in several of its departments including: registry, ICT, Engineering and Math, and Library. Unfortunately, the staff of these departments has indicated challenges in the effective use of the system to serve their needs. Thus, this study investigated the challenges affecting the use of EDMS in KSUSTA.

### **1.1.2 Theoretical Perspective**

The role of information systems (IS) in providing business a competitive edge has recently been the subject of much debate. However, it has been argued that not the IS solution but their utilization is what provides the competitive advantage. However, because these systems are always advancing, they are very costly and challenging to use. In this research, the researcher sought for the possibility of creating a new model for evaluating information systems success (ISS) by applying the concepts of both Technology Acceptance Model (TAM), and DeLone & McLean updated IS success model (D&M). However, the study mostly delved on the updated



D&M IS Success model so as to establish the challenges affecting the utilization of EDMS at Kebbi State University of Science and Technology.

First and foremost, the study made use of Technology Acceptance Model (TAM) to explain the challenges affecting the utilization of EDMS in KSUSTA. TAM which was founded by Davis (1989) and Davis et al., (1989), starts by proposing external variables as the basis for tracing the impact of external factors on two main internal beliefs, which are perceived usefulness and perceived ease of use, while perceived ease of use also affects perceived usefulness over and above external variables. These two beliefs both influence users' attitude toward using IS. Attitude toward using IS, sequentially has influence on behavior intention to use, which is the key factor for determining actual conditions of system use. The Technology Acceptance Model (TAM) proposed that ease of use and usefulness predict applications usage. However, this study is not only interested in investigating whether EDMS is useful or easy to use, instead, far from that, the current study is interested in finding out whether EDMS is a quality system to use, provides quality information and services to its users and how much the users are satisfied with using it. Hence with this content gap, it was necessary to use the updated DeLone and McLean (2003) model to close the gap. DeLone and McLean (2003) introduced an update to their IS success model. The main changes concerned quality, and service quality was included in the model. Indeed DeLone and McLean (2003, 23) note: "As discussed earlier, quality has three major dimensions: information quality, systems quality and service quality". They also added 'Intention to Use' to the model. Finally, they removed 'Individual Impact' and 'Organizational Impact' and replaced them with 'Net Benefits'; further, they added feedback loops to 'Intention to Use' and 'User Satisfaction'. However, this study employed only system quality, information quality and service quality as its major constructs so as to test the challenges of using EDMS in KSUSTA. "Use" and "User Satisfaction" were not used in this study as major constructs to measure challenges because they measure outcome of using the EDMS but not the challenges.

### **1.1.3 Conceptual Perspective**

Electronic document is defined as way on how technology is applied to improve and encourage the way manager's conduct their activities by bringing together different record to generate the best or high-class results to support the work of management both in the short and long run

(Fadiah & Charlotte, 2013). According to Asogwa (2011), an electronic document is an information container in electronic form, which gathers together information from a variety of sources, in a number of formats, around a specific topic to meet the needs of a particular individual.

On the other hand, Electronic Document Management System (EDMS) is defined as a group of information containing various types of documents that may exist in different places within a network and support multiple access, update and modification simultaneously and automatically (Ostroukh, 2014). According to Başbüyük and Ergüzen (2015), Electronic Document Management System (EDMS) can be described as a system which starts with preparing documents in computers or uploading prepared documents to computers; continues with saving the document header information (document name, document editors, document type, document date, subject, abstract, page number etc.), making changes on the document and sharing the document with different users; ending with archiving the document and based on the principle of managing all of the stages. Furthermore, Yatin and Ramli (2015) refer an electronic document management system (EDMS) to a computerized system that facilitates the creation, capture, organization, storage, retrieval, manipulation and controlled circulation of documents in the electronic format. EDMS according to the updated D&M (2003) model was conceptualized using system quality, information quality, service quality, and use intention and user satisfaction. However, since the current study was looking at the challenges facing users in using EDMS, the study operationalized EDMS using system quality, information quality and service quality.

#### **1.1.4 Contextual Perspective**

The Kebbi State University of Science and Technology (KSUSTA) is a state-owned university in Aliero, Kebbi State, Nigeria. KSUSTA offers programmes in agriculture and sciences, among others. Founded in 2006, it was the 79<sup>th</sup> university in Nigeria. Kebbi State University of Science and Technology is a non-profit public higher education institution located in Aliero, Kebbi. Officially accredited and recognized by the National Universities Commission, Nigeria. Kebbi State University of Science and Technology (KSUSTA) is a coeducational higher education institution. The University offers courses and programs leading to officially recognized higher education degrees such as bachelor degrees in several areas of study (<http://www.ksusta.net>).

Kebbi state University manages large quantities of paperwork across the entire educational operation, including admissions, facilities management, health and safety, course work, human resource forms, student records and reports (Giro & Salamatu, 2017). In 2014, the university opted to set an electronic document management system that would allow the institution to efficiently manage its documents and document processes by capturing and storing information in a central document pool. The EDMS was first installed in the Registry Department before expanding it to the department of Information and Communication Technology (ICT), Engineering and Library. The EDMS installed in Kebbi state University has the following features: tools that allow the capture and loading of information into the system, storage and archiving methods for files and documents, the ability to support and administer any compliance or legal requirements, organization of documents via an indexing system, search tools that enable the finding and retrieval of information, security and access controls to stop unauthorized access to data, an audit system to enable the tracking of the life-cycle of a document, and a workflow system that allows the automatic routing of documents to people or departments (Giro & Salamatu, 2017).

The EDM system at KSUSTA has the following capabilities: provides a safe central repository for the electronic storage of records and data on a hard-drive or other type of memory device. In order to protect the system's integrity in the event of loss, the system provides backup copies of stored data by the use of data replication facilities. Furthermore, the EDMS has the capability of record indexing which makes access, future retrieval and use of information possible. In addition, EDM system's data retrieval capabilities is centered on the interface that is used to access the storage solution; and the solution is capable of integrating with other information systems within the University (Giro & Salamatu, 2017).

The installation of EDMS in KSUSTA intended that the system would offer several benefits in document management in the institution. However, four years after its establishment, the management does not see that the investment was worth it. In fact, there are a number of reasons why some employees are finding it difficult to cope with the use of EDMS, among which include: lack of necessary technical skill, resistance to change and fear of making a mistake. The current study is intended to investigate in details the challenges affecting the use of EDMS,

suggest appropriate strategic approaches to solving the challenges and assess whether the approaches adopted were significant in the promotion of the use of EDMS.

## **1.2 Problem Statement**

There are challenges faced by the staff of KSUSTA in using EDMS. This is attributed to a number of factors among which include: the fragmented way of managing data across departments, lack of knowledge of the functionality of the system among several staff, irregular electricity supply, limited internet connectivity, lack of management support, low ICT skill level of the library staff, and poor security and confidentiality controls within the EDMS (Giro & Salamatu, 2017). The EDM system however, was installed with the intent of reducing storage space; enhance data security and control; make retrieval of documents easier; provide better knowledge management and search; lower document management and archiving costs; improve timeliness; provide better and reliable backup and recovery in case of a disaster. Unfortunately, the inability of the staff members of KSUSTA to use the EDMS fails its intended benefits (Giro & Salamatu, 2017).

However, this is not the first time an information system is proving to be challenging to be used; studies over the past years have indicated likewise. For instance studies by Iwhiwhu (2010), Asogwa (2012), Nwaomah (2015), and Adamu (2016) have indicated that failure to the successful use of EDMS were attributed to lack of ICT skills and competence, lack of guiding policies, low level of literacy, infrequent power supply and rapid changes in technology. However, the above studies only looked at the external challenges that affect the use of EDMS. However, the current study investigated whether the challenges affecting the use of EDMS at KSUSTA is attributed to: system quality the EDMS, information quality of the EDMS and service quality provided by EDMS. After establishing the challenges, the study intended to provide more viable strategic approaches that can be used in addressing such challenges both in KSUSTA and in any other similar setting.

## **1.3 Purpose of the Study**

To investigate the challenges faced by the Staff of KSUSTA in using electronic document management system in relation to system quality, information quality, service quality.

## **1.4 Objectives of the Study**

- i. To establish the challenges faced by the Staff of KSUSTA in using EDMS.
- ii. To propose strategic approaches to address the challenges faced by the Staff of KSUSTA in using EDMS.
- iii. To examine the effect of the strategic approaches on the use of EDMS amongst the Staff of KSUSTA after a period of 4months.

## **1.5 Research Questions**

- i. What are the challenges faced by the Staff of KSUSTA in using EDMS?
- ii. What are the proposed strategic approaches to address the challenges faced by the Staff of KSUSTA in using EDMS?
- iii. What is the effect of the strategic approaches designed on the use of EDMS amongst the Staff of KSUSTA after a period of 4months?

## **1.6 Scope of the Study**

### **1.6.1 Geographical Scope**

This study was conducted in Kebbi State University of Science and Technology located in Aliero, Kebbi State, Nigeria. The latitude of KSUSTA is 12.466078, and the longitude is 4.199524. The study focused at Kebbi State University of Science and Technology Aliero (KSUSTA), because this is one of the Universities that have received the biggest support from the government to promote science and innovation in Nigeria.

### **1.6.2 Theoretical Scope**

This was anchored on the The DeLone and McLean (D&M) information (IS) Success model (2003). DeLone and McLean (2003) were based on three main constructs, namely; system quality, information quality and service quality.

### **1.6.3 Content Scope**

This study was confined to the challenges faced by the Staff of KSUSTA in using EDMS in terms of system quality, information quality, and service quality. In addition, the study intended

to design a strategic approach to address the challenges faced by the Staff of KSUSTA in using EDMS; and to establish the effect of the strategic approach on the use of EDMS amongst the Staff of KSUSTA after a period of 4months.

#### **1.6.4 Time Scope**

The study took a period of 1 year, that is, from January 2018 to January 2019. This period was instrumental in the development of the concept paper, proposal writing, field data collection, thesis report writing, and viva voce defense.

#### **1.7 Significance of the Study**

Institutions of higher learning have direct bearing on human activities. Therefore, their policies and actions always have direct bearing on the economic, social and political activities of the people. Impliedly, records emanating from them must be properly managed for accountability and future reference sake. This research is very important as it seeks to establish the true situation regarding the management of Electronic Records at KSUSTA in particular and propose recommendations to enhance the functions of EDMS. Therefore, it is hoped that the findings of this study will among other benefits, make considerable impact on the management of EDMS especially in areas such as application of best electronic records management practices.

From the perspective of the theoretical and conceptual framework proposed for adoption, the study will contribute a great deal in that it offers a comprehensive plan to records managers in the management of their electronic records. Originally developed within a university environment for the management of electronic document management, the framework takes into consideration the challenges facing records managers specifically in the electronic environment such as EDMS. Thus, Universities, research institutions and other institution of higher learning will find the recommendations from this study relevant in the management of their electronic records.

It is hoped that the results of this study will be instrumental to the management of KSUSTA in that it will indicate the challenges facing the use of EDMS and then inform them of how best such problems can be adequately addressed. It will also make the management more supportive and involved in the enhancement of the use of EDMS in the university.

The study will also be of great importance to policy makers as it will serve as a guiding principle in the formulation, implementation and evaluation of electronic records management policies.

Furthermore, the findings from this study will be helpful to the staff by establishing strategic approaches that sufficiently brings to an end the challenges of using EDMS among staff. After the implementation of the approaches, the staff will be able to use the system without any more challenges.

Similarly, future researchers, academicians and scholars will find the results of this study an important reference source when carrying out a similar study in a different geographical area.

### **1.8 Operational Definition of Key Terms**

**Electronic Document Management System:** refers to computer solutions that allow users to electronically create, store, and manage various documents within Kebbi state University.

**System Quality:** It refers to measures of the information processing system itself, basically how well the hardware and the software work together.

**Information Quality:** refers to the quality of the information EDMS produces.

**Service Quality:** refers to the support that the EDMS offers to the staff before, during and after using the EDMS.

**Use:** refers to any type of interaction that the staff members have with the EDMS.

**User Satisfaction:** refers to the staffs' opinions of the EDMS during the complete service cycle.

**Net benefits:** refers to the impact of the system on staff members, students, suppliers and the entire setting of Kebbi state University.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

This chapter reviewed literature from different scholars and academicians in accordance to the constructs and objectives of the study. The chapter is further subdivided into theoretical review, conceptual review and review of related literature.

#### **2.1 Theoretical Review**

##### **2.1.1 Technology Acceptance Model (TAM)**

The Technology Acceptance Model (TAM), which was developed by Davis (1989), assumes that when users perceive that a type of technology is useful and also easy to use, they will be willing to use it. Consequently, the more employees recognize that the systems will make their tasks easier to perform; the higher is the probability that they will use it and accept the new technology as being useful (Aldmour & Sarayrah, 2016). TAM model was based on the theory of reasoned action which posits that social behavior is motivated by an individual attitude which is design to predict information system use (Audu, 2018). However, this paper argues that Fishbein and Ajzen argument may be valid for personal use of technology, as they may be influenced by friends, colleague to buy and use a system or based on an expert recommendation through advertisement. Contrastingly, the technology used in the working environment cannot be influenced by an employee's friends, but the company rules guides the behavior of the employees. Hence, there is rule-governed behavior at work for using a system. Although the model is considered to be the most widely applied means of measuring the degree of acceptance of technology by users, there is also the suggestion that one of the main reasons for its widespread acceptance stems from the fact that the model is simple and easy to understand, and not necessarily because of its suitability in a practical context (Nyoro et al., 2015).

According to Azad et al., (2014), one of the limitations of the TAM concerns the variable which pertains to the behavior of users, which is inevitably evaluated through subjective means such as behavioral intention (BI) such as interpersonal influence. Nevertheless, interpersonal influence as the subjective norm is explained to mean when a person is influenced by words of mouth from a colleague, or a friend. While a superior can influence employee by directing a subordinate to



perform a specific task with the use of technology, based on their IT policy, but a friend has no directive influence over staff who is a subject to the line manager. Another limitation is that, underlines of behavior cannot be reliably quantified in an empirical investigation, owing to a number of different subjective factors such as the norms and values of societies and personal attributes and personality traits. Hence, the argument that a relative, friends could influence the use of technology through exacting social pressure is highly falsifiable (Ang et al., 2015; Shan and King, 2015). Although it may be true in theory or for personal use of technology, the conceptualization may not be plausible or accurate in a work environment.

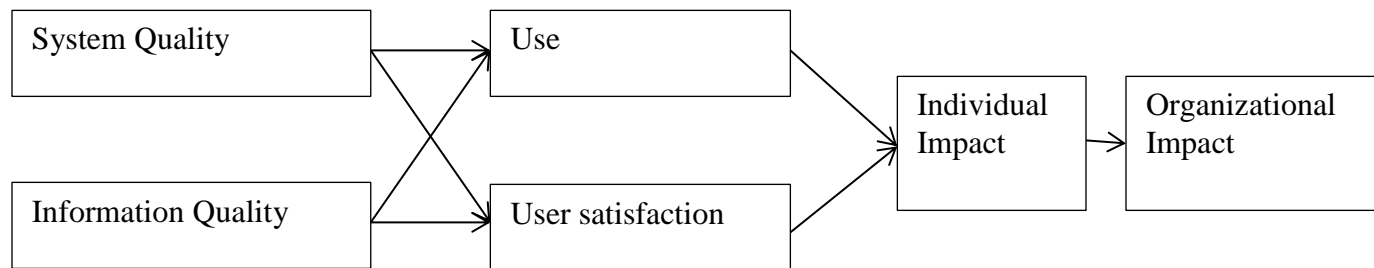
Accordingly, Lai (2017) proposed that behavioral expectations should be used to predict the intentions of employees about the use of technology, rather than behavioral intention. The criticism which is advanced by Zahid (2013) suggests that the TAM does not consider factors such as age and education as external variables which could influence acceptance of and willingness to use technology. Conversely, it could be contended that it is extremely problematic to measure behavior, as hidden personality traits often motivate behavior. Accordingly, potential users of technology may not necessarily base their acceptance of and willingness to use new technology on their perceptions of the usefulness of IT and how easy it is to use, although the model does suggest that there may be other external factors which could be responsible for their acceptance of the technology.

It is upon these limitations that the study opted to adopt the updated D&M IS success model as is discussed in details below.

### **2.1.2 The Delone and Mclean (D&M) Information (IS) Success Model**

This was anchored on the The DeLone and McLean (D&M) information (IS) Success model (1992). DeLone and McLean (1992) synthesized a six factor categories (constructs) of information system (IS) success from the diversity of IS success measures found in the literature they reviewed. The taxonomy of these constructs suggests that the interdependence between these constructs; and the time sequence or causal relationship between these constructs. The D&M model proposes that System Quality and Information Quality singularly and jointly affect both System Use and User Satisfaction. Moreover, the amount of System Use can affect the

degree of User Satisfaction, positively or negatively, and the degree of User Satisfaction also, affects System Use. Additionally, System Use and User Satisfaction are direct antecedents of Individual Impact. Finally, the Individual Impact should eventually have some influence on the Organizational Impact (DeLone and McLean, 1992). Figure 1 shows the IS Success Model by DeLone and McLean (1992).



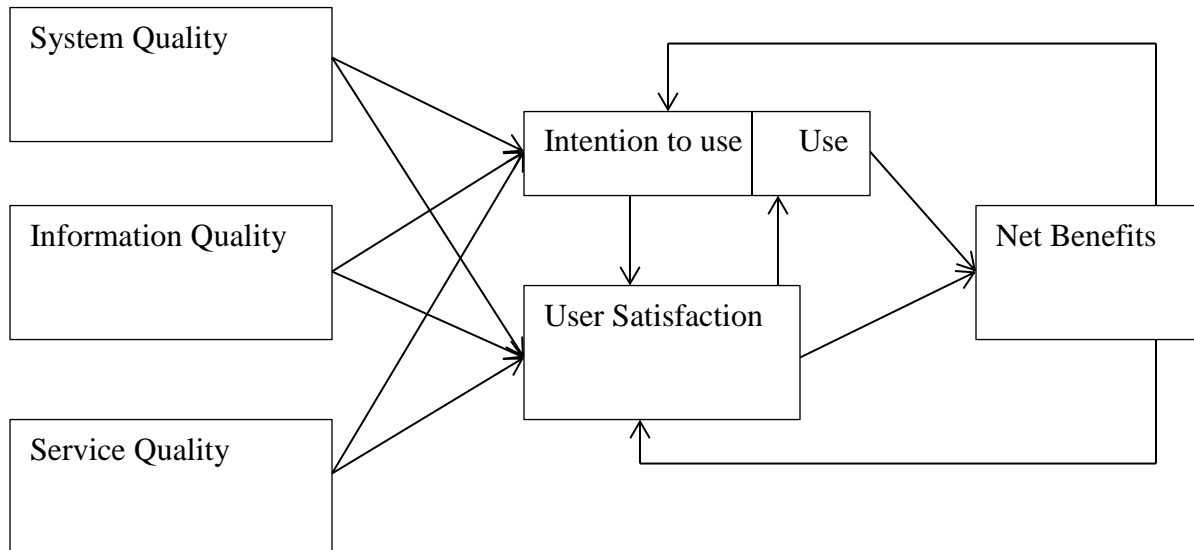
**Figure 1:** DeLone and McLean IS Success Model (1992)

DeLone and McLean did not provide empirical validation of the model they proposed and, in fact, suggest further development and validation is needed for their taxonomy (DeLone and McLean, 1992). However; Seddon (1997) listed number of contributions associated with the IS-Success model, including: (1) it combines previous research, (2) it provides a scheme for classifying the different measures of IS success models that have been proposed in the literature into six constructs, (3) it suggests a model of temporal and causal interdependencies between the identified categories, (4) it has been considered an appropriate base for further empirical and theoretical research, and (5) it has gained wide acceptance among IS researchers, who attempt to test and validate the different parts of the model. At the same time, Seddon (1997) was among the first to test the model (DeLone and McLean, 2003). Seddon criticized the model in two main points: (1) the model combined both causal and process relationship explanations which are confusing; (2) the Use construct is ambiguous and is not appropriate for causal relationship explanations.

It should be noted that Seddon (1997) re-specified the model to overcome the confusion, and proposed an alternative model that treats IS Use as behaviour, as opposed to a proxy for benefits or an event in a process leading to Individual or Organizational Impacts. His alternative model focuses on the variance (casual) aspects of the interrelationships among the taxonomic

categories. His model considers three classes of variables, including: measures of information and system quality, general measures of net benefits of IS use, and behaviour with respect to IS use.

Indeed as a result of Seddon’s (1997) criticism, later, DeLone and McLean (2003) introduced an update to their IS success model. The main changes concerned quality, and service quality was included in the model. Indeed DeLone and McLean (2003, 23) note: “As discussed earlier, quality has three major dimensions: information quality, systems quality and service quality”. They also added ‘Intention to Use’ to the model. Finally, they removed ‘Individual Impact’ and ‘Organizational Impact’ and replaced them with ‘Net Benefits’; further, they added feedback loops to ‘Intention to Use’ and ‘User Satisfaction’ as shown in figure 2 below:



**Figure 2:** Updated DeLone and McLean IS success model (2003).

This updated IS success model accepted the Pitt et al., (1995) recommendation to include service quality as a construct. Another update to the model addressed the criticism that an information system can affect levels other than individual and organizational levels. Because IS success affects workgroups, industries, and even societies (Myers et al., 1997; Seddon et al., 1999), D&M replaced the variables, individual impact and organizational impact, with net benefits,

thereby accounting for benefits at multiple levels of analysis. This revision allowed the model to be applied to whatever level of analysis the researcher considers most relevant.

A final enhancement made to the updated D&M model was a further clarification of the “use” construct. The authors explained the construct as follows: ‘Use must proceed “user satisfaction” in a process sense, but positive experience with “use” will lead to greater “user satisfaction” in a causal sense’ (DeLone & McLean, 2003). They went on to state that increased user satisfaction will lead to a higher intention to use, which will subsequently affect use.

Thus, despite of the criticism that the IS-Success model has received, several elements of DeLone and McLean’s model have been tested previously. Some researchers changed the causal paths (Seddon and Kiew, 1994; Glorfeld, 1994), combined existing constructs (Glorfeld, 1994), or added new constructs (Seddon, 1997; Glorfeld, 1994). Also, some studies demonstrate conflicting results concerning the causal relationships between the six constructs of DeLone and McLean’s model. For example, Glorfeld (1994) found a positive relationship between User Satisfaction and Individual Impact, while Teo and Wong (1998) did not a relationship between the same constructs. DeLone and McLean (1992) recommend the use of tested and proven measures, of IS success, from existing research.

Other researchers have performed meta-analyses to examine one or more relationships in the D&M model (Mahmood et al., 2001; Bokhari, 2005; Sabherwal et al., 2006). The most comprehensive meta-analysis examining the D&M model was performed by Sabherwal et al., (2006). Sabherwal et al.’s work has been instrumental in synthesizing the quantitative research related to IS success and has validated a substantial portion of the D&M model.

In other words, the D&M has been widely used to gauge success (Petter et al., 2008). Over time the model has been modified to meet the requirements set by several kinds of information systems, and from different points of view. Later, DeLone and McLean (2004) applied their success model to evaluate the success of e-commerce systems. From an e-commerce perspective, the key users are customers and providers. Holsapple and Lee-Post (2006) adapted the model for use in evaluating e-learning courses. A year later, Lin (2007) also modified the 2003 model to assess the use of online learning systems. Further, Wang et al., (2007) used the model when they

assessed the efficiency and success of e-learning information systems from the viewpoint of organizations and their employees. Wang et al., produced measures that include arguments classified according to the D&M 2003 model. The arguments can be easily adapted case-by-case even if the arguments concerning ‘net benefits’ measure influences on ‘organizational output’. Common to these studies was a focus on the central stakeholders in using the system: for e-learning the central stakeholders are the learners.

Recently, the success factors of an online learning system were studied by Lin (2007) who defined an online learning system as an “interactive system” that offers several virtual functions to be used in teaching and also in improving quality of learning. Lin et al. implemented the D&M in the context of virtual learning, and reported how ‘System Quality’, ‘Information Quality’ and ‘Service Quality’ are influenced via ‘User Satisfaction’, ‘Intention to Use’ and actual ‘Use’.

Indeed the model has been widely used by IS researchers for understanding and measuring the dimensions of IS success. Furthermore, each of the variables describing success of an information system was consistent with one or more of the six major success dimensions of the updated model. The dimensions of success include:

*System Quality*: the desirable characteristics of an information system. For example, ease of use, system flexibility, system reliability, and ease of learning, as well as system features of intuitiveness, sophistication, flexibility, and response times.

*Information Quality*: the desirable characteristics of the system outputs; i.e., management reports and Web pages. For example, relevance, understandability, accuracy, conciseness, completeness, understandability, currency, timeliness, and usability.

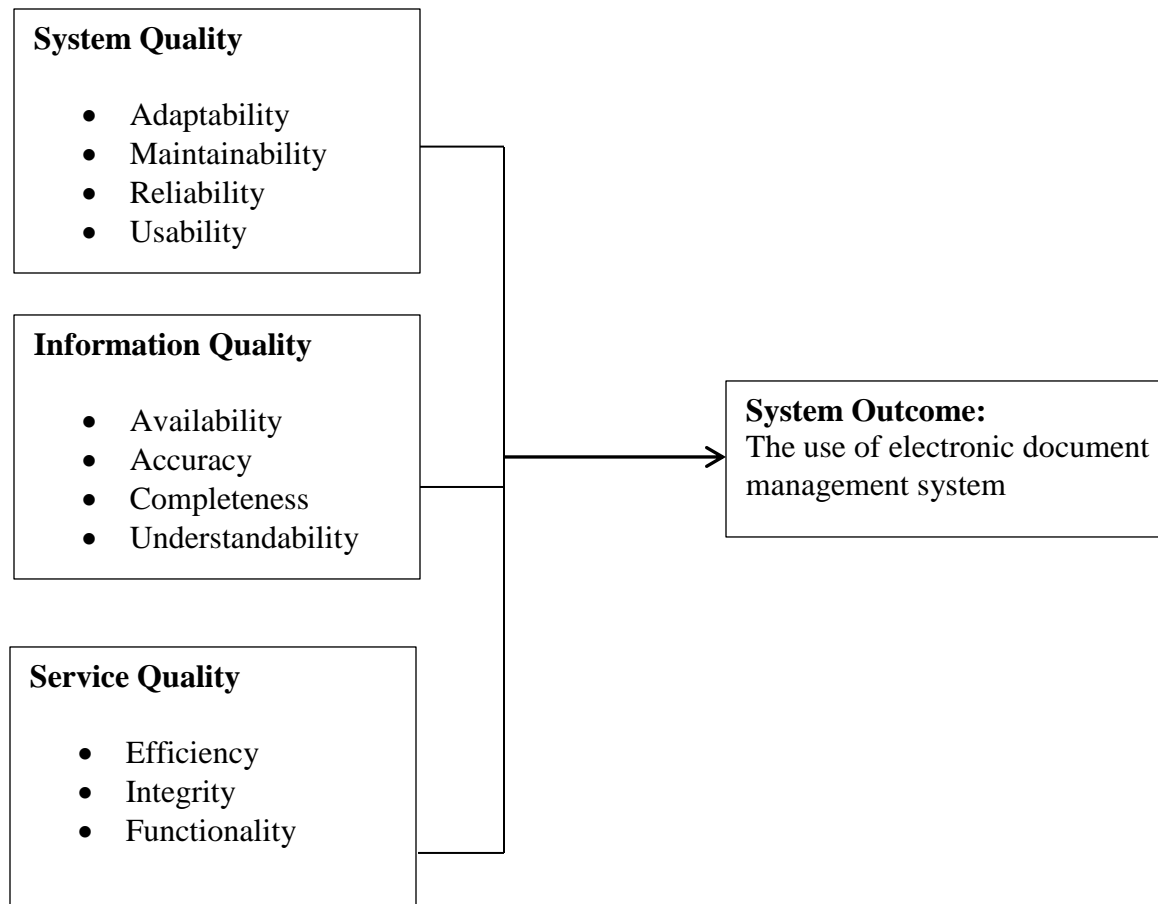
*Service quality*: the quality of the support that system users receive from the IS department and IT support personnel. For example: responsiveness, accuracy, reliability, technical competence, and empathy of the personnel staff. SERVQUAL, adapted from the field of marketing, is a popular instrument for measuring IS service quality (Pitt et al., 1995).

*Use:* the degree and manner in which employees and customers utilize the capabilities of an information system. For example, amount of use, frequency of use, nature of use, appropriateness of use, extent of use, and purpose of use.

*User Satisfaction:* users' level of satisfaction with reports, Web sites, and support services. For example, a couple of the most widely used multi-attribute instruments for measuring user information satisfaction (UIS) are Ives et al., (1983) and Torkzadeh and Doll (1998).

*Net benefits:* the extent to which IS are contributing to the success of individuals, groups, organizations, industries, and nations. For example: improved decision- making, improved productivity, increased sales, cost reductions, improved profits, market efficiency, consumer welfare, creation of jobs, and economic development. Brynjolfsson et al., (2002) have used production economics to measure the positive impact of IT investments on firm-level productivity.

## 2.2 Conceptual Framework



**Source:** adapted from, Updated DeLone and McLean IS success model (2003); Researcher Modified (2019)

### Figure 3: Conceptual Framework Showing the Study Constructs

The conceptual framework on figure 3 shows the diagrammatical representation of the study constructs that are measures of the challenges affecting the use of EDMS in KSUSTA. The challenges have been addressed in terms of the quality of EDM as a system, the quality of its information and services. It implies that if the system lacks the “quality” of the above mentioned constructs, then it will pose a challenge to use it.

## **2.3 Related Studies**

### **2.3.1 Electronic Document Management System**

An electronic document management system (EDMS) is a software program that manages the creation, storage and control of documents electronically (Burtylev et al., 2013). The primary function of an EDMS is to manage electronic information within an organization's workflow. A basic EDMS should include document management, workflow, text retrieval, and imaging. Not all EDMSs have records management capability. To qualify as a records management system, an EDMS must be capable of providing secure access, maintaining the context, and executing disposition instructions for all records in the system. EDMS functionality is often integrated into Content Management (CM) systems. These systems combine additional functionality such as website management with workflow tools, standard templates and access rights.

According to Burtylev et al., (2013), the purpose of an Electronic Document Management System is to provide a central repository for documents. An electronic document management system allows for: secure environment for document storage; immediate web based access to documents by authorized personnel from any location; multiple users can access the same document simultaneously, at any time; management of versions of documents to minimize inconsistency and redundancy; increased speed of storing, retrieving and modifying documents; and reduction of paper, space and staffing requirements associated with paper filing systems.

Hwang et al., (2013) argues that an EDMS system offers a means of adding documents to an online repository and associating properties with those documents to make them easier for users to locate and retrieve. It also provides a method to check-out and check-in documents so that additional versions may be created and retained without overwriting previous versions. It facilitates collaboration by allowing all parties to simultaneously locate and use the most recent version of an electronic document. Additionally, the system supports a wide variety of document and data formats. Users may upload search, view, check-out and check-in documents according to the user group to which they belong, or the access rights specifically granted by the individual that added the document to the EDMS system. Usually access to an EDMS is provided based on user groups (Mahmood & Okumus, 2017).



According to Abdulkadhim et al., (2015), EDMS have been applied in different organizations across the world. It has helped organizations to be successful in terms of management strategy, budgetary, anti-corruption, security and privacy, user requirements, cooperation and systems integration. Moreover, Alshibly (2016) indicated that EDMS can be used to help organizations to achieve more efficient operations by reducing transaction costs, automating processes, improving capacity, minimizing errors, and saving on labor. EDMS have been used in governmental and public organizations. According to McLeod and Hare (2010), EDMS implementation studies in government sector began to grow in the early 2000s. For the purpose of providing productivity, space saving and a general improvement in business processes, government organizations are increasingly implementing EDMS in order to transform service delivery within the organizations and to citizens (Hung et al., 2009). In addition, Applying EDMS in governments can be used to reduce operating costs and minimize office space for filing and reducing the cost of labor (Grange & Scott, 2010).

Wicaksono (2015) conducted a study and developed a web based application for managing documents in higher education environment. He suggested a thorough system requirement process and high level management to be involved in tackling user's acceptance of EDMS systems. In addition, Hwang et al., (2013) concluded that most institutes consider document standardization to be very important in which 76% of institutes (19 out of 25) answered that a systematic document management system was necessary. Moreover, due to the capabilities of EDMS in creating, saving, distributing, archiving, and accessing the documents by searching according to desired criteria, Yaldir and Polat (2016) stated that applying an EDMS for university is very important. In terms of security, most of the papers have not mentioned any specific technique to provide a security level for the system.

Ozdemirci (2008) indicated that electronic document management system is crucial for education institutions. He carried out a study in order to analyze records management and archive processes in Ankara University. As a result, a model for all universities in turkey was proposed in order to execute the records and archive processes according to the principles and methods of records and archives management. The proposed model of Ozdemirci (2008) has been taken into consideration in developing the application for polytechnic institution and new

features have been added. Furthermore, Basibuyuk (2015) developed an application for Kırıkkale University that can be accessed twenty four hours through EDMS's web-based infrastructure. The developed system can be accessed from inside-outside of the university using any mobile device which has internet access such as PC, laptop, tablet. However, security for documents in the system has not been provided and digital signature is recommended. This lack of security has been solved as a part of the application developed for polytechnic institution in which digital signature has been used.

In this study, electronic document management system was operationalized using system quality, information quality and service quality. The constructs have been discussed in details in the following subsequent sections.

### **2.3.2 Challenges Affecting the Use of EDMS**

#### **2.3.2.1 System Quality**

System quality typically focuses on performance characteristics of the system under study. Seddon (1997) considers system quality to be concerned with "bugs" in the system (system reliability), user interface, and consistency, ease of use, documentation quality, quality and maintainability of the program code. Among the latest measures of system quality is based on the desirable characteristics of an information system such as ease of use, system flexibility, system reliability and ease of learning, as well as system features of intuitiveness, sophistication, flexibility and response times (Petter, et al., 2008).

Measures of System Quality typically focus on performance characteristics of the system under study. Some researchers had looked at resource utilization and investment utilization, reliability, response time, aggregation of details, human factors, and system trust and accuracy. In this work, the selected system quality elements were: Reliability; Usability; Adaptability; and Maintainability (Santos 2003; Gounaris 2005; Fassnacht & Koese 2006; Flavia'n et al., 2006; Liao et al., 2007; Sohn & Tadisina 2008; Grigoroudis et al., 2008; Udo et al., 2010).

On the other hand, perceived ease of use is the most common measure of system quality because of the large amount of research relating to the TAM (Davis, 1989). However, perceived ease of

use does not capture the system quality construct as a whole. Rivard et al., (1997) developed and tested an instrument that consists of 40 items that measure eight system quality factors: namely, reliability, portability, user friendliness, understandability, effectiveness, maintainability, economy, and verifiability. Others have created their own indexes of system quality using the dimensions identified by D&M in their original model (Coombs et al., 2001) or via their own review of the system quality literature (Gable et al., 2003).

According to Guerreiro (2015), a well-designed, developed, and implemented system is a necessary prerequisite to deriving organizational benefits. The benefits that could be derived include cost reduction, increased revenues, and improved process efficiency. On the other hand, a system that is not well designed and constructed will likely run into occasional system crashes, which will be detrimental to business operations and result in increased product cost to the firm. Furthermore, a system that is easily maintainable has a longer life, resulting in spreading of the software costs over a longer period, which in turn results in lower costs to the firm (Alrayes, 2015). The system quality in the case of data warehousing has been shown to be positively associated with perceived net benefits in terms of individual productivity and ease of decision making, thus resulting in increased internal organizational efficiency. Nguyen et al., (2015) have shown that system quality is positively associated with organizational impact at the operational level within entrepreneurial firms.

To create business value for a firm through its information systems, the system should ensure efficient delivery of IS through system attributes such as availability of documentation and ease of use (Nguyen et al., 2018). A system that is well documented will carry lower software maintenance costs for the firm. Software must be of high quality to achieve a competitive advantage for the firm (Hariguna et al., 2017). A system with high sophistication (i.e., one that uses modern technology and provides user-friendly interfaces) will lead to high organizational impact in terms of supplier switch/search costs because suppliers are comfortable using easy-to-use systems. This system would be cost effective for the suppliers handling the firm's orders due to the firm's user-friendly and well-integrated systems and the fast response times. Furthermore, a system with high sophistication (due to high integration of functions possible with Enterprise Resource Planning (ERP) and Supply Chain Management (SCM) applications) will result in

increased profitability and increased internal co-ordination among the functional areas, thus leading to increased internal organizational efficiency (Maroofi, 2011).

In general, lower system quality results in high costs due to software's not serving its intended purpose, not being designed as specified, being prone to errors, having few security provisions, and not being robust (Soni & Agal, 2017). Thus, low-quality software results in low information quality (with respect to the information content dimension) because of irrelevant and inaccurate/incomplete information. Furthermore, a system that is flexible can be modified easily and quickly, thus meeting changed user information needs quickly and efficiently, which leads to relevant and up-to-date information outputs to users, implying high information quality. The above arguments support the premise that high flexibility of system quality (i.e., maintainability, useful features of system) leads to high information content (i.e., useful and relevant information). A system that utilizes user-friendly and modern technologies (such as graphical user interfaces) can present information to users in an easy-to-understand format, enabling them to use information systems effectively. A well-integrated system provides complete and accurate information so that its information outputs will be useful for users' daily jobs and relevant for decision making purposes (Olszak & Kisielnicki, 2018).

Furthermore, there are significant difficulties in protecting the availability of electronically generated information for future use. Specifically, it is difficult to maintain electronic document records. This is so because they are dependent upon the computer environment in which they were created. Bigirimana et al., (2015) observed that electronic document records storage media has a shorter lifespan than paper. While a paper record is said to last as long as 200 years, electronic media is said to start deteriorating after the first 5 years. Consequently, making electronic information available for longer periods is problematic. The other problem relates to version control. The constantly changing arena of ICTs has also posed a great challenge to developing countries like Nigeria that find it difficult to keep up with regular upgrades in both software and hardware. This leads to situations where organizations are left with older versions of important software that become difficult to use due to compatibility problems (Ladan, 2014).

Similarly, Luyombya (2010) adds that with the rapid pace of change in technology, individual forms of electronic media are volatile and may quickly become inaccessible as a result of obsolescence. At the same time the option of printing electronic records to paper and keeping in a conventional registry is becoming increasingly unreliable. As day-to-day working within the electronic environment becomes the norm, experience shows that the typical user will tend to forget to make a paper copy of electronic records. In any case, many emerging electronic record types cannot be fully represented on paper: a spreadsheet must be printed twice to preserve both data and formula; a hypertext document with many links (some perhaps to multimedia objects) can be printed only partially or with much difficulty; and a simulation model or a video extract cannot be printed at all (Keakopa, 2010).

In addition to the Nigerian situation, while there are no policies and properly laid rules and procedures, the lack of proper adherence or implementation to policy where they exist also constitute a problem. In fact, Mohale (2010) informs that there is lack of ICT legislation and/or the lack of adequate integration of the legislation with national archival legislation in most countries in Africa. According to Asogwa (2013), the absence of policies and procedures to provide guidance to creators and users of electronic records systems poses risks that also cannot be ignored.

### **2.3.2.2 Information Quality**

Information quality focuses on the output produced by a system and the value, usefulness or relative importance attributed to it by the user. Most of the measures, therefore, are perceptual in nature. Seddon (1997) included accuracy, timeliness and relevance in his definition of information quality. However, he added the caution that since not all information technology (IT) applications produced information for decision-making, thus, information quality is not a measurement factor that may be considered in all systems. Grover et al., (2005) used the terms "accuracy" and "data quality" synonymously and include a category called content, which they considered to be broader than relevance and included such topics as data warehousing. The most current from Petter et al., (2008) defines information quality as the desirable characteristics of the system outputs; that are, management reports and Web pages. For example: relevance, understandability, accuracy, conciseness, completeness, currency, timeliness and usability.

Information quality (IQ) is an important factor for the adoption of services. In real every study has interpreted and classified IQ criteria conform to its context. Information quality have been measured by several authors using: Completeness; Understandability; Availability; and Accuracy (Eppler & Muenzenmayer 2002; Knight & Burn 2005; Swaid & Wigand 2007; Wang & Liao 2008; Jang 2010).

Information quality is often a key dimension of end-user satisfaction instruments (Ives et al., 1983; Baroudi & Orlikowski, 1988; Doll et al., 1994). As a result, information quality is often not distinguished as a unique construct but is measured as a component of user satisfaction. Therefore, measures of this dimension are problematic for IS success studies. Fraser and Salter (1995) developed a generic scale of information quality, and others have developed their own scales using the literature that is relevant to the type of information system under study (Coombs et al., 2001; Gable et al., 2003).

According to Wolter et al., (2015), information systems processing is similar to production processing in manufacturing organizations. If the product (information) is not delivered on time (timeliness) and the product (information) does not conform to the needs (relevance) of customers (users), then the customers (users) will be dissatisfied and the firm will lose business. Thus information provided by an IS that does not conform to its users' needs is subject to heavy maintenance costs and disruption of operations in the organization, resulting in high costs to the organization (Alrayes, 2015). When better operational information is available, organizations benefit in terms of reducing labor costs, reducing waste, better utilizing machinery, and lowering inventory costs (Argyropoulou, 2013). Thus, high information content (i.e., accurate, complete, and relevant information) leads to better product cost control and increased organizational efficiency (i.e., increased profit margin, increased decision making efficiency).

Nurminen (2017) affirms that data quality is at the heart of information quality in that poor data quality results in poor information quality. Poor data quality, and hence poor information quality, has adverse effects on organizations at operational, tactical, and strategic levels. At the operational level, Akma et al., (2010) mention that customers will be dissatisfied and employees will lack job satisfaction because of inaccurate or incomplete information. At the tactical level,

the quality of decision making will be adversely affected by irrelevant information. Selection and execution of a sound business strategy will become difficult because of inaccurate or delayed information. On the other hand, high information quality in terms of information content (i.e., accuracy, completeness, relevance to decision making) can lead to high organizational impact in terms of market information support (i.e., anticipating customer needs) and internal organizational efficiency (i.e., high-quality decision making) (Aljumaili, 2016).

According to Bayangan-Cosidon (2016), the introduction of information technologies has affected and gradually impacted on the way government and private organizations in Africa preserve and make records in their custody available. Computers and the internet allow organizations to create large and complex databases and make huge amounts of information available electronically. Databases containing personal financial and medical records, for instance, may be extremely useful to the individuals themselves, but without proper security protections that information may also be accessed by others, thereby threatening the privacy of the owners. Alzahrani et al., (2017) contend that today, people have an inherent right to privacy that can be violated, intentionally or by accident, in an electronic environment. For instance, the risk of identity theft is now very real in the electronic world. Some unscrupulous individuals and companies compile and sell personal information about people; this information has been gathered, usually illegally, from electronic sources such as credit databases, land title files, motor vehicle records or medical files. This information may be used to gain access to credit cards, bank accounts and even property title documents.

Helfert (2015) adds that changes in information and computer systems require that information be migrated to new technologies if the information is to remain accessible over time. However, this process of migration can affect the authenticity and reliability of information, as the process itself can change the content or structure of the records. Unlike paper records, which can be moved, filed, re-filed, copied and otherwise used and re-used without change, electronic records need to be managed and preserved in such a way as to secure their authenticity as evidence. Similarly, Gürkut and Nat (2018) explain that the way in which electronic records are created can limit their value as authentic records. For example, computerized electronic mail (e-mail) systems do not always capture accurate information about the author of the original email

message. Further, as e-mail messages are forwarded, copied, replied to, they may be edited or altered, and the integrity of the original message may be lost as the email communication progresses and therefore ceases to possess vital qualities of good records (Rezaei et al, 2016).

Further compelling challenges brought by ICTs on records management relates to legality, reliability, authenticity and originality of documentation held on such newer ICT-based media. Experts in technology and particularly in the legal and policy sector are struggling to determine how to handle the new world that is permeated by digital information that can be easily modified and whose authenticity, legality, originality and reliability are increasingly difficult to determine (Katu, 2009). E-records can be duplicated easily. Therefore copies and originals look alike and it is difficult to find out the authentic original. They can also be modified without trace e.g. changing entries in a database. This raises questions of their authenticity and originality. And their legal and evidential values are consequently brought into question.

According to Taharudin and Izhar (2018), the principal issues of electronic records management are the same as for conventional records: ensuring that information retains its integrity (that is, it is not altered without complete documentation of each change) and that its context can be clearly understood even after a long period it was created. Although the ends are the same, however, the means by which they are reached in the electronic environment will be different; and many of these are not yet as well-understood as in the paper environment. Nengomasha and Chikomba (2018) add that there may also be problems in maintaining consistency within hybrid assemblies of paper and electronic records; there may be difficulties in maintaining links between electronic records of different types (for example, between an e-mail and an attached file to which the contents of the e-mail refer); and in maintaining a disciplined filing structure in a loose and diverse electronic environment.

According to Sigauke et al., (2016), the challenges of electronic records can also be viewed from the perspective of longevity. This could be as a result of the technologies involved or human factors. Garaba (2018) outlines five longevity problems specific to the preservation of electronic records from the perspective of Viewing, Translation, Custodianship, Scrambling, and Interrelation. The viewing problem is the fact that electronic content is stored on digital devices



that deteriorates and require proactive planning to migrate and assure longevity. The translation problem focuses on understanding that “works translated into new devices changes meaning” (Oko et al., 2016). A simple example is a motion picture resized for television screen. The custodial problem concerns determining who will be responsible for the long-term preservation and authentication of digital content. Will it be archivists, computer technologists, others or a collaboration of many? The scrambling problem for digital television is of two folds and it relates to the compromise of using compression techniques to satisfy limited storage and bandwidth transmission capabilities and encryption schemes to protect content, which make future access potentially a problem. Compression compromises the integrity of original content and encryption adds another layer of complexity to a fragile digital object. The inter-relational problem concerns the complexity of related information to and within a digital objects are not usually defined, this raises not only custodial concerns but also intellectual property concerns.

### **2.3.2.3 Service Quality**

Service quality is a measure of how well the service level delivered matches customer expectations. Several authors have measured service quality using: Efficiency; Reliability; Integrity; and Functionality (Madu & Madu 2002; Croom & Johnston 2003; Collier & Bienstock 2006; Joewono & Kubota 2007; Zaied & Khairalla 2007).

Service quality has over the years been measured by SERVQUAL; however, there is a debate on the validity of SERVQUAL as a service quality measure (Pitt et al., 1995; Kettinger & Lee, 1997; Van Dyke et al., 1997). While SERVQUAL is the most frequently used measure for service quality in IS, it has received some criticism. However, using confirmatory factor analysis, Jiang et al., (2002) found that SERVQUAL is indeed a satisfactory instrument for measuring IS service quality. Other measures of service quality have included the skill, experience, and capabilities of the support staff (Yoon & Guimaraes, 1995). With the growing popularity of outsourcing for systems development and support, service quality often involves an external provider. The responsiveness of the vendor affects the perception of how ‘cooperative’ that vendor will be (Gefen, 2000).

Furthermore, service quality has been considered one of the primary antecedents of customer satisfaction (Kai, et al., 2000). When customers are satisfied with the service received, they are more likely to tell others of their favorable experience and thus engage in positive word-of-mouth advertising (Albert, 2002). DeLone & McLean (2003), after reviewing and evaluating this debate, agreed and decided to add service quality in their updated IS success model stating that the changes in the role of IS over the last decade argue for a separate variable – the ‘service quality’ dimension. Previous researchers introduced models to assess customer service quality experienced by customers such as the service quality gap model. This model developed by Parasuraman et al., (1986) in order to understand the factors that affect customers' perception of the quality of a service. In an organizational information management context, the customers are the different types of end-users in an organization which use information to support them in their work from senior management through employees across all departments and partners who access the company's information resources from outside the company.

Alsaleh and Bageel (2016) assert that information system services delivered on time and with error-free performance by the IS unit (i.e., reliability of IS service quality) will result in timely and efficient decision making, which in turn leads to better internal organizational efficiency. Kuipers (2016) posits that by having knowledgeable IS specialists who maintain good communication through courteous interactions with business units (assurance), have users’ best interests at heart and are able to understand users’ needs better (empathy), IS services will become better aligned with organizational goals, resulting in improved quality of decision making and improved profitability (internal organizational efficiency), better anticipation of customer demands and more accurate sales forecasting (market information support). Furthermore, prompt provision of services to end users by the IT unit (responsiveness) will enable rapid responses to new business opportunities (through market information support) (Töhönen et al., 2015).

According to Promkaew and Tembo (2017), the impact of IS service quality can be understood from the impact of a firm’s service quality on the firm performance. Delivering quality service is a prerequisite for business success that leads to customer loyalty, higher profitability, lower cost, higher revenues, increased customer satisfaction, long-term economic returns for the firm and

increased repurchase intentions. In the IS context, Urhuogo et al., (2012) advance that there are two types of users to whom IS services are delivered: internal users and external users such as customers and suppliers. IS specialists, by providing prompt and reliable services to users and by understanding users' specific needs, can better anticipate and serve customer needs through appropriate product/service enhancements. IS specialists, by insisting on error-free records and providing dependable services (reliability), will ensure the continuity of successful business operations and profitability (internal organizational efficiency). In the past, business disruptions due to inefficient IS operations have been reported by several sectors, such as the brokerage, credit card, and ATM sectors (Urhuogo et al., 2012).

Hotchkiss et al., (2010) gives an example of why IS service quality is an important factor to consider in the development of an information system such as a website. The authors explain that a web based teaching system was developed and implemented at a university. Its purpose was to provide information services to students. However, while the technical quality was quite good, the use quality was poor, and that this was due to an information overload where students were bombarded with too much information at one time. This situation implied that the students would have found it difficult to find relevant information. This problem suggests that the system did not meet the users' needs and that had these needs been considered, the web based teaching system would have facilitated the students' learning processes instead of hindering them.

Another example which demonstrates the importance of some form of service quality of an information system is a web based teaching environment investigated by Boadu (2016). Research revealed that the technical quality (i.e. the reliability and accessibility) of the system was poor. In many instances, both students and academics were forced to revert to more traditional learning and teaching practice as the web based teaching environment was too unreliable and too difficult to access from remote terminals. From an IS quality service perspective, this system displayed poor work quality. This in turn directly impacted on the level of IS use quality. The research revealed that because of the system's poor technical quality, the system's ability to facilitate teaching and learning was very low and hence the web based teaching environment's level of use quality was also very poor (Boadu, 2016).

Furthermore, the findings from Moathodi and Kalusopa (2016) indicate other challenges faced by records managers in relation to the capturing and preservation of e-records include: absence of organizational plans for managing records; low awareness of the role of records management in support of organizational efficiency and accountability; lack of stewardship and coordination in handling records; absence of core competencies in records and archives management; absence of budgets dedicated for records management; lack of records retention and disposal policies; and absence of migration strategies for records. All the above mentioned challenges have detrimental effects on the quality of the service provided by the EDMS.

### **2.3.3 Strategic Approaches to Address the Challenges of Using EDMS**

To ensure that an EDMS is employed effectively in an organization, it is important to have a strategy against which developments and usage can be compared. To be effective and to address an organization's business, legal, operational needs and infrastructure requirements, an EDMS should be both flexible and scalable. The strategy should reflect the actual use of information within the organization as a whole and not just how one department wishes to use the information or how the IT department prefers to organize the data for system performance or architectural requirements. All perspectives from different departments should be considered when designing a solution to fit the organization's culture and tailored to the company's actual needs and usage.

Importantly, an enterprise will need to develop a holistic strategy for EDMS if a department within the organization intends to be an early adopter of the technology. This will ensure that the department does not later dominate proceedings and that the views of the whole organization are represented from the beginning, providing for an EDMS solution that other departments can join successfully later, eventually enabling the whole organization to benefit from investment in the EDMS. In that regard, the following strategies have been reviewed to provide solution to the challenges affecting the use of EDMS in institutions of higher learning.

#### **Creation/Receiving of Electronic Records**

Records creation and capturing involves developing consistent rules to ensure integrity and accessibility, deciding on systems to log and track records, and procedures for registering, classifying and indexing. Ile and Oguejiofor (2015) assert that when pen is put to paper or data is

generated by the computer or information is captured on film/tape, a record is generated. Doing business sometimes results automatically in a record being created. For example, when one transacts business via email or letter, a record that can subsequently serve as evidence of the transaction is created. Other transactions in which records are routinely generated include the forming of contracts, submitting draft documents for approval and sending invoices.

Writers such as Mampe and Kalusopa (2012) asserted that records should be created and captured for every organizational activity involving more than one person/party. Others suggest that some process or some steps within a process may not need to generate record and that the role of record management is to identify how far each record should be recorded (Abugabah et al., 2017). In assessing the need for creating and capturing records, the aim should be to identify and assess: a) the requirements of the institution, or particular department, for records that provide evidence and information for operational use; b) the requirements of the organization, particular department or external stakeholders for evidence that can support accountability; and c) the cost of creating, capturing and maintaining the records that are required, and the risk to the organization if it does not have those records.

“Capture” according to Ile and Oguejiofor (2015) refers to the actions that are taken to secure a record into an effective records management system, where the record can be maintained and made accessible for as long as it is needed. To function as good evidence over time, records should be managed in official records systems; such systems should maintain and demonstrate the connection between a record and the business it documents. Record capturing helps to ensure that records are: a) accessible to all who require them, subject to any restrictions that may apply; b) controlled and managed in accordance with policy and procedures; c) secured against tampering, unauthorized access or unlawful deletion; and d) disposed of promptly in accordance with legal authority.

Lusuli and Rotich (2014) explain that it is important for anyone connected with electronic document management within an organization to understand that not all information is created equal. Although some electronic documents are vital and need to be protected, most people intuitively understand that not all information needs to be retained long term. In fact, great deals of the information retained at some institution are retained unnecessarily, and is of no value. The

University of British Columbia (UBC) in its Electronic Records Management Manual (2007) outlined the following as the nature of records created/received by the institutions: Ephemerals; General records and Archival and vital records. However, in many institutions of higher learning, the decision about whether to create and capture records are left to individuals or work groups, but this practice is not recommended (Ngoepe & Saurombe, 2016). Such decisions are a matter of policy, administratively or at the level of faculties and departments.

### **Appraisal and Retention of Records**

Records appraisal is a core records management function by which records are selected for long-term preservation as archives by analyzing their value. The above statement signifies a marked shift in appraisal theory over the last century. Cook (2011) stated that given the changes in the nature of records, record-creating organizations, record-keeping systems, record uses and wider cultural, legal, technological, social and philosophical trends in society over this time, it would be surprising if such a shift had not taken place.

According to Klett (2017), appraisal in records management can be seen as the process by which an organization identifies its requirements for maintaining records. Record managers have developed appraisal techniques primarily to support decisions about retention: which record can be destroyed at an early stage, and which merit long-term or indefinite retention? However, appraisal can also be used to support other decisions. According to the Australian records management standard (2002), appraisal seeks to determine which records need to be captured into a records management system as well as how long the records need to be kept.

Record management programme aims to ensure that appraisal and retention decisions are made rationally. Ile and Oguejiofor (2015) pointed out that its main justification is protection of an organization against legal action. Besides of retention of records needs for legal defense, this includes the ability to show why any particular records were destroyed. Irregularities in destruction procedures can bring suspicion, if an organization is taken to court or if there is an access request under freedom of information laws, that record may have been destroyed with intent to suppress embarrassing evidence. The existence of a structured retention system allows the organization to prove that any destruction took place as part of normal business practice.

## **Preservation and Conservation of Electronic Records**

Electronic Records Management literatures indicates that digital records and data are usually easy to delete, and can be very easy to amend or update. The literatures also revealed that both the survival and the readability of records can easily be endangered in the electronic environment (Sawant 2014; Adekannbi et al., 2015). Thus designing and building systems that ensure the survival, accessibility, availability and integrity of digital records is a challenge that every record keeper and organization needs to meet. The literature also indicates that lack of storage and preservation measures inhibit Electronic Records Management in many countries. Adetunla and Osunride (2016) reported that digital records are far more vulnerable than paper records and must be carefully managed to ensure their accuracy and authenticity as proof of accountability and that the term preservation as applied to electronic records no longer refers to the protection of the medium of the records, but to that of their meaning and trustworthiness as records.

Increasingly, electronic records are becoming the primary record of transactions at University and institutions of higher learning, therefore, many hard copy records are being digitized so that they may be managed in digital form. There are some clear advantages to digital records; they are easier to duplicate, to share, and do not require the expensive “real estate” (in terms of space occupied) which hard copy records do. Further, the ease with which such records may be searched, accessed, and edited allows large entities to manage information in a much more efficient way than in the past (Mampe & Kalusopa, 2012). However, the ability to preserve electronic records has not matched the ability to create such records. They can be fragile, easily lost, destroyed, or altered, and run the risk of obsolescence as software and hardware age and are replaced. Almost all employees create records, in multiple formats, every day. Some keep these records on hard drives, some on departmental servers, and still others print to paper. In most cases this is not standardized, and electronic records are often not managed in a systematic way. Unlike hardcopy records which have file folders and cabinets to help in their organization and management, the tools for electronic records are either not widely followed or are poorly developed (Nengomasha, 2009).

Hansen and Sundqvist (2012) argued that technological developments have allowed easy access to records; records managers therefore, must take the necessary measures to maintain the safety

of digital records. As Nograšek and Vintar (2011) explain, one of the difficulties of digital record keeping is the ease with which digital records can be changed or deleted, hence the need for a digital archive system to be designed to minimize risks of this type. The challenge is to provide security controls to prevent potential abuse of recordkeeping systems. Lewellen et al., (2014) has argued that without a high level security framework, confidence in digital systems would be difficult to build as records can easily be deleted or changed at any time. With information technology, there is potential for an ever expanding access to the entire information process involved in the conduct of business. This creates enhanced possibilities to compromise security concerns.

Thus preservation is a necessary process to ensuring that institutional records remain available, accessible and useable over time. It refers to the series of managed activities necessary to ensure continued access to electronic records for as long as necessary; this does not imply exclusively about the permanent preservation of electronic records, but rather about their long-term preservation (Nkala & Ngulube, 2012). This includes permanent preservation, as might be appropriate for records selected by a body such as an institution, but it also includes preservation for fixed periods which greatly exceed the lifetime of the software and hardware used to create the records, such as personnel records which might need to be retained for 75 or 100 years from their creation or such other period as law may provide. It also includes preservation for indefinite, but not infinite, time periods which can be expected to exceed 5 years, such as building records which will be retained for at least as long as the life of the building to which they refer (Magama, 2017).

### **Access and Use of Electronic Records**

The international standard for records management, ISO 15489-1: 2001, defines access as the right, opportunity, means of finding, using, or retrieving information. According to this definition, access can be a right or an opportunity, depending on the circumstances. Access to information or freedom of information legislation allowed the public much greater access to records than they had ever had before. People do not have to wait until records attained archival status before they could access them. In other words, members of the public could seek access to records even while those records are in active use for their day-to-day administration of the



creating agency. Luyombia (2010) argues that the challenge for records professionals is finding a way to provide easy access while still ensuring organizations can carry out their daily business without interruption. Records professionals also have to address growing concerns for privacy, in order to ensure that personal and confidential information is not inappropriately disclosed whenever public records are made available.

Lucas (2010) stated that records keeping are not an end in itself; it is a means to an end. The primary objective of creating and maintaining records in any organization is to ensure that records are used to the maximum level possible throughout its useful life for the reasons for which they were created for. Records which are created by using the hardware and software technologies of today should remain available, usable, understandable and authentic over a long period of time. Furthermore, and even more critically, digital longevity is also dependent on the formats in which the records were generated. New version of an existing software do not at times enable users to access older formats, and as a consequence the records generated in obsolete formats or version of software may become inaccessible. Steps have to be taken to ensure that the records themselves are adapted or migrated to be compatible with the new formats, storage media and systems as technological change takes place (Heeks and Mundy, 2011).

In order to facilitate easy and effective access to electronic records, Juma (2013) suggests that a good classification scheme should be designed, to this end, he defined classification as “the process of identifying and arranging records and archives in categories according to logically structured conventions, methods and procedural rules represented in a classification system”. The task of classification is to identify different categories of business functions and activities, and the records generated as a result of the work performed, and group those records into logical units in order to facilitate access, storage and disposal.

Mampe and Kalusopa (2012) believed that classification enables the creation of a structured file plan so that everyone in the organization can easily identify the one logical and unique physical or intellectual „place“ in which to file records. Classification organizes records into mutually exclusive categories so that there can be no doubt about the appropriate place for an individual item. If records are filed logically, information can be retrieved by anyone at any time according to a consistent set of rules and guidelines.

## **Policy Creation**

An electronic records management policy defines the type, format and nature of records that an organization shall be dealing in, be it a combination of paper and electronic records or strictly electronic records. The issues of type and format is very important and must be resolved at the initial point of creating a records in order to combat some of the challenges of compatibility as well as instances where old records become inaccessible as a result a change in technology. A policy will ensure harmony in the ways e-records are been handled by different e-records manager. Adamu (2015) in a study of the electronic records management practices obtained in the Federal Universities in the Northwestern States of Nigeria discovered that a lack of policy document for the management of e-records has led to variations in the way and manner each records managers handles the records at their disposal. The adverse effect of this are that it does not give room for continuity and transfer of records among the staffs, records of important value could be destroyed without the knowledge of the organization.

## **Staff training**

Madulu (2016) argues that an electronic record management program will ensure that records managers with the requisite skills and competencies are employed to manage EDMS. This is because staff competency issues are very important in the management of electronic records and an EDMS management policy ensures the adherence to outlined competencies when it comes to recruiting the requisite staff for the management of EDMS. Electronic records management in Nigerian universities depicts a typical situation where staffs saddled with the responsibilities of managing electronic records are recruited without having the requisite knowledge necessary for the tasks (Phiri, 2016). Furthermore, in Nigerian universities, a different department is given the mandate of carrying out all recruitment, in as much as this is ok, the recruitment are done not bearing in mind the need to ensure that staff to fill into electronic records management positions must possess the necessary competencies expected of that position.

Consequently, Coffman et al., (2016) highlighted a number of competencies and skills that records managers ought to have in an e-records environment. Such skills and competencies are diverse but can be categorized at various levels including: records and information management

skills, technology skills, managerial skills, and project management skills. Other e-records management skills include but are not limited to: skills to create, capture, classify, index, store, retrieve, track, appraise, preserve, archive and dispose of records in an electronic environment. These need to be complemented by knowledge of e-records environment; knowledge of e-records management practices and trends; knowledge of the types of electronic records including web pages; and knowledge of IT applications to records and archives management.

### **Adoption of International Standards of Electronic Document Management**

The International Standard on Information and Documentation 2001 published by ISO (2001) was the first international standard for the management of electronic records. The standard covers aspects which should be addressed in order to implement an Electronic Records Management system such as policy and responsibilities, strategies for designing and monitoring an EDMS. It provides methodology and processes that guide the management of records. It also provides a framework for any organization, public or private, to adopt for use in order to manage its records irrespective of the medium on which the records are created, captured and maintained. The standard highlights the responsibilities and the need for records management to be defined, assigned, and promulgated throughout the organization so that, where a specific need to create and capture records is identified, it should be clear who is responsible for taking the necessary action. It advocates collaboration between records management professionals, senior management/executives, systems specialists/administrators and everyone in the organization. This supports the recognition that records are inputs and outputs of business processes and therefore their creators and users have a role in managing them.

#### **2.3.4 The Effect of Strategic Approaches to the Use of Electronic Document Management System**

Marler et al., (2018) conducted a study to examine the role training plays in facilitating employee technology acceptance in mandated organization-wide information technology implementations. The study found a significant relationship between extent of training and intention to use an information system. This was supported by the fact that training is important not only to facilitate learning how to use a new technology but also to manage employee perceptions and attitudes

about the new technology. This is because an effective organization-wide training intervention should achieve at least two important objectives. First, it should facilitate learning how to use the system. Employees, as end users, must know how to use a new software system to accomplish the same job they performed using the older “legacy” software system. Second, and as important, training should positively shape employees’ attitudes about the new technology. The latter outcome is important to reduce employees’ resistance to change and to increase implementation effectiveness.

Effiong (2013) conducted a study on the effect of ICT policy implementation on the utilization of electronic record management systems (ERMS) in higher institutions of learning in Nigeria. The study found that the implementation of ICT policies significantly affects the utilization of ERMS. This was attributed to the fact that the existence of a policy document ensures compliance in the application of the specific electronic records management procedures such as appraisal, accessioning, description, retention, preservation, access and use. Furthermore, the study found that in terms of the legislative obligations that the University faces, the Data Protection Act require Universities to produce accurate and reliable information when it is asked for it. Therefore, Preservation of electronic records using an ERMS can help by ensuring that the electronic records the University keeps are retrievable, accurate and reliable. Thus in the event that the users realize that there is a well-documented ERMS policy guiding its usage, the users will get the motivation to use the electronic system.

Abugabah et al., (2017) conducted a study on the impact of information systems on user performance. The study found that access to information was significant on the level of utilization of the information system by the users, thus increasing their performance. The study further revealed that the provision of access may be regarded as the ultimate objective of recordkeeping, as records are created, kept and preserved to make them available for those who are entitled to access and use them. Therefore, to enable electronic records to be used over time, they must remain readable by computer and intelligible to humans. This however, does not mean that obsolete hardware and software should be preserved along with the records to ensure access to electronic records. Rather, steps have to be taken to ensure that the records themselves are adapted or migrated to new and compatible systems as technological change takes place.

## **2.4 Gap in the Literature**

Several studies by Marler et al., (2018); Abugabah et al., (2017); and Effiong (2013) have looked at the role training plays in facilitating employee technology acceptance, the effect of ICT policy implementation on the utilization of electronic record management systems (ERMS) in higher institutions of learning in Nigeria, and the impact of information systems on user performance. However, none of the above studies have looked at the challenges in using EDMS in terms of system quality, information quality and service quality, thus presenting a content gap that the current study investigated. Furthermore, none of the above studies looked at the applicability of D&M (2003) model in addressing the challenges of using EDMS in institutions of higher learning, thus presenting a theoretical gap that the current study investigated.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter looks at the research designs, target population, sample size, sampling techniques, research instruments, validity and reliability of the research instruments, data collection procedures, data analysis, ethical consideration and limitation of the study.

#### **3.2 Research Design**

Descriptive survey design was used in this study. The main advantage of this type of design is that it enables the researchers to assess the situation within the study area at the time of the study (Kothari, 2003). The researcher therefore used the design to establish the challenges affecting the utilization of EDMS in KSUSTA. According to Saunders et al., (2012), a descriptive study is concerned with finding out who, what, where and how of a phenomenon which is the concern of this study.

Furthermore, the study used a quantitative approach to provide the statistical indicators of the challenges affecting the use of EDMS in KSUSTA. Quantitative approach was predominantly used as a synonym for the questionnaire data collection technique where statistics that generates or uses numerical data are used (Creswell, 2011).

#### **3.3 Study Population**

The study population of this study was 2108 employees of KSUSTA (i.e. both the teaching and non-teaching staff) (KSUSTA Human Resource Extract, 2018). However, the study targeted 575 participants from records department, ICT department, Computer department, Library and Engineering department (i.e. administrators, lecturers and technical non-teaching staff).

#### **3.4 Sample Size**

The researcher used Slovene's formula to compute the sample size of the study.

$$n = \frac{N}{1 + N(\alpha)^2}$$

Where, n= sample size; N=target population;  $\alpha=0.05$  level of significance.

$$= \frac{575}{1 + 575 (0.05)^2}$$

$$n = 236$$

Thus the sample size of the current study is 236 respondents. Table 3.1 gives the summary of the study population and sample size

**Table 3.1: Target Population and Sample Size**

Departments	Target Population			Sample Size		
	Administrator	None teaching staff	Lecturers	Administrator	None teaching staff	Lecturers
Records office	2	66	-	1	27	-
ICT	2	75	37	1	30	15
Computer	2	95	30	1	39	12
Library	2	100	-	1	41	-
Engineering	2	114	48	1	47	20
<b>Subtotal</b>	<b>10</b>	<b>450</b>	<b>115</b>	<b>5</b>	<b>184</b>	<b>47</b>
<b>Total</b>	<b>575</b>			<b>236</b>		

### 3.5 Sample Techniques

The study used simple random sampling to select the non-teaching staff and the lecturers. This was achieved by writing the names of the participants in different pieces of papers. The papers were then be put in a bowel and shaken to randomize them. The researcher then randomly selected the names of the respondents from the pieces of papers until he was satisfied with the numbers of respondents that he needed. This sampling technique was preferred because it gives equal opportunity for each participant to be included in the study without bias.

Furthermore, the study used purposive sampling to select the administrators. In this type of sampling technique (purposive), selections are made on purpose or based on the judgment of the researcher. Oliver (2006) sees purposive sampling as a form of non-probability sampling in

which decisions concerning the individuals to be included in the sample are taken by the researcher, based upon a variety of criteria which may include specialist knowledge of the research issue, or capacity and willingness to participate in the research. The less accuracy needed, the smaller the necessary sample. In general, the greater the variability, the larger the sample needed. Thus in this study, administrators of the selected departments were purposively because of their level of knowledge about the topic under survey.

### **3.6 Data Sources**

The data source used in this research was primary data and secondary.

#### **3.6.1 Primary Data Source**

Primary data refers to data collected for solving a specific research problem by single procedures that fit the research problem (Amin, 2005). The data was obtained by distributing the questionnaire to respective respondents during field data collection.

#### **3.6.2 Secondary Data Source**

The secondary data was collected using documentary analysis from, government reports on ICT policies and the ICT policy of KSUSTA.

### **3.7 Method of Data Collection**

Data was collected using questionnaire survey method and document analysis. The researcher preferred to use survey method because it is good for gathering descriptive data, relatively easy to administer, cost effective and time saving. This method was used to get information about challenges and strategic approaches to address the challenges affecting the use of EDMS in KSUSTA.

### **3.8 Research Instrument**

#### **3.8.1 Questionnaire**

Questionnaire is defined by Orodho (2004) as an instrument used to gather data, which allows a measurement for or against a particular viewpoint. He emphasizes that a questionnaire has the ability to collect a large amount of information in a reasonably quick space of time. Best and Khan (1993) observe that questionnaires enable the person administering them to explain the



purpose of the study and to give meaning of the items that may not be clear. Thus in this study, questionnaire was used to collect data from the administrators, lecturers and non-teaching staff. The instrument was chosen because the targeted population was considered learned which minimized the interpretation of the questions for their understanding to capture reliable information. The questionnaires were divided into different sections whereby each section addressed questions to achieve each of the specific objectives of the study. The questionnaire on each objective of the study was designed based on the five Likert Scale, where 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, and 5=strongly agree.

### **3.8.2 Document Review**

The study did documentary review on ICT Policy of KSUSTA. Specifically the researcher assessed whether the policy available addresses the issues of EDMS quality, information quality and service quality of the EDMS. In addition, the study looked at elements such as the implementation of ICT policies in the areas such as access control mechanism of the EDMS; terms and conditions of EDMS usage; backup and recovery mechanism; disaster recovery plans and mechanisms; confidentiality; integrity; and availability. This instrument was helpful to the researcher to establish facts, current trends, relationships, critics, gaps, and how the study would cover the gaps in addressing ICT policy implementation and its effectiveness in ensuring the quality of EDMS.

## **3.9 Validity and Reliability**

### **3.9.1 Validity**

Validity refers to the degree to which result obtained from the survey actually represents the phenomenon under study (Shehu, 2016). A valid instrument should accurately measure what it is supposed to measure. After administering the instruments to the selected respondents, the data obtained should be a true reflection of the variables under study. In this study, expert opinion from the researcher's supervisors and from other professionals well versed in research issues was used to check on the content validity of the instruments using content validity index.

According to Amin (2005), most often researchers compute the Content Validity Index (CVI) for each item in the instrument as rated by two or more experts in order to determine how valid the

study instrument is. Amin (2005) says, if the CVI is 0.70 and above, the instrument can then be considered valid.

Content Validity Index formula:

$$CVI = \frac{\text{Number of items rated relevant by all judges}}{\text{total number of items in the instrument}}$$

$$CVI = \frac{27}{30}$$

$$CVI = 0.90$$

### **3.9.2 Reliability**

Reliability is a measure that determines how well an instruments yield a consistent result after repeated trails. To test on the reliability of the instruments, the researcher used test re-test method. This method involves administering the instruments to the respondents and after some period of time re-administering the same instruments to see the consistency with which the questions are answered. The researcher administered the instruments to the ICT department of Kampala International University which were used for piloting and after a period of one week, the instruments were administered again in the same department to the same respondents. The researcher found that there was consistency in the way the instruments were answered by the respondents thus the instruments were considered reliable.

Secondly, the study used internal consistency method. Cronbach's alpha was used in the actual study to determine the internal consistency of the instrument. Cronbach's alpha ( $\alpha$ ) measures the internal consistency that is, how closely related a set of items are as a group. The higher the  $\alpha$ -value, the more reliable the instruments are considered. A commonly accepted rule for describing internal consistency using Cronbach's alpha is as follows (Kline, 2000): table 3.2 gives the summary.

**Table 3.2: Interpretation of Cronbach's Alpha Results**

<b>Cronbach's alpha</b>	<b>Internal consistency</b>
$\alpha \geq 0.9$	Excellent
$0.9 \leq \alpha \geq 0.8$	Good
$0.8 \leq \alpha \geq 0.7$	Acceptable
$0.7 \leq \alpha \geq 0.6$	Questionable
$0.6 \leq \alpha \geq 0.5$	Poor
$0.5 \leq \alpha$	Unacceptable

The reliability results of this study were indicated in table 3.3 as shown below:

**Table 3.3: Cronbach's Results**

<b>Variables tested</b>	<b>Number of Items</b>	<b>Cronbach's alpha</b>	<b>Interpretation</b>
a) Challenges of using EDMS			
System Quality	8	0.876	Good
Information Quality	8	0.755	Acceptable
Service Quality	6	0.717	Acceptable
b) Strategic Approaches	8	0.844	Good

The results in table 3.3 show that reliability for the items in the different constructs was attained at the benchmark of  $\alpha = 0.70$  and above (Macgowan, 2008). The data was thus deemed appropriate for consideration and analysis.

### 3.10 Data Collection Procedure

An introduction letter was obtained from the School of Computing and Information Technology of Kampala International University (KIU) for the researcher to solicit approval to conduct the study from KSUSTA. The researcher administered the questionnaires himself so as to explain any irregularities properly to the respondents and adequately orient them about the study and why it is being carried out. The respondents were requested to sign the informed consent form. They were also guided on how to fill the questionnaires, and the importance of answering every item of the questionnaire without leaving any part unanswered. The respondents were requested to kindly respond to the questionnaire on time. The researcher retrieved the filled questionnaires within five working days. After retrieving them back, the researcher thoroughly checked them to ensure that all items are adequately answered by the respondents.

### 3.11 Data Analysis

After retrieving back the questionnaire and collecting the required data, it was then prepared for analysis by using Statistical Package for Social Scientists (IBM SPSS, version 22.0) software. In this process, the data underwent these processes i.e. data editing which involved checking the filled questionnaires for any omissions or mistakes; then data coding which involved giving each item of the questionnaire or variable a code to be used when imputing the data into the computer, and lastly data entry into the computer for analysis.

After processing (i.e. editing, coding, and entry into the computer) the collected data, the researcher analyzed it. The analysis was conducted in the following manner: frequency counts and percentage distributions were used to analyze data on the profile of the respondents since all data on administrators, lecturers and non-teaching staff were nominal; hence frequency counts and percentage were the only feasible tool (Douglas et al., 2008).

On the other hand, means and standard deviations were used to compute the central tendency and measure of dispersion in the challenges and strategic approaches employed to address the use of EDMS in KSUSTA. To interpret data, the following numerical values and descriptions were used.

**Table 3.4: Challenges of using EDMS in KSUSTA**

#	Mean Range	Response Mode	Interpretation
5	4.21-5.00	Strongly Agree	Very High
4	3.41-4.20	Agree	High
3	2.61-3.40	Not sure	Moderate
2	1.81-2.60	Disagree	Low
1	1.00-1.80	Strongly Disagree	Very Low

**Table 3.5: Strategic Approaches of Addressing the Challenges of using EDMS in KSUSTA**

#	Mean Range	Response Mode	Interpretation
5	4.21-5.00	Strongly Agree	Very Satisfactory
4	3.41-4.20	Agree	Satisfactory
3	2.61-3.40	Not sure	Fair
2	1.81-2.60	Disagree	Unsatisfactory
1	1.00-1.80	Strongly Disagree	Very Unsatisfactory

Furthermore, in order to establish the effect of strategic approaches adopted to address the challenges on the use of EDMS, the study used regression analysis model. The level of significance was asserted at  $p= 0.05$ . The decision rule was that if  $p\leq 0.05$ , then there is significance otherwise, there is no significance.

### **3.12 Ethical Consideration**

After confirming the validity and reliability of the research instruments, the researcher got an introduction letter from the School of Computing and Information Technology of Kampala International University to seek permission to collect data from KSUSTA. Prior to commencing the survey in this study, all participants were made aware of the research significance and type of information being collected. The researcher explained to the participants that their participation in the study was based on their own interest, and that they were under no obligation to be coerced to participate, and that they can decline to participate at any time. Their right to withdraw at any time during the survey was explicitly stated. Furthermore, data confidentiality was observed and no name of any participant was included in the final write up of this study.

### **3.13 Limitation of the Study**

This study too was limited by unresponsive respondents and those who withdraw after the study process had kick-started. The researcher however, mitigated this by consulting other eligible respondents within KSUSTA if they were willing to be included in the study, those who agreed were automatically included in the study.

The researcher had no control over honesty of the respondents and personal biases. However, the researcher mitigated this by persuading the respondents to be as honest as possible since the results of the study would be provided to them if requested so as to establish the challenges affecting the use of EDMS in KSUSTA and provide strategic approaches that suitably address such challenges.

Furthermore, the study was done only in one university thus generalizing its findings would be difficult. However, the researcher mitigated this by involving key participants in the study such as administrators and records officers so as to get substantive and relevant information regarding the topic under study.

## CHAPTER FOUR

### PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

#### 4.0 Introduction

This chapter includes the analysis of the data collected and their interpretations by each objective. However, the chapter first presents the response rate and the demographic characteristics of the respondents.

#### 4.1 Response Rate

The study distributed 236 questionnaires, however, 224 questionnaires were returned, yielding a response rate of 95%. Amin (2004) considers that if the response rate is more than 70%, the results can therefore be generalizable.

#### 4.2 Demographic Characteristics of the Respondents

This section determines the demographic characteristics of the respondents. To achieve it, questionnaires were distributed to capture these responses. Frequencies and percentage distribution tables were employed to summarize the demographic characteristics of the respondents in terms of gender, age and education level.

**Table 4.1: Gender of the Respondents**

<b>Gender</b>	<b>Frequency</b>	<b>Percent (%)</b>
Male	130	58.0
Female	94	42.0
<b>Total</b>	<b>224</b>	<b>100.0</b>

**Source: primary data, 2018**

The results presented in table 4.1 revealed that majority (58%) of the respondents were male while the female were represented by 42%. The dominance of the male respondents in the study could be attributed to the fact that KSUSTA is a science and technology university and therefore the women have not yet embraced sciences so much believing that it is a male ‘thing’.

**Table 4.2: Age of the Respondents**

Age	Frequency	Percent (%)
25-34	80	35.7
35-44	106	47.3
45-54	26	11.6
55-64	10	4.5
65-74	2	.9
<b>Total</b>	<b>224</b>	<b>100.0</b>

**Source: primary data, 2018**

The results presented in table 4.2 revealed that majority, (47.3%) of the respondents belonged to the age group within 35-44, followed by those 35.7% who were within the age group of 25-34, while respondents within the age group of 45-54 were represented by 11.6%. In addition, respondents within the age group of 55-64 and 65-74 were represented by 4.5% AND 0.9% respectively. The dominance of the respondents within the age group of 35-44 implies that they are old enough not to understand properly how to use an information system effectively since the advent of technology is a recent phenomenon and most of them have not been able to benefit from it during their school days.

**Table 4.3: Education Level**

Education Level	Frequency	Percent (%)
Certificate	12	5.4
Diploma	58	25.9
Bachelor Degree	76	33.9
PGD	24	10.7
Masters	33	14.7
PhD	21	9.4
<b>Total</b>	<b>224</b>	<b>100.0</b>

**Source: primary data, 2018**

The results presented in table 4.3 revealed that majority, (33.9%) of the respondents were Bachelor Degree Holders, followed by 25.9% Diploma Holders and 14.7% Master's Degree Holders. On the other hand, PGD and PhD were represented by 10.7% and 9.4% respectively, while Certificate Holders were least represented with 5.4%. The dominance of Bachelor Degree

Holders is attributed to the influx of graduate students in the job market thus it is easier to recruit them during a job recruitment exercise.

#### **4.3 The Challenges Faced By the Staff of KSUSTA in Using EDMS**

The first objective of this study was to establish the challenges faced by the Staff of KSUSTA in using EDMS. The results were summarized in table 4.4 as indicated below.



**Table 4.4: The Challenges Faced By the Staff of KSUSTA in Using EDMS**

<b>EDMS</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Interpretation</b>
<b>System Quality</b>			
When using EDMS, relevant order confirmation details are not often sent to the user.	4.10	.925	Very high
The EDMS we have does not perform the order right the first time.	4.00	.876	High
I find EDMS inflexible to be used.	3.96	1.006	High
The EDMS we have is difficult to maintain.	3.72	1.066	High
The EDMS we have is outdated.	3.38	1.110	Moderate
I find it difficult to use EDMS.	2.83	1.347	Moderate
I rarely do my job using the EDMS.	2.54	1.743	Low
It is difficult for me to become skillful at using the current EDMS.	2.52	1.433	Low
<b>Average mean</b>	<b>3.38</b>	<b>1.188</b>	<b>Moderate</b>
<b>Information Quality</b>			
The EDMS does not provide the precise information I need.	4.09	.940	Very High
The information in EDMS is not readily accessible to me.	3.80	.802	High
The output information of the EDMS is often not complete.	3.55	.965	High
The output information provided by EDMS is often not in the format needed.	3.54	.907	High
It is difficult for me to understand how EDMS works	2.22	1.444	Low
It is difficult to find what one is looking for using EDMS.	2.10	.304	Low
The output information of the EDMS is difficult to understand	1.36	.969	Very Low
The information provided by the EDMS is often full of errors.	1.21	.567	Very Low
<b>Average mean</b>	<b>2.73</b>	<b>0.862</b>	<b>High</b>
<b>Service Quality</b>			
The security parameters of EDMS make the services it provides not trustable.	4.03	.883	Very High
The EDMS provides only customized operations.	3.82	1.197	High
By using the functions of the EDMS, I'm not sure I can upgrade the efficiency of my work.	3.77	1.136	High
The EDMS in use is not integrated to other departments	3.60	1.132	High
The information received from the EDMS is not adequate.	3.53	0.918	High
Using EDMS in my job would not enable me to accomplish tasks more quickly.	2.00	1.336	Low
<b>Average Mean</b>	<b>3.46</b>	<b>1.100</b>	<b>High</b>
<b>Overall Average Mean</b>	<b>3.19</b>	<b>1.050</b>	<b>Moderate</b>

The results presented in table 4.4 revealed that the challenges affecting the system quality of the EDMS at KSUSTA was assessed by the respondents as moderate (average mean=3.38, Std=1.188). This was attributed to the fact that majority of the respondents strongly agreed that when using EDMS, relevant order confirmation details are not often sent to the user (mean=4.10, Std=0.925). Other respondents also agreed that the EDMS they have does not perform the order right the first time (mean=4.00, Std=0.876). In addition, respondents agreed that they find EDMS inflexible to be used (mean=3.96, Std=1.006), and at the same time difficult to maintain (mean=3.72, Std=1.066). However, respondents were undecided on whether the EDMS KSUSTA has is outdated or not (mean=3.38, Std=1.110) while others were not sure whether the EDMS is difficult to use or not (mean=2.83, Std=1.347). But some respondents disagreed that they rarely do their jobs using the EDMS (mean=2.54, Std=1.743) while others disputed that it is difficult for them to become skillful at using the current EDMS (mean=2.52, Std=1.433).

The results imply that the system quality of the EDMS in operation at KSUSTA apparently is not reliable because it does not perform the requests the user needs to the user's satisfaction, at the same time; its usability is difficult because it is not a flexible system. In addition, it is difficult to maintain the system due to lack of support from the top management of the University in terms of funding and buying updated software and hardware elements of the EDMS. However, they conceded that the system can easily be adaptable since it is easier to learn how to use and one can easily be skilled when they repeatedly use it in a short period of time.

Furthermore, the study revealed that the challenges affecting the information quality of EDMS at KSUSTA was assessed by respondents as High (average mean=2.73, Std=0.862). This was attributed to the fact that majority of the respondents strongly agreed that the EDMS does not provide the precise information they need (mean=4.09, Std=0.940). Other respondents agreed that the information in EDMS is not readily accessible to them (mean=3.80, Std=0.802). However, respondents disagreed that the output information of the EDMS is often not complete (mean=2.22, Std=1.444), not in the format needed (mean=2.10, Std=1.444), and difficult to find what one is looking for (mean=2.10, Std=0.304). Furthermore, the respondents strongly disagreed that the output information of the EDMS is difficult to understand (mean=1.36, Std=0.969) and that it is often full of errors (mean=1.21, Std=0.567).

The above results imply that the information quality of the EDMS at KSUSTA is not good since it is not often accurate because of lack of its preciseness. In addition, the system was found not to provide accessible information for lack of readily availability. Given this fact, it makes whoever is interested in given information urgently to feel frustrated and letdown by the system. However, the good news is that system provides complete information, that is error free in an output that is readable, understandable and in the format that is acceptable to the user.

Furthermore, the results presented in table 4.4 revealed that the challenges affecting the service quality of the EDMS at KSUSTA was assessed by the respondents as High (average mean=3.46, Std=1.100). This was attributed to the fact that majority of the respondents strongly agreed that the security parameters of EDMS make the services it provides not trustable (mean=4.03, Std=0.883). In addition, respondents agreed that the EDMS in use at KSUSTA provides only customized operations (mean=3.82, Std=1.197). Other respondents agreed that by using the functions of the EDMS, they are not sure they can upgrade the efficiency of their work (mean=3.77, Std=1.136). Furthermore, respondents agreed that the EDMS in use is not integrated to other departments (mean=3.60, Std=1.132) and that the information received from the EDMS is not often adequate (mean=3.53, Std=0.918). However, respondents disagreed that using EDMS in their job would not enable them to accomplish tasks more quickly (mean=2.00, Std=1.336).

The above results imply that the service quality of EDMS at KSUSTA lacked integrity due to the weak security elements in the system. This could be because the system does not have a well-established access control mechanism thus making it susceptible to security breaches. In addition, the inflexible functionality of the system where every operation is customized makes the system much more frustrating to use than if the functions were not customized. Thus due to the inflexible nature of the system, most staff feel that the system is making them not to be as efficient in their jobs as they are supposed to be, given the fact that the system is not integrated to other departments. This implies that a staff member from ICT who wants a document from the engineering department must have to walk there physically thus demeaning the good intention of implementing such an information system.

Finally, in the assessment of the overall challenges affecting the use of EDMS in KSUSTA, respondents indicated that the challenges were Moderate (overall average mean=3.19, Std=1.050). This was attributed to the fact that there more challenges in regard to the quality of information and services of the system than the quality of the system itself.

#### **4.4 Strategic Approach to Address the Challenges Faced By the Staff of KSUSTA in Using EDMS**

The second objective of this study was to propose strategic approaches to address the challenges faced by the Staff of KSUSTA in using EDMS. Table 4.5 gives the summary of the findings.

**Table 4.5: Strategic Approaches to Address the Challenges Faced By the Staff of KSUSTA in Using EDMS**

<b>Strategic Approach to Address the Challenges Faced By the Staff of KSUSTA in Using EDMS</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Interpretation</b>
KSUSTA should develop consistent rules to ensure integrity, accessibility and procedures for registering, classifying and indexing electronic records.	4.02	.847	Very Satisfactory
KSUSTA should adopt records appraisal system so as to enable long-term preservation of electronic records in archives by analyzing their value.	3.98	.860	Satisfactory
The various competencies expected of an electronic records management staff should be strictly adhered to when recruiting staff for the management of electronic records.	3.69	.820	Satisfactory
The records managers should ensure that authorization to access and retrieval of records is properly safeguarded through the procurement of better security software that will help safeguard the records.	3.55	.767	Satisfactory
KSUSTA should ensure the availability of a standard regulatory framework for the management of electronic records in all its departments by designing a policy that guides the use of EDMS.	3.54	1.263	Satisfactory
KSUSTA staff members should be made to engage in constant training and retraining in line with new and emerging trends in the management of EDMS.	3.47	1.088	Satisfactory
Alternative power generators should be provided by KSUSTA in order to help safeguard against power surge and power failure in the process of using EDMS.	3.42	1.131	Satisfactory
Good quality EDMS devices should be made to replace the low quality used in the storage of electronic records.	3.19	1.265	Fair
<b>Average Mean</b>	<b>3.71</b>	<b>1.005</b>	<b>Satisfactory</b>

**Source: primary data, 2018**

The results presented in table 4.5 revealed that strategic approaches to address the challenges of using EDMS at KSUSTA was assessed by the respondents as satisfactory (overall average

mean=3.71, Std=1.005). This was attributed to the fact that majority of the respondents strongly agreed that KSUSTA should develop consistent rules to ensure integrity, accessibility and procedures for registering, classifying and indexing electronic records (mean=4.02, Std=0.847). Furthermore, respondents agreed that KSUSTA should adopt records appraisal system so as to enable long-term preservation of electronic records in archives by analyzing their value (mean=3.98, Std=0.860). Similarly, respondents agreed that the various competencies expected of an electronic records management staff should be strictly adhered to when recruiting staff for the management of electronic records (mean=3.69, Std=0.820). In addition, respondents agreed that records managers should ensure that authorization to access and retrieval of records is properly safeguarded through the procurement of better security software that will help safeguard the records (mean=3.55, Std=0.767).

In the same way, respondents agreed that KSUSTA should ensure the availability of a standard regulatory framework for the management of electronic records in all its departments by designing a policy that guides the use of EDMS (mean=3.54, Std=1.263). Correspondingly, the respondents agreed that KSUSTA staff members should be made to engage in constant training and retraining in line with new and emerging trends in the management of EDMS (mean=3.47, Std=1.088). Additionally, the respondents agreed that alternative power generators should be provided by KSUSTA in order to help safeguard against power surge and power failure in the process of using EDMS (mean=3.42, Std=1.131). However, respondents were not sure on whether the good quality EDMS devices should be made to replace the low quality used in the storage of electronic records (mean=3.19, Std=1.265).

The above results indicated that in order to address the challenges of system quality, information and service quality of the current EDM system at KSUSTA that is trodden with poor reliability, usability, information inaccuracy, lack of information availability, poor functionality of the system and inability to integrate with other departments, the following strategies must be adopted: electronic documents should be created and captured to make it readily available for further access; the university should adopt record appraisal system to make the available electronic documents archived for easy access; the university should preserve and conserve electronic records in formats that are readable and understandable for long-term periods; the university should provide access and control mechanisms to regulate access to information so as

to ensure the reliability, integrity and completeness of the electronic document; similarly, the university must design a policy that streamlines the operation of the EDMS by different entities within the university. This will allow for integration of the EDM system to other departments, implementation of better access control mechanisms and improvement in the overall functionality of the EDMS; and Likewise, the university needs to train its staff regularly in the use of EDMS so as to be able to understand in-depth how the EDMS works and get the best out of it. In that way, it will make them able to access and get all the documents they are looking for within the system.

In order to tally the response acquired from the questionnaires, the researcher intended to analyze the ICT policy of KSUSTA and specifically the policy that guide the use of EDMS. Explicitly, the researcher intended to analyze the element of access control mechanism; terms and conditions of EDMS usage; backup and recovery mechanism; disaster recovery plans and mechanisms; confidentiality; integrity; and availability. This was because an all-encompassing policy guideline is expected to spell out the step-by-step procedure to the management of electronic documents in an organization. The types of records to generate as well as the staffing requirement necessary for the effective management of these records are also expected to be spelt out in such a policy. However, during field data collection, the researcher found out the non-existence of a policy guideline in the form of a document in the KSUSTA. The implications of this are that, different types of electronic documents in different formats will be generated; the procedures for the management of these electronic documents will also be subject to individual and personal ways the various records managers deem fit. The negative implications are that electronic documents of value will be mismanaged or lost forever.

#### **4.5 The Effect of the Strategic Approach on the Use of EDMS amongst the Staff of KSUSTA After A Period Of 4months**

The third objective of this study was to examine the effect of the strategic approaches on the use of EDMS amongst the Staff of KSUSTA after a period of 4months. Table 4.6 gives the summary of the findings.

**Table 4.6: The Effect of the Strategic Approaches on the Use of EDMS amongst the Staff of KSUSTA After A Period of 4months**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.410 <sup>a</sup>	.168	.164	.17326	.168	44.762	1	222	.000
Model		Sum of Squares		df	Mean Square		F	Sig.	
1	Regression	1.344		1	1.344		44.762	.000 <sup>b</sup>	
	Residual	6.664		222	.030				
	Total	8.008		223					
Model	Unstandardized Coefficients			Standardized Coefficients		t	Sig.		
	B	Std. Error		Beta					
1	(Constant)	.628	.102			6.157	.000		
	Challenges	.214	.032		.410	6.690	.000		

a. Dependent Variable: Strategic Approaches

The results presented in table 4.6 revealed that after adopting the strategic approaches, there was a significant effect on the use of EDMS at KSUSTA (Adjusted  $R^2=0.164$ ,  $p=0.000$ ). In other words it implies that after the adoption of strategic approaches in a period of four months, the use of EDMS among the staff of KSUSTA had improved by 16.4%. Moreover, the study found that the regression model was the best fit for predicting the use of EDMS by staff of KSUSTA ( $F=44.762$ ,  $p=0.000$ ). In the same way, the study revealed that every unit change in the use of the strategic approaches would cause a variance of 41.0% in the use of EDMS by the staff of KSUSTA (Beta=0.410,  $p=0.000$ ).



## **CHAPTER FIVE**

### **DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.0 Introduction**

This chapter presents the discussion of the study guided by the study objectives. The discussion of this study findings were done by reviewing related literature, and comparing and contrasting with other previous studies. The study was later concluded and appropriate recommendations accruing from the findings were made.

#### **5.1 Discussion of the Findings**

##### **5.1.1 The Challenges Faced By the Staff of KSUSTA in Using EDMS**

The first objective of this study was to establish the challenges faced by the Staff of KSUSTA in using EDMS. The study revealed that the overall assessment of the challenges affecting the use of EDMS in KSUSTA, was Moderate (overall average mean=3.19, Std=1.050). The challenges were mostly high within the element of information quality and service quality compared to system quality.

In terms of information quality, the study revealed that there was a high level of challenge that makes it difficult for the staff to use the EDMS. This was attributed to the fact that the information provided by the EDMS at KSUSTA was affected by inaccuracy because of lack of preciseness, lack of availability because of inaccessibility, and lack of completeness of the information due to absence of proper record preservation strategic approach. The finding of this study is consistent with that of Taharudin and Izhar (2018) and Nengomasha and Chikomba (2018) where the authors found that the captivating challenges affecting the proper use of an information system is significantly related to accessibility, reliability, authenticity and originality of documentation held on such newer ICT-based media. The authors argued that electronic documents can be duplicated easily, thus making such a document unusable due to its inaccuracy.

In regard to service quality, the study revealed that there was a high level of challenge that makes it difficult for the staff to use the EDMS. For instance, the study revealed that the services of the EDMS were not efficient in terms of speed and quality of output thus making the users less

efficient as well. Furthermore, the functionality of the system was inadequate because the system was not integrated to other departments hence making information sharing from one department to another manual and cumbersome. In addition, the inflexible functionality of the system where every operation is customized makes the system much more frustrating to use than if the functions were not customized.

The results of the current study is consistent with the findings of Hotchkiss et al., (2010), Boadu (2016), Moatlhodi and Kalusopa (2016) who found that service quality of an information system significantly affects the level of usage. The authors found that when the functionality of an information system is complex and inflexible, users will always opt for the alternative options that are more convenient. For example, Hotchkiss et al., (2010) found that the use quality of a web-based system was poor because of an information overload where students were bombarded with too much information at one time. This situation implied that the students found it difficult to find relevant information due to the poor service of the web-based system.

In addition, Boadu (2016) also found that service quality of a web based system in terms of reliability and accessibility was poor. From an information system quality service perspective, this system displayed poor work quality. This in turn directly impacted on the level of IS usage quality. The research revealed that because of the system's poor service quality, the system's ability to facilitate teaching and learning was very low and hence the web based teaching environment's level of use quality was also very poor. Similarly, Moatlhodi and Kalusopa (2016) found that the challenges that affect the use of an information system in terms of quality of service included: absence of organizational plans for managing records; absence of core competencies in records and archives management; absence of budgets dedicated for records management; lack of records retention and disposal policies; and absence of migration strategies for records.

In regard to system quality which assessed to have the least challenges affecting the use of EDMS in KSUSTA, the study revealed that the EDMS available at KSUSTA is unreliable, difficult to use and maintain, thus due to these challenges, users find it problematic to use it. It was found that the system quality of the EDMS in operation at KSUSTA is not reliable because

it does not perform the requests the user needs to the user's gratification, at the same time; its usability was found to be hard because it is not a flexible system. However, the respondents acknowledged that the system is easy-going since it is easier to learn how to use and one could easily be skilled when they frequently use it in a short period of time.

The findings of the current study is consistent with that of Luyombya (2010); Asogwa (2013); (Ladan, 2014); Bigirimana et al., (2015) who found that the quality of an information system significantly affects its use. For instance, Luyombya (2010), Ladan (2014), and Bigirimana et al., (2015) found that the rapid change in information system innovation makes most system that are not in conformity to such rapid development to remain obsolete thus making information inaccessible which eventually reduces the level of use of such an information system. Similarly, Asogwa (2013) found that the absence of policies and procedures to provide guidance to creators and users of electronic records systems poses risks that make users to shy away from using such a system.

### **5.1.2 Strategic Approach to Address the Challenges Faced By the Staff of KSUSTA in Using EDMS**

The second objective of this study was to propose strategic approaches to address the challenges faced by the Staff of KSUSTA in using EDMS. The study revealed that strategic approaches to address the challenges of using EDMS at KSUSTA was assessed by the respondents as satisfactory (overall average mean=3.71, Std=1.005). The use of electronic document creation and capturing that make it readily available for further access; the use record appraisal system to make the available electronic documents archived for easy access; the use of preservation and conservation methods of electronic records in formats that are readable and understandable for long-term periods; the use of access and control mechanisms to regulate access to information so as to ensure the reliability, integrity and completeness of the electronic document; the use of policy framework that streamlines the operation of the EDMS by different entities within the university. This will allow for integration of the EDM system to other departments, implementation of better access control mechanisms and improvement in the overall functionality of the EDMS; and training of university staff regularly in the use of EDMS so as to

be able to understand in-depth how the EDMS works and get the best out of it. In that way, it will make them able to access and get all the documents they are looking for within the system.

The researcher went back to KSUSTA after four months to establish the extent to which the proposed strategic approaches were implemented.

As regard record creation and capturing: the researcher observed that records were created and captured in form of Text Files (PDF, TXT, DOC), Graphic Files (BMP, GIF, JPEG, PNG), Data files (software programmes), Video and Audio (MPEG, WAV, MP3), Markup Language Files (HTML, XML,) to be the major types of files generated in the university. There is need however, for uniformity in the types of records generated by the staff of KSUSTA in order to allow for compatibility when moved across different electronic document management system. Ile and Oguejiofor (2015) in their study found that the primary purpose of a records management programme is to monitor records, regardless of type or format, to ensure that they pass efficiently, and at a minimum cost, through the creation, use, storage and disposal or permanent retention phases. However, the situation revealed by the findings of this study is on the contrary as electronic documents are managed haphazardly thereby making it difficult for quality access and use.

As regard appraisal of the system: the researcher discovered that a large part of the records created and managed in the records office were academic related records so priority and consideration were usually given to this types of records over other records when appraising. In addition, both staff and students' records were given more priority when appraising.

As regard preservation and conservation: KSUSTA had installed a dedicated server for the preservation of electronic records but also, they burn some of their records onto CDs/DVDs while others were left on the computer's internal memory. However, Mampe and Kalusopa (2012) in their study found that the ability to preserve electronic records has not matched the ability to create such records. This is because such records can be, easily lost, destroyed, or altered, and run the risk of obsolescence as software and hardware age and are replaced.

On Access and Use: it was observed that access to electronic documents was done by authorized personnel within the records department. This meant that any outsider could not access the

database since the user names and passwords were periodically changed and only specific people had such information. Consistent with this is what Mampe and Kalusopa (2012) found in his study that when records are classified in a structured file plan, it enables everyone in the organization to easily identify the one logical and unique physical or intellectual “place” in which to file records according to their access levels. The authors agree classification organizes records into mutually exclusive categories so that there can be no doubt about the appropriate place for an individual item. If records are filed logically, information can be retrieved by anyone at any time according to a consistent set of rules and guidelines.

As for the a policy framework in the use of EDMS, there was none is existence, thus it still implies that the effective use of EDMS is a long term plan that is yet to be realized when all the suggested strategic approaches are put to use. However, Luyomba (2010) in his study revealed that without policies and procedures for the management of digital records, it would be difficult to manage the digital records. The author advised that policies should be formulated and implemented to ensure that digital records do not continue to suffer neglect. They should be linked to ICT policies and consequently to the broader national objectives. Similarly, Adamu (2015) in a study of the electronic records management practices obtained in the Federal Universities in the Northwestern States of Nigeria discovered that a lack of policy document for the management of e-records has led to variations in the way and manner each records managers handles the records at their disposal. The adverse effect of this are that it does not give room for continuity and transfer of records among the staffs, records of important value could be destroyed without the knowledge of the organization.

In regard to staff training, the study found that the staff managing the EDMS at KSUSTA lack the competencies expected of an electronic records management personnel, as such; staff are simply allocated a computer and given the mandate to manage important records of value belonging to both staff and students of the university. However, it should be noted that competencies are designed to guard against having in place mediocre in delicate positions that requires a good display of skills and professionalism in the discharge of the functions attached to those positions. In addition Barata et al., (2009) while highlighting the need for training, affirmed that training and education in electronic record management is lacking in most developing

countries and hence a need for ongoing training and awareness creation about the role of digital recordkeeping within an organization is a necessity.

Alternative power supply: the study found that KSUSTA still depended on the power supply from the state government which had remained irregular as usual. Regrettably, alternative measures such as power generating sets were not yet put in place to substitute the power supply from the central grid, citing management complaints of increase in overhead expenditure.

It is against the above background that Iwhiwhu (2010) in his studies of management of electronic records in Nigerian Universities observed that administration of records is without recourse to the principles of records management. There is no university records manual, no records retention and disposition schedule, personnel handling the records are not trained in records management, inadequate facilities for the preservation, storage, and retrieval of records, no filing manual, inadequate computers to manage the volume of records generated and the attitude of administrators towards records and records management constitute a problem to records management.

### **5.1.3 The Effect of the Strategic Approach on the Use of EDMS Amongst the Staff of KSUSTA After A Period Of 4months**

The third objective of this study was to examine the effect of the strategic approaches on the use of EDMS amongst the Staff of KSUSTA after a period of 4months. The study revealed that after adopting the strategic approaches, there was a significant effect on the use of EDMS at KSUSTA (Adjusted  $R^2=0.164$ ,  $p=0.000$ ). This was attributed to the fact that after the adoption and implementation of some of the proposed strategic approaches, the use of EDMS improved progressively since the EDMS became more reliable, accurate, usable, understandable and the information was made much more available. This

The current study is in line with the findings of Effiong (2013); Abugabah et al., (2017); and Marler et al., (2018) who found that the use of proper approaches to address the challenges of using an information system significantly affect its usage. For instance, Marler et al., (2018) conducted a study to examine the role training plays in facilitating employee technology acceptance in mandated organization-wide information technology implementations and found

significant relationship between extent of training and intention to use an information system. This was supported by the fact that training is important not only to facilitate learning how to use a new technology but also to manage employee perceptions and attitudes about the new technology.

In addition, Effiong (2013) in his study on the effect of ICT policy implementation on the utilization of electronic record management systems (ERMS) in higher institutions of learning in Nigeria found that the implementation of ICT policies significantly affects the utilization of ERMS. This was attributed to the fact that the existence of a policy document ensures compliance in the application of the specific electronic records management procedures such as appraisal, accessioning, description, retention, preservation, access and use. Likewise, Abugabah et al., (2017) in their study on the impact of information systems on user performance revealed that access to information was significant on the level of utilization of the information system by the users, thus increasing their performance. The study further revealed that the provision of access may be regarded as the ultimate objective of recordkeeping, as records are created, kept and preserved to make them available for those who are entitled to access and use them.

## **5.2 Conclusion**

The need to extend viable and sustainable strategic approaches to the challenges facing the use of EDMS in KSUSTA has led to revelations that made the researcher to ponder over the fate of electronic documents that are generated on daily basis. This is because a lot of such documents are necessary for the continuous existence of the personnel and students of the university. In addition, to a large extent, the operational efficiency of the university itself is dependent on how well these electronic documents are managed over time.

It should be noted that while the proposed strategic approaches to overcome the challenges of using EDMS at KSUSTA provided in this study include: creation/generation, appraisal and retention, accession and description, preservation and conservation; access and use; policy creation; and staff training it is also worthy of note that each individual step requires certain expected procedures that must be undertaken as far as electronic document management is concerned. However, it was realized as obtained from the findings that the managers of

electronic document in KSUSTA employ different procedures as they deem fit in the management of the institution's EDMS. This can be blamed on the lack of standard guideline in the form of policy framework that is expected to spell out in detail, the step-by-step procedure to be followed by an electronic records manager in the effective management of EDMS. It is therefore necessary as a matter of urgency for an electronic records management policy to be formulated in KSUSTA and this policy should be in consonance with a national IT policy of the federal government of Nigeria. Subsequently, it is hoped that these policy and regulatory framework will spell out the types or electronic documents to be generated as well as their formats, the competencies expected of an electronic records manager as well as the need for consistent training and retraining.

### **5.3 Recommendations**

The study therefore recommends for the formulation of a written policy guideline for the effective management of EDMS. This is a necessity if electronic documents are to be well managed. In line with the findings of the study, it was realized that the lack of an electronic documents management policy forms the foundation of the challenges affecting the use of EDMS within the university on a daily basis. The policy document when formulated is expected to outline the types of records to be created, the procedures for their effective management, the staffing requirements or competencies needed of the staff charged with the management of these records, et cetera. This study therefore recommend as a matter of urgency that machinery for the formulation of a policy document be put in place by KSUSTA administration in order foster effectiveness in the general records management processes.

As part of the findings of this research, it was realized that, the processes applied in the management of electronic documents in KSUSTA is purely based on individual experience. Records are generated and managed without recourse to policy guidelines. Access and use of this records becomes difficult when the need arise as they were not properly managed, this electronic documents are being stored on different medium and retrieval and access to them becomes difficult over time due to change in technology as well as the operating systems. Hence the study is recommending for the adoption of a standard procedure that shall be outlined in a policy



document that will serve as a guide to the electronic document managers in the effective management of EDMS.

Furthermore, qualified and well trained personnel are prerequisite for the effective management of EDMS. One among the major problems facing the effective use of EDMS in KSUSTA is the issue of competencies or skills necessary for the effective management of EDMS. The study therefore recommends the training and retraining of these staff in order to enable them cope with some of the challenges posed by the rapid development in the area of ICTs. Workshop should also be organized by professionals on a regular basis in order to keep them abreast with recent trends and development in the area of electronic document management. The study also wishes to recommend the inclusion of professionals within the records management office in the general recruitment exercise of personnel to manage EDMS. It will help to ensure that mediocrity is not taken in place of meritocracy.

Finally, there is need to also ensure that an alternative means of power supply is made ready in the event of a power failure. This is necessary because the probability of losing records or a record becoming corrupt and irretrievable is very high in such situation. Therefore, the urgent need for alternative power supply is inevitable.

#### **5.4 Contribution to New Knowledge**

This study using updated D&M IS success model established that the constructs of this model, that is system quality, information quality and service quality can perfectly measure the challenges that affect an information system. Thus the new knowledge added by this study is that D&M model can effectively be used in identifying the challenges of an information system. Furthermore, the use of appropriate strategic approaches can be able to influence the use of an information system if properly adhered to.

## **5.5 Areas for Further Research**

The research recommends the following areas for further research in order to better enrich the field of EDMS:

- A review into records management policy issues as it relates policy formulation, implementation and evaluation.
- Requirements for appraisal and retention of electronic documents in the present information age.
- Provisions for the effective preservation and conservation of electronic documents.

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## **APPENDIX I: INTRODUCTION LETTER**

I am a candidate for Masters of Science in Information System at Kampala International University undertaking a research study on the topic “**Strategic Approaches to Address the Challenges Faced in Using Electronic Document Management System: A case of Staff of Kebbi State University of Science and Technology, Aliero, Kebbi State, Nigeria**”. In view of this, I request you to participate in this study. Kindly answer this questionnaire without leaving any question unanswered. Please be assured that the information you give will be treated with utmost confidentiality and will be used for academic purpose only. Before answering this questionnaire kindly read and sign the attached informed consent.

Thank you very much in advance.

Yours faithfully

.....

**Sagir Muhammad Aliero**

## APPENDIX II: CONSENT FORM

I am giving my consent to be part of the research study of Mr. Sagir Muhammad Aliero on the topic: **“Strategic Approaches to Address the Challenges Faced in Using Electronic Document Management System: A case of Staff of Kebbi State University of Science and Technology Aliero, Nigeria”**.

**Please tick**

- 1 I confirm I have read and understood the information provided for the above research and had the opportunity to ask questions.
- 2 I understand my participation is voluntary and that I am free to Withdraw at any time without giving a reason.
- 3 I agree to take part in the research



## APPEND III: QUESTIONNAIRE

### Section A: General Information

**Instruction:** please tick [√] the option that best describes you

#### 1. Gender

a) Male

b) Female

#### 2. Age

a) 25-34 years

b) 35-44 years

c) 45-54 years

d) 55-64 years

e) 65-74 years

#### 3. Educational Level

a) Certificate

b) Diploma

c) Bachelor Degree

d) PGD

e) Master's Degree

f) PhD

**Section B: Challenges of Using Electronic Document Management System [EDMS]**

**Instruction:** Please indicate to what extent you agree or disagree with each of the following statement about Challenges of Using Electronic Document Management System in KSUSTA by ticking (√) the appropriate number in each row. Where 1=you strongly disagree; 2=you disagree; 3=you are not sure; 4=you agree and 5=you strongly agree.

#	Challenges of Using EDMS	1	2	3	4	5
<b>I</b>	<b>SYSTEM QUALITY</b>					
<b>A</b>	<b>Adaptability</b>					
1	It is difficult for me to become skillful at using the EDMS.					
2	I find it difficult to use the current EDMS.					
<b>B</b>	<b>Maintainability</b>					
1	The EDMS we have is outdated.					
2	The EDMS we have is difficult to maintain.					
<b>C</b>	<b>Reliability</b>					
1	The EDMS we have does not perform the order right the first time.					
2	When using, relevant order confirmation details are not often sent to the user.					
<b>D</b>	<b>Usability</b>					
1	I rarely do my job using the EDMS.					
2	I find EDMS inflexible to be used.					
<b>II</b>	<b>INFORMATION QUALITY</b>					
<b>A</b>	<b>Accuracy</b>					
1	The information provided by the EDMS is often full of errors.					
2	The EDMS does not provide the precise information I need.					
<b>B</b>	<b>Availability</b>					
1	It is difficult to find what one is looking for using EDMS.					
2	The information in EDMS is not readily accessible to me.					

<b>C</b>	<b>Completeness</b>						
1	The output information of the EDMS is often not complete.						
2	The output information provided by EDMS is often not in the format needed.						
<b>D</b>	<b>Understandability</b>						
1	The output information of the EDMS is difficult to understand						
2	It is difficult for me to understand how the EDMS works.						
<b>III</b>	<b>SERVICE QUALITY</b>						
<b>A</b>	<b>Efficiency</b>						
1	Using EDMS in my job would not enable me to accomplish tasks more quickly.						
2	By using the functions of the EDMS, I'm not sure I can upgrade the efficiency of my work.						
<b>B</b>	<b>Functionality</b>						
1	The EDMS in use is not integrated to other departments.						
2	The EDMS provides only customized operations.						
<b>C</b>	<b>Integrity</b>						
1	The information received from the EDMS is not adequate.						
2	The security parameters of EDMS make the services it provides not trustable.						

**Section C: Strategic Approach To Address The Challenges Faced By The Staff When Using Electronic Document Management System [EDMS]**

**Instruction:** Please indicate to what extent you agree or disagree with each of the following statement about strategic approaches to address the challenges faced by the staff when using electronic document management system in KSUSTA by ticking (√) the appropriate number in each row. Where 1=you strongly disagree; 2=you disagree; 3=you are not sure; 4=you agree and 5=you strongly agree.

#	Strategic Approach To Address The Challenges Faced By The Staff When Using Electronic Document Management System [EDMS]	1	2	3	4	5
1	KSUSTA should develop consistent rules to ensure integrity and accessibility and procedures for registering, classifying and indexing electronic records.					
2	KSUSTA should adopt records appraisal system so as to enable long-term preservation of electronic records in archives by analyzing their value.					
3	KSUSTA should ensure the availability of a standard regulatory framework for the management of electronic records in all its departments by designing a policy that guides the use of EDMS.					
4	KSUSTA staff members should be made to engage in constant training and retraining in line with new and emerging trends in the management of EDMS.					
5	Alternative power generators should be provided by KSUSTA in order to help safeguard against power surge and power failure in the process of using EDMS.					
6	The records managers should ensure that authorization to access and retrieval of records is properly safeguarded through the procurement of better security software that will help safeguard the records.					
7	The various competencies expected of an electronic records management staff should be strictly adhered to when recruiting staff for the management of electronic records.					
8	Good quality EDMS devices should be made to replace the low quality used in the storage of electronic records.					

**THE END**