FACTORS AFFECTING THE ADOPTION LEVELS OF ELECTRONIC DOCUMENT MANAGEMENT SYSTEMS IN PROPERTY DEVELOPMENT FIRMS IN KENYA: A CASE STUDY OF THE SURAYA PROPERTY GROUP LIMITED, NAIROBI.

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A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS AND ECONOMICS OF KABARAK UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION (MANAGEMENT INFORMATION SYSTEMS).

NOVEMBER 2016

DECLARATION

This research project is my own work and to the best of my knowledge it has not been presented for award of a degree in any university or college.

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RECOMMENDATION

This research project has been submitted for examination with our approval as supervisors;

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DEDICATION

This research project is dedicated to my wife, Irene Wambui Lihanda; my parents Mr. and Mrs. Jason Omwaka and Mrs. Grace Muthoni, my brother Mike, my sisters Mercy, Darlene and Monique, my nieces Wambui, Koi, Andisi and Muthoni for their support, inspiration and encouragement during the entire course of my study.

ABSTRACT

Most organizational valuable information exists in the form of documents, be it correspondence, memos, policy documents, contractual agreements and reports. Crucial business processes are not only based on but also driven to a great extent by document flows. The purpose of this study was to determine how organizational, technological and human resource factors could affect the adoption levels of Electronic Document Management Systems in Kenya based on the promise of productivity and performance improvement of Electronic Document Management Systems to organizations. This study examined empirical studies conducted on Information Technology (IT) adoptions at the organizational level and with respect to Electronic Document Management Systems. Electronic Document Management Systems adoptions has been analyzed mainly using the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Technology Organization and Environment (TOE) theories. This study adopted a descriptive research design and the population under study was the staff of Suraya Property Group Limited at its headquarters in Spring Valley, Westlands and its 2 main branch offices at Yaya Branch Center along Tigoni Road and Fourways Junction along Kiambu Road. From these locations a total of 30 staff members formed the sample randomly selected from a population of 119 using stratified sampling method the final proportions of the sample studied in each of the departments was picked. The study relied on a structured questionnaire as its primary source of data and the Statistical Package for Social Sciences (SPSS) was used to analyze the data collected. The results of chi-square test of independence revealed that there was evidences against the null hypotheses, leading to their rejection and hence conclusions that organizational factors, technological factors and human resource factors affected adoption levels of Electronic Document Management Systems in Suraya Property Group Limited. Regression analysis results showed that 69.2% of the variations in adoption levels of Electronic Document Management Systems was explained jointly by technological, organizational and human resource factors. Further, unit changes in organizational, technological and human resource factors holding other factors constant would change the adoption levels of Electronic Document Management Systems by 0.585, 0.322 and 0.534 respectively. The study further recommends to the top management of Property Development Firms in Kenya to review their policies or directives pertaining the Electronic Document Management Systems they utilize. Further, it is recommended that management of Suraya Property Group Limited should immediately organize and commence training of its entire staff on using Electronic Document Management Systems.

Keywords: Document Management, Electronic Document Management Systems, Organizational Factors, Technological Factors, Human Resource Factors

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LIST OF ABBREVIATIONS

AIIM – Association of Information and Image Management

DMS – Document Management Systems

DOI – Diffusion of Innovations

ECM – Electronic Content Management

EDM – Electronic Document Management

EDMS – Electronic Document Management Systems

IDC – International Data Corporation

IS – Information Systems

IT – Information Technology

SPSS – Statistical Package for Social Sciences

TOE – Technology Organization and Environment

UTAUT – Unified Theory of Acceptance and Use of Technology

OPERATIONAL DEFINITION OF TERMS

Document: The term document is used to refer to a unit of recorded information structured for human consumption (Levien, 1989). A document contains information necessary to represent a concept or an idea to the user of the same and is characterized by the ability to be easily transmitted, stored and handled as a unit. A document can today be generated/created, recorded, transported, displayed and/or stored in appropriate media devices. A document, therefore, is said to be a snapshot of some set of information that; can incorporate many complex information types, can exists in multiple places at the same time across a single or multiple networks, can depend on other document for piece(s) of information, can change on the fly, that is, simultaneously as underlying surbodinate documents are brought up to date, can have an intricate structure composed of non-homogeneous complex data types such as full motion video or voice and can be retrieved and modified concurrently by as many people as possible given they have the requisite access privileges.

Electronic Document Management System: An Electronic Document Management System refers to a computer system or a collection of computer programs used to generate, track and store electronic documents and/or images of paper-based documents. The scope and definition of Electronic Document Management Systems encompasses the following: Electronic which refers to the use of modern electronic information communications technologies to generate and transmit information; Document which refers to a combined set of information and data from various sources related to a given topic of interest which is formulated for human comprehension and presented in a variety of symbols but existing as a single entity. Management which connotes the entire process from generation/creation, storage, transmission, retrieval, manipulation, updating and the final disposition of the the document upon it fulfilling its intended business purpose.

Organizational Factors: Refers to characteristics internal to the organization which include the organizational structure, firm's processes, size, technological capabilities of an organization's members, financial resources available, organizations culture, management support, project leader (Rodgers, 1995). They also refer to descriptive measures about an organization such as scope, size and managerial structure (Tornatzky and Fleisher, 1990).

Technological Factors: Refers to internal and external technologies relevant to a firm such as infrastructure and development capabilities (Tornatzky and Fleisher, 1990). Technological factors are viewed in this study as part of the facilitating conditions stipulated by the Unified Theory of Acceptance and Use of Technology (UTAUT) which refers to the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of a system (Vankatesh et al., 2003).

Human Resource Factors: These refer to individual characteristics towards innovativeness (Rodgers, 1995).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Presently, in the information age that we live in a majority of organizational documents are stored aside from manual filing systems, as files and folders on computing devices such as Personal Computers (PC), Enterprise Servers and more recently Mobile Device and Cloud platforms. With the constant evolving and advances of Information Communications Technologies, information tends to flow and move instantaneously around the globe at the push of a button. Hardly does it take minutes for such information to show up on the other end of a communication channel given appropriate supporting bandwidth is available. With this in mind one may be tempted to think that hard copies of data therefore is a historical concept altogether which isn't the senerio.

The harnessing of information technology (IT) to manage documents is one of the most important challenges facing information system managers and is important as most of organizations' valuable information exist in form of documents such as business forms, reports, letters, memos, policy statements, contracts and agreements (Sprague, 1995). This means, therefore, that documents are quite central to the proper functioning of any organization. Invoices, quotations, receipts, correspondence, contractual agreements form the bulk of documents that in many ways impact on the operations of most business establishments. Of great concern is the fact that at times the documents are generated by the minute or by the hour or on a daily basis depending on the nature of the business organization in question.In order to improve process efficiency businesses have to digitize such information and are such organizations are forced to invest in technologies that will assist them to capture, analyze, store and index these documents from the repositories within which they reside in.

The major business oriented forces driving advances in the handling of information residing in form of documents within the business context and facilitated by new and emerging technologies include the need for increased quality on which to base global competitiveness and the need for increased productivity to conserve the scarce global resources (Sprague, 1995). Among the technological advances at play here include the increased availability of large capacity storage media, larger bandwidth communication channels available today, digital image processing, electronic mail (E-mail), multimedia documents, digital image processing, and the more improved information and textual data retrieval mechanisms available today.

According to a survey of 176 organizations worldwide by Aberdeen (2012), the volume of documents and unstructured data otherwise known as Big-Data is said to be growing by over 30% annually in organizations both in the public and private sector and they are struggling to reconcile the worlds of digital and physical data (Rowe, 2012). Document Management Systems (DMS) synonymously referred to as Electronic Management Systems (Electronic Document Management Systems), come in to address this present global business challenge aimed at promoting business efficiency and guaranteeing competitiveness by providing a fast, efficient document handling solution while at the same time promoting data visibility.

For medium and large sized organizations using a document manament system to track and store electronic documents while providing storage, version control, metadata, security as well as indexing and retrieval capabilities is therefore an absolute necessity if competitive advantage is to be guaranteed. Increasing efficiency and effectiveness are imperatives which bring globally present competitiveness and they cannot be achieved without business documents managing system (Ranko, Berislav and Antun, 2008).

1.1.1 Electronic Document Management System

Documents previously created and stored on paper are now digitally created, stored, transmitted and displayed. Thus, Electronic Document Management Systems refers to a program that manages the creation, storage and control of these documents electronically; the primary function of an Electronic Document Management Systems is to manage electronic information within an organization's workflow. A basic Electronic Document Management Systems should include document management, workflow, text retrieval, and imaging. An Electronic Document Management Systems must be capable of providing secure access, maintaining the context, and executing disposition instructions for all records in the system.

According to Sprague (1995), Electronic Document Management (EDM) is the application of new technology to save on paper, speed up communications and increase the productivity of business processes. This is to say that Electronic Document Management Systems (EDMS) afford organizations both private owned and public owned the means towards operational costs reduction, improved business process efficiency and effectiveness which is one of the main goals of the field of management.

1.1.2 Suraya Property Group Limited

Suraya was established in May 2006 and specializes in the property development industry in Kenya building housing projects ranging from the low middle income earners to the high end market segments of the real estate industry. Suraya is headquartered in Spring Valley Westlands and boasts of being the pioneer of the gated communities in Kenya with projects such as Fourways Junction along Kiambu Road, Rosslyn Gardens along Red Hill Road and Rosslyn Heights off Red Hill Road, Spring Valley Business Park, Encasa at Mombasa Road, Loneview along Mombasa Road, Terraces at Lavington, Lynx at Nairobi West, Lynx at Royal, Lynx at Ngong Road, Tiara at Lavington among many others.

Throughout the past decade Suraya as an organization has been grappling with a range of problems associated with the volumes of documentation involved in handling property transactions governed by the existing Kenyan laws. The documents involved in a single project begin from concept generation, to the planning phase, project development and management, sale of the units, statutory obligations and even beyond the time when the units have been officially handed over to their respective owners. To ensure process efficiency at all levels, this challenge of handling both paper based and electronic based documentation requires the help of an electronic document management system and hence the reason why Suraya forms a good case example for the study of the factors affecting the adoption levels of Electronic Document Management System (EDMS) in property development firms in Kenya.

1.2 Statement of the Problem

The underlying problem addressed by this study is that despite the increase in the number of innovative Electronic Document Management Systems products in the market and subsequent adoption by property development firms in Kenya, very few have managed to reap the benefits that having such systems affords the said organizations. On the other hand studies carried out in Kenya on factors affecting adoption levels of Electronic Document Management Systems have been limited and in particular property development firms in Kenya. Bjork (2003) studied Electronic Document Management (EDM) usage by examining log files extracted from a particular Electronic Document Management Systems used in three different projects. Usage patterns among the users varied from case to case, making it impossible to draw any general conclusions. Mosweu, Bwalya, Mutshewa (2015) while probing factors for adoption and usage of Electronic Document Management Systems in Botswana found out that technophobia, and negative attitudes to system use were the key factors contributing to low adoption and usage of the system. Similarly, Abdukadhim, Mahadi, Aryati and Waida (2015) investigated factors that

contribute to the implementation process of Electronic Document Management Systems in the Malaysian government. They found out that the factors that contributed to the implementation process were Top management support, Budgets, Implementation planning, Anti-corruption, Security and Privacy, amongst others. Bjork (2003) study focused on research issues and results on Electronic Document Management Systems in Denmark and Finland. It was found that half of the projects in the biggest size category used a project web whereas very rarely used in smaller projects.

A survey to understand the needs and challenges of today's information workers in the United States by the International Data Corporation (IDC) together with Adobe in 2012 found out that information workers waste a significant amount of time each week dealing with a variety of challenges related to working with documents. This waste time is said to account for costs amounting to $19,732 per information worker per year and amounts to a loss of 21.3% in the organization's total productivity. According to Association of Information and Image Management (AIIM) survey of 2011 on Electronic Content Management (ECM), the biggest drivers of ECM and document management technologies are closely associated (in order of priority) with improving efficiency (Above 20%), optimizing business processes (20%), and compliance (15%) followed closely by cost reductions needs (Slightly above 10%).

Nevertheless, the factors that affect the adoption levels of Electronic Document Management Systems in property development firms in Kenya has hardly been analyzed. If Electronic Document Management Systems is not properly utilized then opportunities that would otherwise be presented by the system might become foreclosed. Hence, the origin and motivation for this work is to evaluate factors that affect the adoption levels of Electronic Document Management Systems in property development firms in Kenya, a case of the Suraya Property Group Limited.

1.3 Research Objectives

This particular study was guided by the set of objectives discussed in the subsequent sections below.

1.3.1 General Objective

The general objective of the study was to evaluate the main factors affecting the adoption levels of Electronic Document Management Systems (EDMS) in Suraya Property Group Limited.

1.3.2 Specific Objective

i. To determine how organizational factors affect the adoption levels of Electronic Document Management Systems in Suraya Property Group Limited.
ii. To determine how technological factors affects the adoption levels of Electronic Document Management Systems in Suraya Property Group Limited.
iii. To determine how Human resources factors the adoption levels of Electronic Document Management Systems in Suraya Property Group Limited.

1.5 Research Hypothesis

i. H_{01} Organizational factors do not affect the adoption levels of Electronic Document Management Systems in Suraya Property Group Limited.
ii. H_{02} Technological factors do not affect the adoption levels of Electronic Document Management Systems in Suraya Property Group Limited.
iii. H_{03} Human Resource factors do not affect the adoption levels of Electronic Document Management Systems in Suraya Property Group Limited.

1.6 Significance of the Study

The study sought to find out what has affected the adoption levels of Electronic Document Management Systems in property development firms in Kenya while highlighting the competitive edge it would afford the proprietors, high ranking management and other key

stakeholders. For the proprietors the study provides a comprehensive assessment of their contribution towards efforts to gain a competitive edge in the industry while at the same time serve as an eye opener to the immense potential Electronic Document Management Systems affords their firm as far as business process efficiency is concerned. Top level management would benefit immensely from working in an environment where there is seamless collaboration amongst peers and subordinates coupled with increased data visibility. Key stakeholders such as junior employees on one hand would appreciate the ease with which an Electronic Document Management Systems allows them to plan, organize and track their work processes while on the other hand Suraya's clients would benefit from faster documents generation and processing. By addressing the factors affecting the adoption levels in property developments firms in Kenya, this study hopes the concerned decision-makers of such an investment would address the existing roadblocks and guarantee a smoother and faster adoption of Electronic Document Managemnt Systems that would see Suraya's competitiveness in the industry strengthened for posterity sakes'.

Information gathered during the study is of great importance in the long run because it enriches the existing body of literature.

1.7 Scope of the Study

This study was primarily focused on the factors that affected the adoption levels of Electronic Document Management Systems (EDMS) at Suraya Property Group Limited at its headquarters and its 2 main branch offices at Yaya Center and Fourways Junction along Kiambu Road. During the research data was collected from both the top management, key middle level management and junior employees and the study was conducted between September and October 2016.

1.8 Limitations and Delimitations of the Study

The findings of this study was limited to Suraya Property Group Limited and as such this could not allow generalizations to other property development firms in Kenya. The choice of this firm was informed by the fact that Suraya is among the leading property development company in Kenya and the wider East Africa and a pioneer in the development of gated-community estates in Kenya. The study focused only on key project development employees minus other supporting staff at the Spring Valley Office which serves as the headquarters, Yaya Branch and Fourways Junction branches. This category of key staff includes the Project managers, Architects, Human Resources, Quantity surveyors, Structural Engineers, Mechanical Engineers, Electrical Engineers, Finance staff, Information Technology (IT), Legal officers and Sales consultants and Business Development managers.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the theoretical literature review, analytical literature review, summary and gaps filled by the study and it also gives a conceptual framework of the study showing both the independent and the dependent variables.

Literature is reviewed for the purpose of focusing on the research problem objectives and research questions. This information has been sourced from books, journals, empirical studies and the Internet.

2.2 Theoretical Literature Review

This study made use of the Unified Theory of Acceptance and Use of Technology (UTAUT) and Technology Organization and Environment (TOE) Information Systems models to explain the factors affecting the adoption levels of Electronic Document Management Systems (EDMS) in property development firms in Kenya.

2.2.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT is a model that is grounded on 8 models that had been formulated preveiously. These models include; Social Cognitive Theory (SCT) (Bandura, 1986), Diffusion of Innovations (DOI) (Rodgers, 1995), Model of Personal Computer Use or Utilization (MPCU), Theory of Planned Behavior and Technology Acceptance Model (C-TPB-TAM) (Taylor and Todd, 1995), Theory of Planned Behavior (TPB) (Ajzen, 1991), Motivational model (MM) (Davis et al., 1992), Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975) and Technology Acceptance Model (TAM) (Davis, 1989).

It is believed to be more robust than other technology acceptance models in evaluating and predicting technology acceptance (Vankatesh et al., 2003). In formulating UTAUT, Vankatesh

et al. (2003), examined the predictive validity of the 8 models in determining the behavioral intentions and usage to allow for a fair comparison of the models. It proposes at it core that behavioral intention as a predictor of the technology use behavior and the predictors of the behavioral intention to use technology based on the 8 mentioned reviewed technology adoption models. They demonstrated that the UTAUT model was a good predictor of user acceptance and adoption of technological innovations.

UTAUT has four main constructs that is, performance expectancy, effort expectancy, social influence and facilitating conditions which all influence the behavioral intention to use a technology and/or technology use (Vanaktesh et al., 2003). The model as proposed includes four key moderating variables which are age, gender, education and voluntariness of use.

Performance expectancy is the extent to which an individual believes that using a system will help him/her to attain gains in job performance (Vanaktesh et al., 2003). They propose that this construct embodies the constructs of perceived usefulness, extrinsic motivation, job fit, relative advantage and outcome expectations. Perfomance expectation's impact is relied upon to be directed by gender and age. Exertion hope is the level of straightforwardness connected with purchasers' utilization of a framework/innovation (Vanaktesh et al., 2003). Effort expectancy the authors not will be most striking for women and in particular those whose ages are advanced and who possess relatively low experience with the system. Social influence on the other hand is the degree to which consumers perceive their significant others e.g. family members or friends, believe they should use a particular system/technology (Vanaktesh et al., 2003). The author note that social influence is expected to have a complex interaction with the moderating variables concurrently influencing social influence-intention to use relationship. Encouraging conditions degree to which an individual trusts that a hierarchical and specialized framework exists to bolster the utilization of a framework (Vankatesh et al., 2003). The authors strongly

believe that when both performance expectancy construct and effort expectancy construct are present thse facilitating conditions are rendered insignificant in the prediction of the intention to use an innovation. Worth noting also is that when facilitating conditions is moderated by age and experience facilitating conditions will have a significant influence on usage behavior. This theory asserts that performance expectancy, effort expectancy and social influences are theorized to influence the behavioral intention to use a technology whereas behavioral intention and facilitating conditions determine technology use.

The UTAUT model the constructs, performance expectancy, effort expectancy, social influence are said to have direct effects on the behavioral intention and when taken together with facilitating conditions they have direct effects on the use behavior as portrayed by the users of an innovation. Worth noting is the fact that UTAUT although based on 8 other technology adoption models which include Technology Acceptance Model (TAM) and Theory of Reasoned Action (TRA) attitude (positive or negative feelings towards technology use) which are an component of the two models is not explicitly included in UTAUT. The reason behing this according to Venkatesh et al. (2003) is the fact that it is only present when performance expectancy and effort expectancy are omitted in the UTAUT model. Their conclusion is that attitudes formed towards the use of a technology does not provide adequate unique information beyond that which is already provided by the joint forces of performance expectant and effort expectancy.

However, Venkatesh et al. (2003) note that their model accounts only for approximately 70% of the variances in behavioral intention to use innovation. Also, although UTAUT does not include self-efficacy and anxiety as part of its direct determinants, Venkatesh et al. (2003) expect self-efficacy and anxiety to be entirely different from effort expectancy in that it will have no direct effect on the intentions to use over and above effort expectancy.

In conclusion, several studies have been conducted previously based on the Unified Theory of Acceptance & Use of Technology (UTAUT) framework to understand the adoption of different Information Systems (IS). The following are just but a few of them; Mobile Application Adoption (Tao, Yaobin and Bin, 2010); Health Information Technology Adoption in Thailand's community Health Centers (Im, Hong and Kang, 2011). The choice of this framework to guide this study of factors that affect the adoption levels of electronic document management systems was justified by its much broader view and intergrative approach it provides the researcher. This is because it involves the use of a range of explanatory variables obtained from the eight different models upon which it is based on to explain the acceptance and the eventual use of technological innovations.

2.2.2 Technological Organizational and Environment (TOE)

This framework, and adaptation of the Diffusion of Innovations (DOI), was developed by Tornatzky and Fleisher (1990) and generally describes the process by which a firm adopts and implements technological innovations. TOE identifies 3 constructs within an organization, that is, Technological context that describes both the internal and external technologies relevant to a given firm, The technological context comprises current practices and equipment internal to a firm(Starbuck,1976) as well as the set of available technologies available to the firm (Thompson, 1967; Khandwalla, 1970; Hage, 1980); Organizational context that refers to the descriptive measures about an organization e.g. scope, size and managerial structure; and Environmental context which is the arena within which a business organization operates that is, the industry, competitors and the government regulations (Tornatzky and Fleisher, 1990).

Technological Organizational Environment (TOE) framework since its initial presentation has been adapted severally and used widely in Information Technology (IT) adoption studies as it provides a useful way in which one can study the adoption and assimilation of different

Information Techniology (IT) innovations in organizations (Hsu et al, 2006). Technological Organzation and Enviroment (TOE) theory being consistent with Diffusion of Innovations (DOI) theory, includes a new construct that is environment context whereas Diffusion of Innovations (DOI) emphasizes on the individual characteristics and both internal and external characteristics of and organizations as key drivers of innovativeness. These only match to the technology and organization context of the Technological Oragnizations and Environment (TOE) framework.

Tornatzky and Fleisher (1990) states that there are elements explained within the TOE framework under each of the 3 constructs. For Technological, they identify Relative advantage which refers to the degree to which an innovation is perceived as being better than the idea it aims to supersede; Compatibility which refers to the degree to which an innovation is believed or perceived to as consistent with the existing values, past experiences and adopter needs and Complexity which is the degree to which an innovation is perceived to be relatively difficult to understand and make use of.

For the Organizational construct they noted firstly, Top Management Support which it is said to be the support of the top management to the information system adoption initiative, secondly, Organizational readiness in terms of size, cost/financial and technical resources which they point out that small businesses are most likely to face some form of resource poverty than the much larger firms and in effect greatly affects the innovation adoption. This resource poverty manifests also in the form of financial constraints and the lack of professional expertise. Thirdly they noted Information Intensity and product characteristics which refers to the degree with which information is present in the product or service. The fourth point to note under organizational construct is the managerial time which refers to the time required to be invested in the planning and implantation of the new innovation.

As for the Environmental construct Tornatzky and Fleisher (1990) notes the Industry pressure element which denotes the high degree of business rivalry and competition which increases the likelihood of innovation adoption for purposes of gaining the much need competitive edge in a given industry. Secondly, Government pressure or support which basically point towards the government strategies and initiatives aimed at encouraging small and medium enterprises to adopt new information systems. Lastly, consumer readiness whose lack of greatly influences the adoption process and acts an inhibitor towards information systems use.

In conclusion, several studies have been conducted previously based on the Technology Organization Environment (TOE) framework to understand the adoption of different Information Systems (IS). The following are just but a few of them; E-Business (Zhu et al. 2003) (Zhu and Kraemer, 2005) (Zhu et al., 2006) (Lin and Lin, 2008) (Oliveira and Martins, 2010); Website (Oliveira and Martins 2008); Open Systems (Chau and Tam, 1997); Electronic Data Interchange (EDI) (Kuan and Chau, 2001), E-Commerce (Martins and Oliveira, 2009); Knowledge Management Systems (KMS) (Lee et al., 2009). This implies that the framework is fairly good in predicting innovation adoption in organizations and hence the justification to use the same in the study of the factors affecting adoption levels of Electronic Document Management Systems in property development firms in Kenya.

2.3 Empirical Literature Review

Ntombizandile Kwatsha (2010) in her study titled "Factors affecting the implementation of an electronic document and records management system" that focused on the South African government and in particular the Presidency, employed a research methodology referred to as Triangulation. The researcher explains that it involved the gathering of data from at least 3 sources in order to arrive at a more reliable conclusion. The primary data source was literature and secondary data was obtained from Presidency's project charters, project plans, project

reports and specification documents. Literature and other case studies on Electronic Document and Records Management Systems (EDRMS) implementations was analysed and served to provide historical perspectives and the context within which interview responses could be interpreted.

Abdulkadhim, Bahari, Bakri and Ismail (2015) conducted an empirical study that focused on factors contributing to the implementation process of Electronic Document Management Systems in the Malaysian government. This study sought to fill the gap that existed in terms of the process of implementing Electronic Document Management Systems in the government context aside from the fact that the deployment of Electronic Document Management Systems in Malaysia had increased operational effectiveness of the governments on a daily basis. They began by stating that despite the impressive benefits offered by Electronic Document Management Systems and the interest shown by many governments to implement Electronic Document Management Systems most had failed and in particular, in developing countries case in point Iraqi government in 2003. They note that one of the major factors that contributed to the failure was the lack of an appropriate Electronic Document Management Systems implementation framework to support such initiatives. Their research was carried out using content analysis approach where in search databases they used 2 keywords, EDMS and Electronic Document Management Systems implementation with the results restricted to periods between 2003 and 2015. Out of the results 279 academic studies were picked and through filtering of the abstracts 141 were eliminated and the remainder 138 papers carefully interrogated. Based on this content analysis their study went on to find 13 common factors that contributed to the implementation process of Electronic Document Management Systems. They are; Top management support, Budgets, Implementation planning, Anti-corruption,

Implementation staff, Security and Privacy, Data Quality, User requirements, Cooperation, System integration, Awareness, Resistance to Change and Staff Training.

The Aberdeen Group (2012) while studying the impact of document management conducted a survey of 176 organizations worldwide and the results showed that the volume of documents and unstructured data in organizations is growing by over 30% per annum and that organization in sectors such as healthcare, banking, insurance, and the public sector are struggling to reconcile the huge amounts of both digital and physical data. The study further notes that document management solutions are targeted at addressing this problem and these solutions offer the essential support for fast, low cost document processing and overall data visibility.

2.3.1 Organizational Factors On Adoption of Innovations

The role of top management support in the success of any project cannot be over-emphasised, and Electronic Document Management Systems projects are certainly not exempt from this fact. It is important that the push for the adoption of any new system is led in equal proportions by word and action from the top management. Peansupap and Walker (2005) while studying factors enabling information and communications technology noted that implementation support and encouragement from senior managers is required for the successful technology adoption by the expected users in constructions firms. This they note is necessary if the said individuals are to eventually adopt and eventually utilize the technology. Further they note that where the technology is authorized for adoption the influence of senior or top managers cannot be overlooked. The decision to adopt or not to adopt a given information technology (IT) innovation is usually a preserve of the senior managers (Peansupap and Walker, 2005), meaning that the fundamental issue with regards to technological innovations adoption is how to facilitate in ensuring that the users eventually accept the innovation and make use of it in their work processes.

Gambatese and Hallowell (2011) in their study on enabling and measuring innovation in the construction industry noted that one singlemost effective and strongest enablers on innovation implementation in construction firms is top management support meaning that the success or failure of any adopted innovation is largely dependent on the goodwill and support of the management at the top of the hierarchy. It also implies that it is imperative that managers devote time to the information technology innovations proportionately to the technology acquisition costs and continuously review project adoption organization-wide, constantly reviewing the set deliverables against the achieved results of the technology implementation.

Organizations therefore need to provide the facilitating conditions which serve to provide individuals with the impetus that would influence their use of mandated technological innovations. This is with the mindset that individuals' decision to adopt innovations does not solely depend on the individual user characteristics but also on the supporting policies and directive emanating from top echelons of management in any given organization.

Ntombizandile (2010**)** states that the implementation of electronic document and records management system is to a great extent about change management and the incorporation of a change management strategy in the implementation of electronic document and records management is very critical. However, the researcher points out that human beings being creatures of habit (possible to generate their own purposes from inside a system which may be in conflict with those set out by the managers) otherwise known as resistance to change.

2.3.2 Technological Factors On Adoption of Innovations

Technology related characteristics tend to influence Information Tehnology (IT)/Information & Communications Technology (ICT) diffusion processes and are an important part in influencing IT/ICT adoption decisions (Peansupap and Walker, 2005). This means that

ignoring these characteristics in any adoption project may lead to the eventual failure of the project in its entirety.

Ntombizandile (2010) while studying factors affecting the implementation of an electronic document and records management system noted that the ease with which users find a new system the greater the influence it will have on the willingness of the users to adopt the new system and in effect change their old working methods. The performance and availability of the system is an equally important factor as it relates to the overall willingness to make use of the innovation. This means that hand-holding of the users during the adoption process is key through offering appropriate and timely user support.

Mosweu et al. (2015) while probing factors for adoption and usage of Electronic Document Management Systems in Botswana found out that technophobia, and negative attitudes to system use were the key factors contributing to low adoption and usage of the system. Such challenges like that of technophobia, which may be assumed to be purely human attitude related, can be mitigated if the the users are accorded the appropriate and timely support regarding the use technological innovations. This support offered falls under the broad category the availability of technical infrastructure under the facilitating condition construct proposed within the Unified Theory of Acceptance and Use of Technology (UTAUT).

2.3.3 Human Resource Factors On Adoption of Innovations

Peansupap and Walker (2005) in their study of factors enabling information and communication technology (ICT) diffusion and actual implementation in construction organizations noted that once an innovation is introduced to users, they are then required to learn how to make use of the system and eventually adopt altogether a new way of doing their work. This they further note that it is a constraint on Information and Communications Technology (ICT) adoption and diffusion. In addition, they point out that the problem if futher

compounded or made more complex if the concerned innovation if found to be unsuited to the convenctional work practice that the intended users are used to. This they point out that as much as Information Technology (IT) innovations development is controlled by relatively predictable environment the actual implementation of the IT innovation to large extent involves complex interaction of people working in a given set up dealing directly with the said technology.

According to Rodgers (1995), technological innovations tend to create one kind of uncertainity to the mind of potential adopters (about its expected consequences), as well as representing an opportunity for reduced uncertainity in another sense. This latter usually serves as the motivating factor for the user as it addresses the solution to an individual's perceived problem. This in the end is what causes an individual to put in extra effort just so that they can learn more about an innovation.

Rodgers (1995) notes that innovation attributes that support the diffusion of an innovation within an organization include: compatibility, relative advantage, trial and experiment, observability, and the innovation in question being perceived to be superior to the innovation item or process to be replaced. Compatibility according to Rodgers (1995) is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and the needs of potential adopters. Relative advantage on the other hand he notes as being the degree to which an innovation is perceived as better than a previously existing idea it is coming to supersede. Trialability he further notes is the degree to which an innovation can be experimented upon for a given limited period of time and observability he notes refers to the degree to which the results of an innovation are visible to others. The above means that the likelihood of adoption of an innovation is greatly dependent on the ease with which users are able to see the results output by the innovation in question.

Ntombizandile (2010) notes that the success of Electronic Document and Records Management System largely depends on the fundamental cultural and attitudinal changes regarding the extent to which an organization's staff think the content therein is a corporate resource. The study further notes that in order to enable users to operate effectively and efficiently in the new environment they have adopted training and development is an important ingredient.

Ntombizandile (2010) stresses that the effective training of staff is key in getting the buy-in of stakeholders at the various levels of any given organization such if the users are sufficiently trained they in turn gain the ability to fully understand the system and how to interact with it. The training therefore should be widespread across different levels of the organization from the system administrators, workflow administrators, users and the trainers.

2.3.4 Government Policy

According to NECCC (2004), Governments in both developing and developed countries generally have oversight for local records rules and regulations. There exists records laws that establish the need for effective records management, provide for the authority to dispose of records, and establish a structure for records management (NECCC, 2004). While these state laws are not entirely consistent, they generally encompass all information materials, regardless of format, created or received in the course of business. The retention of these records are codified in records retention schedules, which are established by analyzing statutory and administrative needs in combination with the content of the record, not the material on which it was created that is hardcopy verses electronic.

Choo (2002) acknowledge that planning for electronic document acquisition has become a complex function wereby organizations have to accumulate a huge amount of information about their internal operations and resources. Much of this gathering should be done according

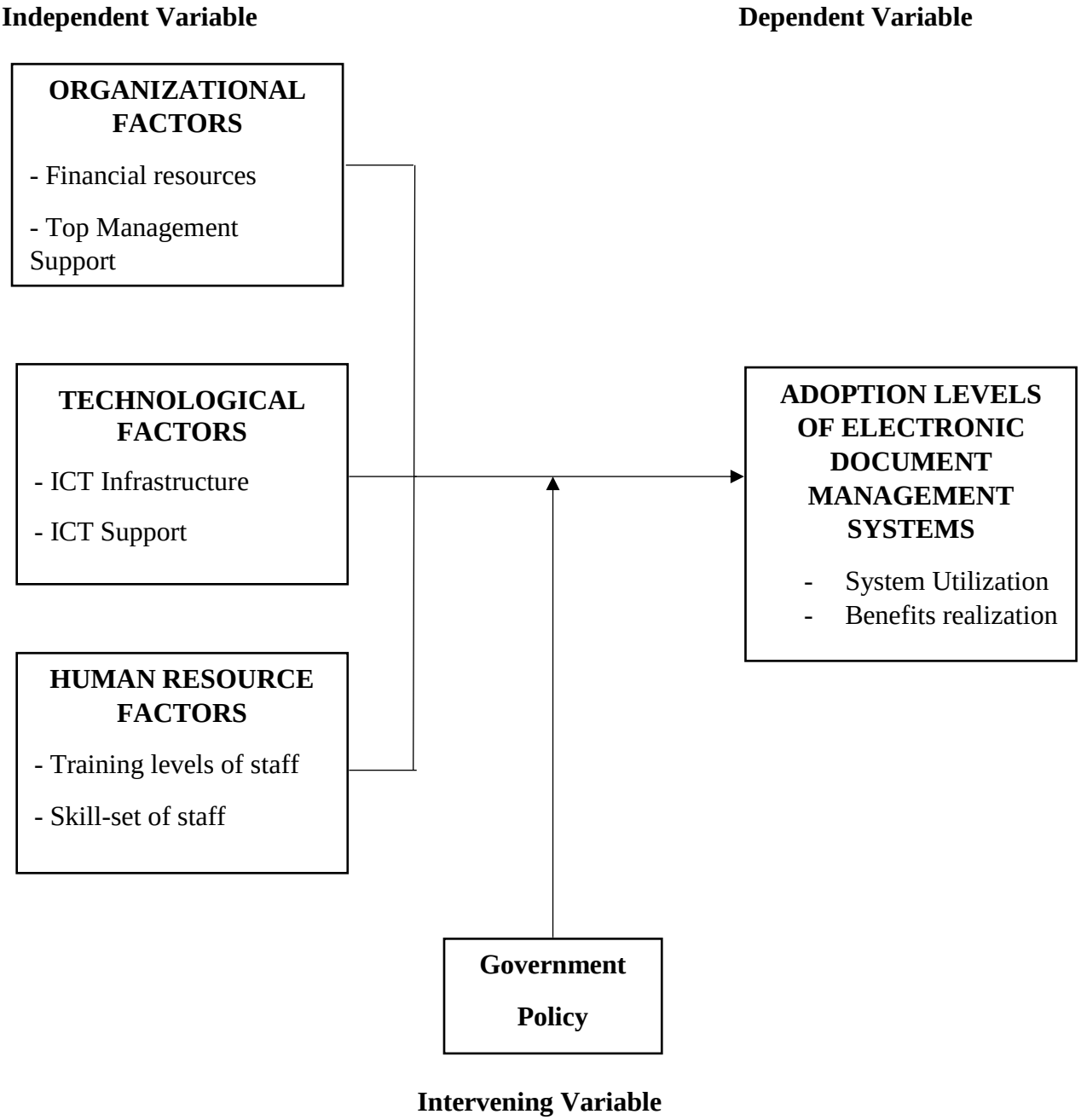
to accepted rules, policies, procedures and government regulations. Choo (2002) adds that electronic document management policies (including records management and archival policies such as records retention schedule) should ensure that significant electronic information concerning the organization's past and present are preserved and made available for use and organizational learning.

Haider, Mahadi, Aryati and Haslina (2015) argue that in legislation environment, both private and public sectors have a large number of legislative documents both on the state and individual institution level. As a result, document management can be regulated by record keeping rules, job responsibilities description and document circulation regulations. Such regulation make these sectors very thorough and do not wish to change their habits. Respectively, EDMS implementation can be negatively affected by the lack of legislation environment. Same sentiments are advanced by Leikums (2012) who points out that the implementation of EDMS can be negatively influenced by the lack of basic legislative regulations on the state level and unadjusted rules and regulations inside the organization.

According to Ntombizandile (2010), the implementation of technological systems and service delivery improvement is very much a cultural issue. Hence it may be preferable to a policy approach in environments where there is a history of doing it alone or where there are challenges to the creation of a culture of coordination. Ntombizandile (2010) points out that there lacks policies and procedures that support EDRMS implementation. In most cases the policies and procedures only came long after the implementations, usually as corrective measures once it became evident that the users were not complying. He recommends that it is important to ensure that EDRMS processes and procedures are part of the way that people do their jobs, that these processes and procedures are integrated in policy and procedure

documents and induction packs and that this is communicated formally in briefing and training sessions to the intended users.

2.4 Conceptual Framework



Source: Researcher (2016)

Figure 2.1: Conceptual Framework

2.5 Operationalization of Variables

2.5.1 Organizational Factors

The formation of a favorable or unfavorable attitude towards an innovation takes place before a decision to adopt is made (Rodgers, 1983). Therefore since the top management of a firm being the top decision making organs are very important as far as the adoption of information systems is concerned. The fact that emerging systems such as Electronic Document Management Systems may be new to some of the top managers in firms they may be blinded to the superiority of such systems to the existing operational methods and therefore to support such adoptions involves some elements of risk and rightly so at different degrees.

Resource allocations in the form of finances and time are inevitable for the successful adoption of technological solutions. Time has to be allocated in order for employees to make use of Electronic Document Management Systems. Mattenson (2000) notes that providing time and opportunities for people to learn is important. Likewise, finances have to be availed to be invested in the adoption and implementation of an Electronic Document Management Systems. Thus the need to critical study this variable in the case of Electronic Document Management Systems adoption levels and in particular among property development firms in Kenya.

2.5.2 Technological Factors

Technological factors facing organizations seeks to explain the IT innovations characteristics that affect the adoption of IT innovations (Chau and TAM, 1997; Thong, 1999). In this study the researcher focusses on the impact of 2 key technology innovation attributes as far as Electronic Document Management Systems is concerned, namely; infrastructure and support associated with the use of a given technology. It is believed that facilitating conditions include the availability of sufficient training and the provision of required support. Therefore, it is

critical that organizations provide the facilitating conditions which includes the type of support provided to individuals that would persuade them to make use of the innovation.

2.5.3 Human Resource Factors

Here the study focusses on the effect of individuals in a firm in influencing the decision to adopt and implement Electronic Document Management Systems. Most organizations tend to postpone adoption of various technologies just so that they may overcome or lower barriers to the adoption. According to Attewell (1992), he conceptualized the diffusion of complex technological innovations in organizations in terms of decreasing knowledge barriers.

2.5.4 Adoption of Electronic Document Management Systems

The rate of adoption according to Rodgers (1995) refers to the relative speed with which an innovation is adopted by the members of a given social system. This rate is measured by the length of time that it is required for a certain percentage of the members of a system to adopt an innovation and this rate of adoption is measured not on an individual basis as the unit of anlysis but rather using an innovation or system.When individuals perceive certain innovations as having greater relative advantage than others the more likely they are likely to have a more rapid rate of adoption.

Accrding to Rodgers (1995) the way people accept and embrace new innovations can be categorized in the following 5 adopter categories namely, (i) Innovators, (ii) Early Adopters, (iii) Early majority, (iv) Late Majority and (v) Laggards. Further, Rodgers (1995) notes that Innovators are the first individuals to adopt an innovation as they are the active information seekers about new ideas available in the market. This category are risk taker, very social and have are usually the youngest in terms of their age. The degree of risk tolerance most of the time has them adopting technological innovations which at times ultimately end up failing although their financial resources help them to absorb such failures.

Early adopters on the other hand Rodgers (1995) notes that they form the second fastest category of innovation adopters and is made up of individuals with a high degree of opinion leadership among the rest of the adopter categories. This group is also relatively young in age with a high social status, more financial power, more advanced in terms of education. They tend to look to early adopters for general advice about a technological innovation they are considering to adopt. They form the change agent group within the social system to speed up the adoption process amongst the rest of the group as they are not far ahead from the average others in terms of innovativeness. Thus they form the group that serves as the role models for the others in any given social system. They are also highly esteemed by the others and to maintain this key central communication position thay make cautious decisions about any given innovation.

The next adopter category the Early Majority (Deliberate) Rodgers (1995) notes that they form the category of individuals that end up adopting an innovation after varying degree of time. Thay sit between the very early adopters of innovative ideas and the late adopters of innovative ideas. This group interacts quite frequently with their peers but still they rarely hold innovation opinion leadership positions. They tend to take time before adopting a given technology i.e. their innovation decision span tends to take relatively much longer than that of the innovator and early adopter categories.

Late majority (Skeptical) according to Rodger (1995) forms the group of individuals that adopt an innovation way after an average member of the society as they tend to approach new innovations with a relatively high degree of skepticism and most of the time it is after a majority of the society has adopted such innovation. They mostly rely on the pressure of peers in order to adopt an innovation in as much as the utility of the innovation may be clear to them. Important to note, however, is the fact that the late majority group tend to have a below average

social status, scarce financial resources and are in contact with others within the late majority group and with the early majority group members.

The Laggards (Traditional) form the last group in a social system to adopt innovative ideas. They have no opinion leadership as far as innovation is concerned. Their decision making is often based upon decisions made previously. They are formed mostly by the group of individuals who are much more advanced in terms of age and focus mostly on ‘traditions” to guide their decisions on whether to adopt an innovation or not.

2.6 Research Gap

Empirical studies highlighted above on various studies on Electronic Document Management Systems adoption levels focus more on adoptions abroad and a limited number of studies have been conducted on the adoption levels of Electronic Document Management Systems in Kenya and in particular among property development firms. This served as a motivation for this particular study done to understand the factors that affect the adoption levels of Electronic Document Management Systems (EDMS) in property development firms in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the overall strategy adopted in the collection of data and highlights the following key aspects; research design, target population, sampling method, data collection tools and instruments, validity and reliability, and the data analysis and presentation methods to be adopted. Ethical considerations with regards to the focus of the study is also discussed.

This section introduces the general technique used in the gathering of information and highlights the research design used, population that was target, sampling strategy, information gathering instruments, reliability and validity, and the information analysis and presentation method embraced. Moral contemplations with respect to the focus of the study is likewise discused.

3.2 Research Design

Different authorities have define research design in a number of different ways. According to Polit and Hungler (1999), a research design is the overall plan for obtaining answers to the questions under study and for handling some of the difficulties encountered during a research process. Another view states that research design is a blueprint or detailed plan of how a research is conducted starting from the formulation of the research questions and hypotheses to the reporting of research findings. Babbie (2001) states that a research design is a strategy or a plan detailing how to conduct a research study to examine the specific testable research questions of interest to the research study.

For this particular study, the researcher adopted a descriptive survey design which according to Dillon (1993), is good when the research problem to be solved is more specific in the sense that the research and the decision maker are somewhat aware of the relationship between what is thought to be contributing to the problem that forms the research phenomena. This particular method was therefore preferred in order to help the researcher to get data from Suraya Property Group Limited. Further, the case study approach was employed because it emphasizes on the detailed contextual analysis of a limited number of events or conditions and their relationships (Yin, 1984). Case study analysis is an intensive investigation of a single unit or an examination of multiple variables (Babbie and Mouton, 2001). This technique has been used in this article, as it takes into consideration several perspectives into account while at the same time it attempts to understand what actually influences the multilevel social systems of the subjects participating in the study in terms of their perspectives and behaviors. Key to this technique is the defining attribute of its emphasis on an individual. A case study involves an exploration of a "bounded system" (bounded by the time, context, and/or place), or a single or multiple case over a given period of time through detailed, in-depth data collection involving multiple sources of information (Creswell, 2007).

For this particular study, for instance, the case being studied may refer to a process, activity, event, program, or individual, or multiple individuals. It might even refer to a period in time rather than a particular group of people. Of importance, such exploration and description of the case has to take place through in-depth detailed data-collection which involves multiple sources in formation in order to enrich the context within which the study is being undertaken. As far as this study is concerned the relevant cases from the sampled 10 departments within Suraya Property Group Limited were assimilated and their relevance to the study cautiously evaluated to assess their contribution to set objectives of the entire study on factors that affect the adoption

levels of Electronic Document Management Systems. Therefore, this approach allowed for a deeper diagnosis and was useful in establishing the reliability and the generality of the findings. The reasons as to why the researcher found the method ideal is because it has the following advantages over the other methods available. Firstly, it has the ability to show the relationships among variables which are easy to quantify, it also makes use of more reliable data collection tools, it provides a quicker method of conducting a study with low error rates, and has the capacity to be employed for a one-time data collection of vast amounts on a given population under study (Brink & Wood, 1998).

3.3 Target Populations

A target population is a complete set of individuals, cases, or objects with some common observable characteristics (Mugenda and Mugenda, 2003). According to Polit and Hungler (1999), a population is an aggregate of the totality of all the objects, subjects or members that conform to a set of specifications. They also posit that a population is therefore the totality of all subjects that comprises the entire group of persons that is of interest to the researcher and to whom the research results can be generalized (Polit and Hungler, 1999).

For this particular study the researcher focused on the following key stakeholders of Suraya Property Group Ltd, namely; Administration, Legal, Heads of Departments (HODs), Projects, Sales and Business Development, Construction, Information Technology (IT), Procurement, Consultants and Finance departments based at the Spring Valley Head Office and the 2 branch offices at Fourways Junction along Kiambu Road and Yaya Branch along Tigoni Road. These comprised of a total of 119 employees.

3.4 Sampling Methodology

In this section the researcher outlined how a sample was derived upon which the study was conducted. According to Onen and Oso (2009) a sample is the target or accessible population

that has been procedurally selected to represent it. According to Polit and Hungler (1999), sampling is ideal because of the following reasons; it was more economical to choose a sample of 30 members of staff at Suraya Property Group Limited instead of studying the entire population of staff available at Suraya Property Group Limited; it was unnecessary to collect data from the entire population staff working in the 10 different department geographically distributed in 3 different locations at the headquarters, Fourways junction along Kiambu Road and Yaya Branch as the factors affecting adoption of Electronic Document Management Systems (EDMS) could be understood by securing information from the sample of 30 that was chosen.

To derive a sample, the Coefficient of Variation formula (Nassiuma, 2000) was used 30 determined to be sufficiently representative of the total population of 119. The equation as given by Nassiuma (2000) is:

$$n = \frac{NC^2}{C^2+(N-1)e^2}$$

where, n=Sample; N=Population; C=Covariance; e=Standard Error.

A coefficient of variation of at most 30% was considered acceptable and for this particular study a coefficient of 19% (or 0.19) was selected and a standard error of 3% (or 0.03) with the maximum allowable standard of error being 5% (or 0.05).

$$n= \frac{119 \times (19\%)^2}{(19\%)^2 + (119-1)\,(3\%)^2} = 30 \text{ staff members}$$

Further, stratified sampling was used to pick the final proportions of the sample studied in each of the departments as follows;

Table 3.1: Sample size

	Population	$n=(n/N)N_i$	Sample$\{n=(NC^2)/\{C^2+(N-1)(e)^2\}$
Administration	22	6	119
Construction	26	7	
Consultants	19	5	
Finance	9	2	
IT	3	1	
Legal	5	1	
Heads of Departments (HODs)	3	1	
Procurement	4	1	
Project Management	12	3	
Sales and Business Development	16	3	
Total	**119**	**30**	**N_i=30**

3.5 Data Collection Instruments and Procedures

Data collection instruments generally refers to the set of devices used to gather data from the subjects participating in a study, such as questionnaires, tests, structured interview schedules and checklists (Polit & Hungler, 1999). In this study only one data collection instrument was employed and that is the questionnaire.

3.5.1 Questionnaires

In this study for purposes of an extensive facts collection primary data collection tools were employed which according to Mugenda and Mugenda (2003), primary data is data that a researcher collects first hand from the respondents in a given study. The researcher intended to make use of a self-administered structured questionnaire to collect the raw data from the respondents and therefore it was administered as a key instrument of data collection. A questionnaire can be defined as a method of gathering information from respondents about

attitudes, knowledge, beliefs and feelings (Polit & Hungler, 1999). According to Saunders et al (2003), a questionnaire provides a method of collecting data that consists of a series of questions and other prompts for the purpose of gathering information from respondents. The questionnaire developed was guided by the objectives of the research and the research questions of this study. The use of this questionnaires as the data collection instrument was found suitable as it is appropriate for collecting a lot of information over a short period of time. Questionnaires were advantageous for the very reason that they allow for quick data collection and are fairly cheap to administer (Meadow, 2003). The questionnaires administered were designed to elicit specific responses for quantitative analysis with the closed ended questions designed to provide choices that allow for comparisons to be drawn across multiple responses (Meadow, 2003)

The questionnaire presented the respondents with closed-ended questions to allow the researcher to collect a limited number of answers for easy comparisons of the resposes obtained from the participants. The close ended questions are aimed at providing a greater degree of precision, uniformity, easier coding and easier analysis of the collected data.

The questionnaire comprised of the following sections: Instructions: Guidelines to be adhered to while providing responses on the questions in the subsequent sections of the questionnaire; Part A: Questions related to demographic information of the respondents selected to form the sample under study; Part B: Questions related to the adoption levels of Electronic Document Management Systems in Suraya Property Group Limited; Part C: Questions related to the factors affecting the adoption levels of Electronic Document Management Systems in Suraya Property Group Limited, Part C; 1: Questions related to Technological factors affecting the adoption levels of Electronic Document Management Systems in Suraya Property Group Limited; Part C; 2: Questions related to Organizational factors affecting the adoption levels of

Electronic Document Management Systems in Suraya Property Group Limited (Financial resources and Top Management support); Part C; 3: Questions related to Human Resources factors affecting the adoption levels of Electronic Document Management Systems in Suraya Property Group Limited (Skills and Training)

3.5.2 Pilot Study

A pilot study involves testing of the whole procedure of using the questionnaire on a smaller but representative sample of the participants in a study before conducting the main study (Meadow, 2003). Cooper and Schindler (1998) posits that the purpose of a pilot study is to detect the weaknesses present in the design and instrumentation of a research instrument, in this case the questionnaire, and also to provide proxy data for sections of a probability sample and for the reason of ensuring suitability of the research instruments. In order to ascertain the validity and completeness of the questionnaires in order to guarantee that the questions as raised would elicit answers to the objectives of the study and that the questions were comprehensible by the respondents, the questionnaire was administered to a select few individuals with expert knowledge on the subject matter. Concerns and feedback drawn from the exercise was then used to refine the questionnaires in line with the objectives of the study and the final output copies of the pilot study exercise administered to the sample selected for the study.

3.6 Validity and Reliability of Research Instruments

According to Grinnel (1993), reliability measures the degree of accuracy in the measuring an instrument provides. Further, reliability is the degree of consistency with which the measuring instrument measures and attribute, (Polit & Hungler, 1999). Again it refers to the extent to which the independent administration of the same instrument yields the same results under comparable conditions, (De Vos, 2005). Therefore, reliability aims at ensuring that similar data

is generated if other researchers apply the use of the same instrument. To guarantee reliability the primary data collection instruments that is, the questionnaires were subjected to a pre-test at Suraya Property Group Limited. Reliability is also closely related to validity and as such a measuring instrument that is not valid cannot be reliable, (Polit & Hungler, 1999).

In order to ensure reliability of the responses generated from the administered questionnaires, the returned questionnaires were subsequently divided into two and scored separately in 2 groups of 15 and correlation of their scores checked.

According to Patten (2007) and Wallen and Fraenkel (2001), an instrument is said to be valid if it measures what it is intended to measure and accurately achieve the purpose it was designed for. According to Des Vos (2005) for an instrument to be said to be valid, it has to measure the concept in question, and measure it accurately.For purposes of this study, therefore, to guarantee validity of the data collection instrument the questionnaires were based solely on the objectives of the study making sure that it generated only information that sought to answer all the set objectives of this study.

3.7 Data Analysis and Data Presentation Methods

Statistical analysis of data is necessary to ensure that data are interpreted correctly and that relationships are meaningful and not just chance occurrences, (Brown & Sanders, 2007). To generate meaning from the collected data, descriptive statistics was used. The data collected through questionnaire responses was checked for completeness and consistency and thereafter analyzed and in this case descriptive analysis was employed on the data. Statistical Packages for Social Sciences (SPSS) was used as the primary data analysis tool where the collected data was classified, tabulated and summarized using descriptive measures, percentages, and frequency distribution tables. Analyzed data was then presented using regression tables, bar charts, graphs and other relevant tools.

In addition to descriptive analysis of data, statistical analysis is required to ensure the data is correctly interpreted and that relationship between and amongst them are meaningful and not just chance occurences (Brown & Saunders, 2007).

In addition regression analysis which basically is the determination of a statistical relationship between two or more variables was used to show the relationship between the dependent variables level of adoption of Electronic Document Management Systems and its independent variables technological, organizational and human resource factors.

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_i$$

Where, Y_i ~ Adoption levels of Electronic Document Management Systems

X_1 ~ Organizational factors

X_2 ~ Technological factors

X_3 ~ Human Resource factors

e_i ~ Random error term that accounts for any other influences

3.8 Ethical Considerations

For purposes of the study the researcher conducted the study guided by 3 principles, that is, principles of beneficence, respect for human dignity and justice as stated by Polit & Hungler (1999). The principle of beneficence guarantees respondents freedom from harm, freedom from exploitation and the risk benefit ratio. As far as freedom from harm is concerned, there was no evidence of physical harm whatsoever to any of the respondents who chose to be part of the study in question. Each respondent was informed upfront that their decision to provide responses was purely voluntary and as such it was not compulsory for them to participate in

the study. Each of the respondents was briefed about Electronic Document Management Systems (EDMS) which might have enhanced the knowledge of the respondents allowing the opportunity to provide informed responses to the questions highlighted in the study.

As far as freedom from exploitation is concerned, the respondents were allowed to fill in the questionnaires at their own convenience. The respondents were informed of their freedom from victimization based on the responses they gave out in their respective questionnairres and would they chose not to give their responses, such a decision would not be used against them in evaluating their character and performance as individuals by any party whatsoever.

As for the risk benefit ratio, the risk element was the psychological drain resulting from providing responses to the questions raised in the questionnaire whereas the benefit element was the body of knowledge that would be enriched by the decision to participate in the study in the area of adoption of Electronic Document Management Systems in property development firms in Kenya. This will enhance future adoption initiatives by organizations in Electronic Document Management Systems.

For the principle of respect for human dignity which includes the rights to self determination and to full disclosure, the former was adhered to by according the participants the right to refuse to respond to the call to give responses to the questionnaires, right to abandon the at any point in time that they feel uncomfortable with particular questions as framed, the right to choose not to answer specific questions they are uncomfortable giving information about and the finally the right to seek clarification on any question that they feel they are not sure is in line with the research project.

To guarantee right the principle of justice, that is, the rights to privacy and fair treatment, the study was conducted with respect as far as their work culture, individual habits and beliefs and personal traits are concerned. Each respondent was given the free-will to air their issues as they

feel and to ask questions openly. As for privacy, the researcher allowed each respondent to give their feedback on the questionnaire questions privately at their own convenience to ensure that data is collected in confidence and to guarantee this, there was specific instructions for the users not to indicate their names anywhere on their questionnaires to ensure anonymity. This meant that no particular questionnaire could be directly linked to any specific respondent.

On the other hand the duly filled and complete questionnaire were only accessible to the researcher as the researcher was the one administering them and in addition, they were accessible to the SPSS statistician. After which the same are kept under lock and key by the researcher. Upon acceptance of the findings of the research project the questionnaires would be destroyed.

With the foregoing details, it is worth noting that the researcher acknowledged the importance of ethical standards and considerations while conducting a research study and therefore the researcher observed issues of integrity and honesty while at the same time safeguarding the confidentiality rights of the respondents participating in the information gathering process. Further, a Kabarak University's letter stating that the data collected was solely used for purposes of this academic study was availed to Suraya Property Group Limited as the organization with which this study was based on. On the other hand the researcher conducted himself in cordial manner at all times during the duration of the study exercising patience and tolerance towards the respondents and the supervisory team assigned.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter is a detailed presentation of the results of the study on factors affecting adoption levels of Electronic Document Management Systems (EDMS) in Property Development Firms in Kenya.

According to Polit and Hungler (1999), data is information obtained during the course of a research study. The results are presented using tables, bar charts, graphs and other relevant tools. Questionnaire response return rate is the proportion of the questionnaires returned after they have been administered to the respondents selected to participate in the study.Questionnaires in this case were administered to 30 respondents of which they all of them filled in and returned them representing 100.0% response rate.

Mugenda and Mugenda (2003) argue that a response rate of 60.0% is good while 70.0% and over is excellent. Based on this assertion, the response rate was deemed excellent. In this study questionnaires were administered to 30 respondents and 30 of them were realized representing a response rate of 100%. The contributing factor for the response rate was because the respondents selected notably, were the key users of the Electronic Document Management Systems at Suraya Property Group Limited and they portrayed a keen interest in helping to understand and demystify the factors that have over time affected the use of the Electronic Document Management System in place.

4.2 General Information

This section presents the demographic information of the respondents which included gender, age and departmental units, length of time the respondents had worked for the organization and educational level of the respondents.

To determine the gender of the respondents, the respondents were asked to indicate their gender and the results, as shown in Figure 4.1, indicated that there were more male members of the sample as represented by 76.7% compared to their female counterparts who were 23.3%.

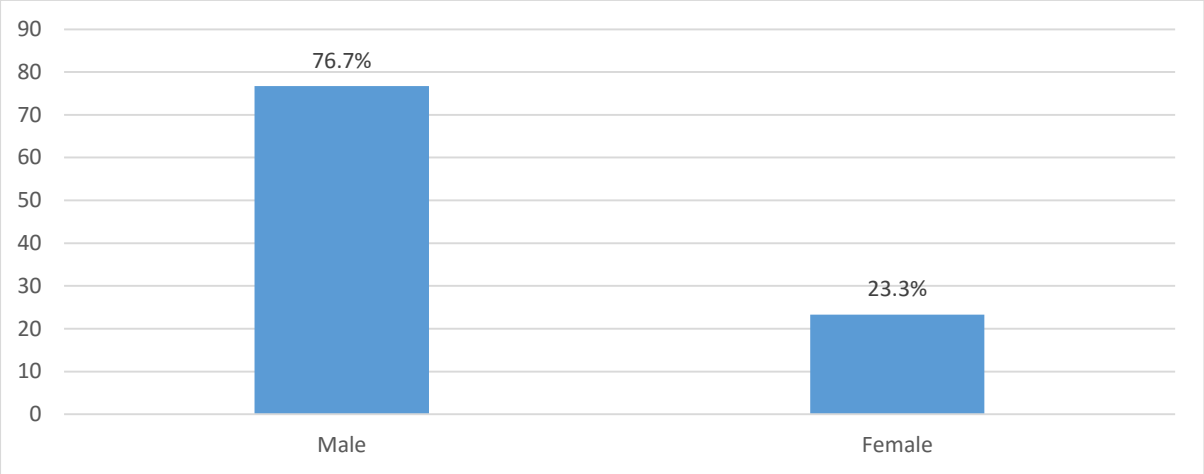


Figure 4.1: Respondents distribution by gender

Source: Author

The respondents were required to indicate the age group they fall in and according to Table 4.1 below, a majority (63.3%) of the respondents were aged between 26-33 years. This was followed by 23.3% of the respondents who were aged between 34-41 years while 13.4% of the respondents exceeded 41 years of age.

Table 4.1: Age distribution of respondents

	Frequency	**Percent**
26-33 year	19	63.3
34-41 years	7	23.3
41-49 years	2	6.7
50 and above	2	6.7
Total	**30**	**100.0**

Source: Author

The findings above show that majority of the respondents were aged below 33 years hence youthful. This is the age group which is highly involved in adoption and utilization of Information Technology (IT) systems. These findings are in line with Rodgers (1995) who notes that innovators who are the first individuals to adopt an innovation being the active

information seekers about new ideas available in the market, risk takers, very social and are usually the youngest in terms of their age. This means that Suraya Property Group Limited has a majority of staff within the age group that is most likely to ensure the successful adoption of the electronic document management system currently standing at the rate of 63.3%.

The study sought to establish the departments where the respondents operated in and as such they were required to indicate the department within which the worked in Suraya Property Group Limited and the findings are as presented in Table 4.2 below. The findings revealed that respondents from Construction, Administration and consultants accounted for 23.3%, 20.0% and 16.7% in each case. Ten percent (10%) were from Project management and sales and business development departments in each case while the rest of the respondents were from legal, IT, Heads of Departments and procurement departments accounting each for 3.3% of the respondents of the study.

Table 4.2: Department unit of the respondents

	Frequency	**Percent**
Administration	6	20.0
Finance	2	6.7
Consultants	5	16.7
Information Technology (IT)	1	3.3
Construction	7	23.3
Legal	1	3.3
Heads of Departments (HODs)	1	3.3
Procurement	1	3.3
Project Management	3	10.0
Sales and Business Development	3	10.0
Total	**30**	**100.0**

Source: Author

The results above show that the respondents were drawn from all the departments which utilize Electronic Document Management Systems. Therefore, the population was evenly distributed and representative of all departments leading to achievement of best results.

Figure 4.2 below presents the period of time the respondents had worked for the organization. The results show that eighty percent (80.0%) of the respondents had worked with the organization for 1-3 years, 13.3% for over five years and only 6.7% for 3-4 years.

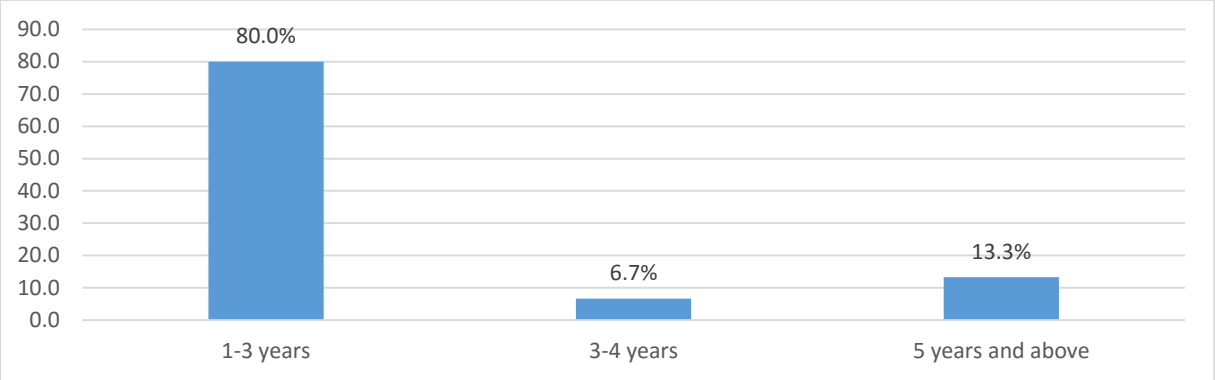


Figure 4.2: Period respondents had worked for the organization

Source: Author

The results imply that majority of the respondents in the organization had worked for a period of one to three years thus have a basic exposure to the working culture of the organization. These findings are in agreement with the authors Vankatesh et al. (2003) who strongly believe that when facilitating conditions is moderated by age and experience facilitating conditions will have a significant influence on usage behavior leading to increased rate of adoption of innovation.

The study sought to establish the highest level of education of the respondents and therefore the respondents were asked to indicate th same and the findings are as presented in Figure 4.3. As shown below, about two thirds (66.7%) of the respondents had bachelor's degree, 20.0% had master's degree and 13.3% had college diplomas.

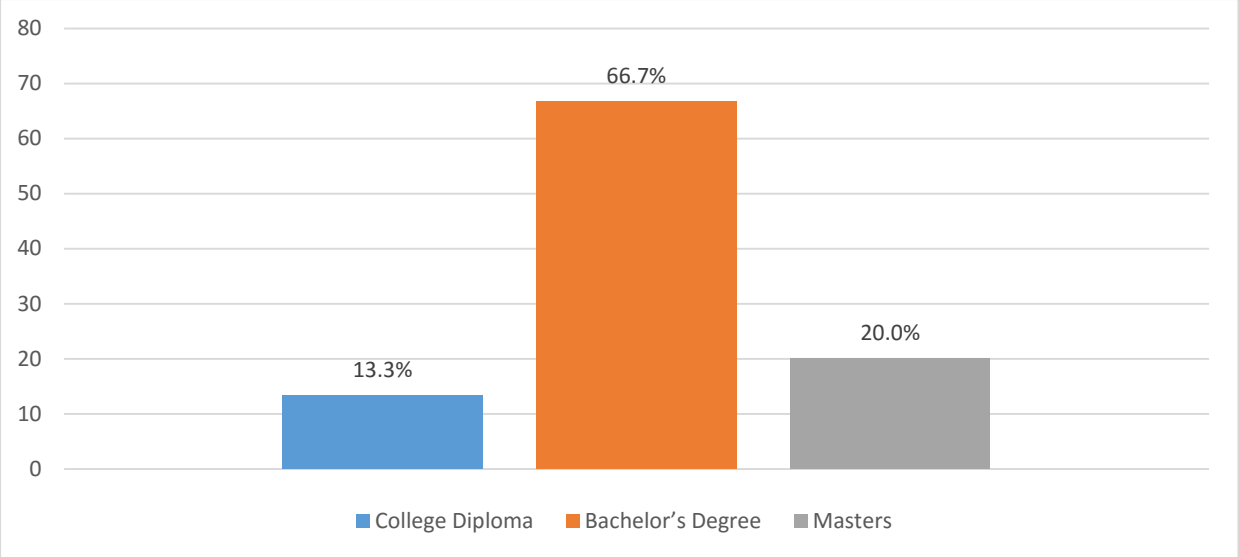


Figure 4.3: Highest level of education of the respondents

Source: Author

The findings show that the respondents were well educated with majority having bachelor's degree as their highest levels of education. These findings indicate that the employees are highly qualified for their work and have basic knowledge to appreciate technology use in their organization. These finding are supported by the assertion by Attewell (1992) who conceptualized that the diffusion of complex technological innovations in organizations is in terms of decreasing knowledge barriers, that is to say that the more the staff are intellectually informed the more likely probable barriers towards innovation uptake diminish.

4.3 Adoption Levels of Electronic Document Management Systems

Table 4.3 presents the modes of official documents storage by the respondents which aimed at establishing the levels of adoption of Electronic Document Management Systems (EDMS) in property development firms in Kenya. From the findings, the respondents strongly agreed that they stored documents in the organization's centralized file server system as shown by weighted mean of 4.83. Further, they strongly agreed that they stored documents in paper-based manual files as shown by mean of 4.43 and that they stored documents in

external/portable storage/hard drive as shown by weighted mean of 4.23. The respondents were neutral when asked whether they stored documents on their personal PC or workstation as shown by weighted means of 3.07. In addition the respondents disagreed when asked whether they stored documents in their HOD's offices as shown by weighted mean of 2.47.

Table 4.3: Modes of official document storage by the respondents

	Mean	**Std. Deviation**
In paper-based manual files	4.43	0.6261
In our HOD's office	2.47	1.1958
In our centralized file server system	4.83	0.4611
On my personal PC or workstation	3.07	1.1427
External/Portable storage/hard drive	4.23	0.8584
Mean of Weighted means	**3.81**	**0.8568**

Source: Author

Centralized file server system is highly adopted by the staff for storing official documents. This is further followed by use of paper-based manual files as mode of document storage. The findings further imply that the employees of the organization are gradually adopting and implementing Electronic Document Management Systems which concurs with the Aberdeen Group (2012) which asserts that the volume of documents and unstructured data in organizations is growing and as a result, many organizations struggling to reconcile the huge amounts of both digital and physical data through embracing document management solutions.

Further, Table 4.4 presents the barriers to document storage whereby 36.7% out of all the respondents reported poor organizational policy/directives as the biggest barrier to proper storage of documents. A further 26.7% of the respondents said lack of the know-how was a barrier to document storage, 23.3% indicated lack of appropriate IT systems, 16.7% said lack of time while 13.3% reported lethargy by staff.

Table 4.4: Barriers to Document Storage

Barriers to Document Storage	Frequency	Percent
Lack of time/too busy	5	16.7
Lethargy by staff	4	13.3
Poor organizational policy/directives	11	36.7
Lack of appropriate IT systems	7	23.3
Lack of the know-how	8	26.7

Source: Author

The findings in Table 4.4 imply that poor organizational policy/directives is the biggest barrier to proper storage of documents. This is followed by lack of the know-how and lack of appropriate IT systems. These findings are affirmed by Mattenson (2000) who acknowledges the importance of providing time and opportunities for people to learn. The findings, too, agree with Abdulkadhim, Bahari, Bakri and Ismail (2015) who argue that despite the impressive benefits offered by Electronic Document Management Systems and the interest shown by many governments to implement Electronic Document Management Systems most had failed and in particular, in developing countries, major factors that contributed to the failure being lack of an appropriate Electronic Document Management Systems implementation framework.

Regarding how frequent the respondents used computers to carry out daily tasks and activities, as show in Table 4.5, all (100%) the respondents indicated that it was on daily bases.

Table 4.5: Frequency of computers use

	Frequency	Percent
Daily	30	100.0
Once a week	0	0.0
Once a month	0	0.0
Once a year	0	0.0
I have no access to a PC	0	0.0

Total	**30**	**100.0**

Source: Author

4.4 Factors affecting Adoption Levels of Electronic Document Management Systems

This section presents results the main factors attributed to affecting adoption levels of Electronic Document Management Systems (EDMS) in property development firms in Kenya which included technological, organizational and human resource factors. The findings are as discussed below.

4.4.1 Technological Factors

According to Table 4.6 presented below, mean of weighted means of 3.95 was obtained implying that the respondents were of the position that technological factors, specifically infrastructure, affected adoption levels of Electronic Document Management Systems at Suraya Property Group Limited. Specifically, the respondents strongly agreed that there's an organized team internally at Suraya Property Group Limited that offered adequate support regarding the use of technology as shown by weighted mean of 4.43. Further, the respondents reported that Suraya Property Group Limited had invested in appropriate and adequate hardware to support Electronic Document Management Systems as shown by weighted mean of 3.93; the organization had invested in appropriate and adequate software to support Electronic Document Management Systems as shown by weighted mean of 3.87 and there existed appropriate communication networks to support Electronic Document Management Systems as shown by weighted mean of 3.83. The respondent also agreed that Suraya Property Group Limited as a firm readily adopted new and improved technological innovations available in the market as shown by weighted mean of 3.67.

Table 4.6: Technological Infrastructure

Infrastructure	**Mean**	**Std. Dev**

The organization has invested in appropriate and adequate hardware to support Electronic Document Management Systems	3.93	0.8277
The organization has invested in appropriate and adequate software to support Electronic Document Management Systems	3.87	0.9371
There exist appropriate communication networks to support Electronic Document Management Systems	3.83	0.9129
The organization readily adopts new and improved technological innovations available in the market	3.67	0.9223
There's an organized team internally that offers adequate support regarding the use of technology	4.43	0.5040
Mean of Weighted means	**3.95**	**0.8208**

Source: Author

The results confirms existence of adequate support within Suraya Property Group Limited on use of technology. Also, the investments made for both hardware and software to support Electronic Document Management Systems seems appropriate and adequate. Existence of appropriate communication networks too, supports Electronic Document Management Systems. The findings are in agreement with Vankatesh et al. (2003) who argue that behavioral intention and facilitating conditions determine technology use. Ntombizandile (2010) assertion that the ease with which users find a new system the greater the influence it will have on the willingness of the users to adopt the new system and in effect change their old working methods as noted with the finding on the availability of an organized internal support team whose support enhances the willingness of the users to make use of the electronic document management system. Also Ntombizandile (2010) notes that the performance and availability of the system is an equally important factor as it relates to the overall willingness to make use of the innovation hence the importance of a readily available user support team.

4.4.2 Organizational Factors

Organizational factors investigated for having an effect on the level of adoption of Electronic Document Management Systems included financial resources and top management support. Table 4.7 presents the effect of financial resources on adoption levels of Electronic Document

Management Systems in property development firms, specifically Suraya Property Group Limited. According to the results, a mean of weighted means of 3.49 was obtained implying that the respondents were in agreement that financial resources affected adoption of Electronic Document Management Systems. As shown below, the respondents agreed that the business owners of Suraya Property Group Limited supported the organization with adequate funding for ICT projects as shown by weighted means of 3.97. Further, the respondents agreed that the administration provided financial support to build and develop efficient document management systems as shown by weighted mean of 3.83. Worth noting, the respondents were neutral when asked whether Suraya Property Group Limited got granted for its Information and Communication Technology (ICT) projects as shown by weighted mean of 2.67.

Table 4.7: Financial Resources

	Mean	Std. Dev
The business owners supports your organization with adequate funding for Information Communications Technology (ICT) projects	3.97	0.6687
The administration provides financial support to build and develop efficient document management systems	3.83	0.6477
The organization gets grants for its Information Communications Technology (ICT) projects	2.67	1.2685
Mean of Weighted means	**3.49**	**0.8616**

Source: Author

The results imply that business owners supported the organization with adequate funding for Information Communications Technology (ICT) projects. The findings further acknowledge presence of financial support to build and develop efficient document management systems. However, the organization had not been granted for its Information Communications Technology (ICT) projects. These findings are supported by Mattenson (2000) who points out that resource allocations in the form of finances and time are inevitable for the successful adoption and implementation of technological solutions. Mattenson (2000) adds that finances have to be availed to be invested in the adoption and implementation of an Electronic

Document Management Systems. The findings are also supported by Peansupap and Walker (2005) who while studying factors enabling information and communications technology noted that implementation support and encouragement from senior managers is required for the successful technology adoption by the expected users in constructions firms.

Further, Table 4.8 below presents the effect of top management support on the adoption of Electronic Document Management Systems in property development firms in Kenya, specifically Suraya Property Group Limited. The findings shows that the respondents were in agreement that top management support affects the adoption levels of Electronic Document Management Systems at Suraya Property Group Limited as shown by mean of weighted means of 3.84. Further, the respondents strongly agreed that the administration at Suraya Property Group Limited supported the exerted efforts towards proper document management as shown by weighted mean of 4.07. Further, the respondents agreed that the top administration supported Information and Communications Technology (ICT) policies and strategies that guided the adoption levels of Electronic Document Management Systems (EDMS) and that management had set up a team tasked with monitoring and evaluation of the Electronic Document Management Systems project. This was based on obtained weighted means of 3.80 in each case. Finally, the respondents agreed that top managers supported the Electronic Document Management Systems project by word and action as shown by weighted mean of 3.70.

Table 4.8: Top management support

	Mean	**Std. Dev**
The administration supports the exerted efforts towards proper document management	4.07	0.6397
The top administration supports ICT policies and strategies that guides adoption of Electronic Document Management Systems	3.80	0.6644
Management has set up a team tasked with monitoring and evaluation of the Electronic Document Management Systems project	3.80	0.9248

Top managers support the Electronic Document Management Systems project by word and action	3.70	0.7022
Mean of Weighted means	3.84	0.7328

Source: Author

The results show that administration support the efforts towards proper document management through words and actions. More so, ICT policies and strategies that guide the adoption of Electronic Document Management Systems are supported by top management through a team constituted to monitor and evaluate the Electronic Document Management Systems project. These findings are in agreement with Rodgers (1983) who argues that top management of a firm are very important as far as the adoption of information systems is concerned since they are the top decision making organs. Further, the findings support (Peansupap and Walker, 2005) who stated that the decision to adopt or not to adopt a given information technology (IT) innovation is usually a preserve of the senior managers. Gambatese and Hallowell (2011) in their study on enabling and measuring innovation in the construction industry noted that one singlemost effective and strongest enablers on innovation implementation in construction firms is top management support an assertion which is in agreement with the findings of this study. In support of the results on top management support of ICT policies and strategies that guide the adoption of Electronic Document Management Systems (EDMS) Ntombizandile (2010**)** stated that the implementation of electronic document and records management systems is to a great extent about change management and the incorporation of a change management strategy in the implementation of electronic document and records management is very critical which polices and strategies is a major component of.

4.4.3 Human Resource Factors

The study sought to establish the effect of human resource factors on the adoption levels of Electronic Document Management Systems (EDMS) in property development firms in Kenya. The factor under investigation was the skills and training available at Suraya Property Group

Limited. According to the findings in Table 4.9, the respondents were of the position that human resources affected adoption of Electronic Document Management Systems as shown by mean of weighted means of 4.20. According to the findings, the respondents strongly agreed that they considered themselves trainable as far as technology use was concerned as shown by weighted mean of 4.67. Further, the respondents strongly agreed that they considered themselves proficient in the use of computers to carry out their tasks, and ICT experience would greatly influence their decision to make use of Electronic Document Management Systems (EDMS) as shown by weighted means of 4.33 and 4.27 respectively. In addition, the respondents agreed that they were familiar with good document management practices and they needed training on how to make use of Electronic Document Management Systems as shown by weighted means of 4.03 and 3.70 respectively.

Table 4.9: Skills and training

	Mean	**Std. Dev**
I need training on how to make use of Electronic Document Management Systems	3.70	0.9154
I consider myself proficient in the use of computers to carry out my tasks	4.33	0.6609
My ICT experience will greatly influence my decision to make use of Electronic Document Management Systems	4.27	0.6915
I am familiar with good document management practices	4.03	0.8087
I consider myself trainable as far as technology use is concerned.	4.67	0.5467
Mean of Weighted means	**4.20**	**0.7246**

Source: Author

The findings show that indeed the respondents at Suraya Property Groups Limited are trainable regarding technology use. They are further proficient in the use of computers to carry out their tasks, and ICT experience would greatly influence their decision to make use of Electronic Document Management Systems. However, Suraya Property Groups Limited needs to initiate

training on how to make use of Electronic Document Management Systems. The findings agree with Abdulkadhim, Bahari, Bakri and Ismail (2015) who established that common factors that contribute to the adoption and implementation process of Electronic Document Management Systems are implementation staff and top management support.

The findings agree with Peansupap and Walker (2005) who noted that once an innovation is introduced to users, they are then required to learn how to make use of the system and eventually adopt altogether a new way of doing their work. Furthermore, the finding agree with Ntombizandile (2010) who notes that the success of Electronic Document and Records Management System largely depends on the fundamental cultural and attitudinal changes regarding the extent to which an organization's staff think the content therein is a corporate resource and that in order to enable users to operate effectively and efficiently in the new environment they have adopted training and development is an important ingredient. This underscores the necessity that organizations needs to consciously and continuously keep training and developing their users as far as the use of technological innovations available in the firm is concerned.

4.5 Chi-test of Independence

The study conducted hypothesis test to establish whether organizational factors affected adoption levels of Electronic Document Management Systems in property development firms in Kenya and specifically Suraya Property Group Limited. The hypothesis tested was:

H_{01}: Organizational factors do not affect the adoption levels of Electronic Document Management Systems in Suraya Property Group Limited.

As presented in table 4.10 below, the calculated Pearson Chi-Square value was 129.697 which was significant as the associated P-Value (Asymptotic significance) obtained was 0.025 which was less than 0.05 (5% level of significance of the study).

Table 4.10: Chi-Square Tests on organizational factors effect

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	129.697	100	.025
Likelihood Ratio	80.590	100	.923
Linear-by-Linear Association	14.892	1	.000
N of Valid Cases	30		

a. 121 cells (100.0%) have expected count less than 5. The minimum expected count is .03.

Source: Author

The results show that there was evidence against the null hypotheses and therefore leading to its rejection. A conclusion was therefore drawn that organizational factors affected the adoption levels of Electronic Document Management Systems among property development firms in Kenya, particularly Suraya Property Group Limited.

Further, the study sought to test the following hypothesis;

H_{02} Technological factors do not affect the adoption levels of Electronic Document Management Systems in Suraya Property Group Limited.

According to the findings presented in table 4.11 below, the calculated Pearson Chi-Square value was 171.451^{a} which was significant as the associated P-Value obtained was 0.000 which was less than 0.05 (5% level of significance of the study).

Table 4.11: Chi-Square Tests on Technological factors effect

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	171.451	90	.000
Likelihood Ratio	93.172	90	.388
Linear-by-Linear Association	12.593	1	.000
N of Valid Cases	30		

a. 110 cells (100.0%) have expected count less than 5. The minimum expected count is .03.

Source: Author

The findings revealed that there was evidence against the null hypotheses therefore leading to its rejection. It was therefore concluded that technological factors affected the adoption levels of Electronic Document Management Systems (EDMS) in Suraya Property Group Limited. The findings are in agreements with Use of Technology (UTAUT) and Unified Theory of Acceptance that the social influences, efforts and performance expectancy influence the behavioral aim to utilize an innovation though behavioral aim and encouraging conditions decide innovation utilize.

Finally, the study sought to test the following hypothesis using chi-square test;

H_{03} Human Resource factors do not affect the adoption levels of Electronic Document Management Systems in Suraya Property Group Limited.

From Table 4.12, the calculated Pearson Chi-Square value was 92.277^{a} which was significant as the associated P-Value obtained was 0.038 which was less than 0.05 (5% level of significance of the study).

Table 4.12: Chi-Square Tests on human resource factors effect

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	92.277	70	.038
Likelihood Ratio	73.313	70	.370
Linear-by-Linear Association	6.729	1	.009
N of Valid Cases	30		

a. 88 cells (100.0%) have expected count less than 5. The minimum expected count is .07.

Source: Author

The findings indicated that there was evidence against the null hypotheses therefore leading to its rejection. It was therefore concluded that human resource factors affected the adoption and implementation of Electronic Document Management Systems in Suraya Property Group

Limited and by extension property development firms in Kenya. These findings are in agreement with Abdulkadhim, Bahari, Bakri and Ismail (2015) who established that common factors that contribute to the adoption and implementation process of Electronic Document Management Systems are implementation staff and top management support user requirements, cooperation, awareness, resistance to change and staff training.

4.6 Regression Analysis

Regression analysis was used to show the relationship between adoption levels of Electronic Document Management Systems and the independent variables (technological, organizational and human resource factors) as far as property development firms in Kenya are concerned. The study initially sought to establish the variation in adoption levels of Electronic Document Management Systems in Suraya Property Group Limited, explained jointly by the independent variables under study using coefficient of determination. The findings presented in Table 4.13 show that a coefficient of determination (R^2) of 0.692 was obtained.

Table 4.13: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.832[a]	.692	.657	.39571

a. Predictors: (Constant), Human Resource factors, Organizational factors, Technological factors

Source: Author

A coefficient of determination (R^2) of 0.692 implied that 69.2% of the variations in between adoption levels of Electronic Document Management Systems was explained jointly by technological, organizational and human resource factors.

Further, the significance of the model was examined using Analysis of Variance Technique (ANOVA) and presented in Table 4.14. From the results, a p-value of 0.000 which was less than 5%, the significance level of the study.

Table 4.14: Model Summary

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.167	3	3.056	19.516	.000[b]
	Residual	4.071	26	.157		
	Total	13.239	29			

a. Dependent Variable: Adoption levels of Electronic Document Management Systems
b. Predictors: (Constant), Human Resource factors, Organizational factors, Technological factors

Source: Author

The results above indicate that the regression model was significant in predicting the relationship between adoption levels of Electronic Document Management Systems and the independent variable of the study (technological, organizational and human resource factors).

In addition, the study used the coefficient table to determine the study model and the results are shown in Table 4.15. According to the results, the regression model obtained was;

$$\mathbf{Y_i = -1.866 + 0.585X_1 + 0.322X_2 + 0.534X_3}$$

Where Y_i ~ Adoption levels of Electronic Document Management Systems, X_1 ~ organizational factors, X_2 ~ technological factors and X_3 ~ Human Resource factors.

Table 4.15: Coefficients of the Study

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.866	.848		-2.201	.037
	Organizational factors	.585	.167	.477	3.498	.002
	Technological factors	.322	.149	.297	2.159	.040
	Human Resource factors	.534	.186	.322	2.869	.008

a. Dependent Variable: Adoption levels of Electronic Document Management Systems

Source: Author

The regression model implied that adoption levels of Electronic Document Management Systems (EDMS) in property development firms in Kenya would be -1.866 holding other factors constant. Further, a unit change in organizational factors holding other factors constant would change the adoption levels of Electronic Document Management Systems (EDMS) in property development firms in Kenya by 0.585; a unit change in technological factors holding other factors constant would change the adoption levels of Electronic Document Management Systems in property development firms in Kenya by 0.322. A unit change in human resource factors holding other factors constant would change the adoption levels of Electronic Document Management Systems in property development firms in Kenya by 0.534.

The findings further imply that organizational factors, technological factors and human resource factors had a positive effect on adoption levels of Electronic Document Management Systems in property development firms in Kenya, particularly Suraya Property Group Limited. Additionally, at 5% level of significance, all the coefficients of the independent variables were significant since their corresponding P-values were less than significance level of the study (α=0.05). The findings of the regression analysis are in agreement with Abdulkadhim, Bahari, Bakri and Ismail (2015) who established that factors that contributed to the implementation process of Electronic Document Management Systems are top management support, budgets, implementation planning, anti-corruption, implementation staff, security and privacy, data quality, user requirements, cooperation, system integration, awareness, resistance to change and staff training.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings, conclusions and recommendations drawn based on the study findings.

5.2. Summary

Regarding the adoption levels of Electronic Document Management Systems (EDMS), the study revealed that majority of the respondents at Suraya Property Group Limited stored documents in the organization's centralized file server system as shown by weighted mean of 4.83. This was followed by storage of materials into paper-based manual files, and external/portable storage/hard drive. Barriers to document storage included poor organizational policies/directives as indicated by 36.7% respondents. Other barriers included lack of the know-how, lack of appropriate IT systems. Poor organizational policy/directives was the biggest barrier to proper storage of documents. This was followed by lack of the know-how and lack of appropriate IT systems. Also, all respondents used computers to carry out daily tasks and activities.

On technological factors, it emerged that there was an organized team internally that offered adequate support regarding the use of technology as shown by weighted mean of 4.43. Further, the organization had invested in appropriate and adequate hardware as well as software to support Electronic Document Management Systems. Further findings are that there existed appropriate communication networks to support Electronic Document Management Systems as shown by weighted mean of 3.83 and the organization readily adopted new and improved technological innovations available in the market.

Regarding organizational factors, the study established that business owners supported their organization with adequate funding for ICT projects as shown by weighted means of 3.97. Further, the administration provided financial support to build and develop efficient document management systems. Top management, too, supported the adoption of Electronic Document Management Systems and backed up efforts towards proper document management. Further, top administration supported ICT policies and strategies that guided the adoption of Electronic Document Management Systems in Suraya Property Group Limited. The study findings revealed that human resource factors affected adoption levels of Electronic Document Management Systems at Suraya Property Group Limited as shown by mean of weighted means of 4.20. Further, the respondents at Suraya Property Group Limited were trainable on technology use and at the same time were proficient in the use of computers to carry out their tasks. It was deduced that Information Communications Technology (ICT) experience would greatly influence the respondents' decision to make use of Electronic Document Management Systems. The study established that respondents at Suraya Property Group needed training on how to make use of Electronic Document Management Systems.

The results of chi-square test of independence revealed that there was evidences against the null hypotheses leading to their rejection and hence conclusions that organizational, technological and human resource factors affected adoption levels of Electronic Document Management Systems in Suraya Property Group Limited. Regression analysis results showed that 69.2% of the variations in between adoption levels of Electronic Document Management Systems at Suraya Property Group Limited was explained jointly by technological, organizational and human resource factors. Further, it emerged that adoption levels of Electronic Document Management Systems (EDMS) would be -1.866 holding other factors constant and that unit changes in organizational, technological and human resource factors

holding other factors respectively constant would change adoption levels of Electronic Document Management Systems by 0.585, 0.322 and 0.534 respectively.

5.3. Conclusion

Organizational factors affect the adoption levels of Electronic Document Management Systems in property development firms in Kenya significantly whereby financial and top management support enhances the adoption levels of Electronic Document Management Systems. Through adequate funding, organizations are able to build and develop efficient document management systems. Similarly, the administration support towards proper document management through words and actions and existence of ICT policies and strategies that guide adoption of Electronic Document Management Systems and monitoring and evaluation the Electronic Document Management Systems projects enhances the adoption levels of Electronic Document Management Systems.

Technological factors have a significant effect on the adoption levels of Electronic Document Management Systems (EDMS) by contributing towards enhance adoption and implementation process. Technological factors that support adoption and implementation of Electronic Document Management Systems include well formulated implementation planning and cooperation, system integration and innovation attributes which include performance expectancy, effort expectancy and facilitating conditions. Within the organization, there is adequate support within organization on use of technology. Also, the investments made both hardware and software to support Electronic Document Management Systems are appropriate and adequate. Existence of appropriate communication networks too, support Electronic Document Management Systems adoption and implementation.

Finally the study concludes that human resources factors affects the adoption and implementation of Electronic Document Management Systems whereby they enhance the

adoption and implementation of Electronic Document Management Systems. Human resource factors entails implementation staff, top management, level of resistance to change by the staff and staff training. Training of the implementation staff is needed on how to make use of Electronic Document Management Systems. Such training can enhance ICT experience of staff hence greatly influencing their decision to make use of Electronic Document Management Systems.

5.4. Recommendations

The study established that barriers to document storage included poor organizational policy/directives and lack the know-how. Based on these findings, the study recommends to the top management of Property Development Firms in Kenya to review their policies and directives related to the Electronic Document Management Systems they utilize. This is key to ensuring successful adoption and implementation of the systems.

The finding revealed that financial resources affected adoption of Electronic Document Management Systems which implied that funds were needed towards Electronic Document Management Systems implementation. Based on these findings, the study recommends to the management of the organization to provide financial support for adoption of Electronic Document Management Systems through enhancing funding.

It emerged that top management support affected the adoption and implementation of Electronic Document Management Systems. More so, the top management supported the exerted efforts towards proper document management both by action and words, and putting in place policies and strategies. In view of this, it is recommended that such support from the management need to be upheld in order to ensure success in adoption and implementation of Electronic Document Management Systems.

The study established that Suraya Property Group Limited staff needed training on how to make use of Electronic Document Management Systems. Based on these findings, it is recommended that management of Suraya Property Group Limited should immediately organize and commence training of its entire staff on using Electronic Document Management Systems. This will equip them with Information and Communications Technology (ICT) experience that would greatly influence their decision to use of Electronic Document Management Systems.

As part of recommendation for policy, the study recommends policy and decision-makers in Kenya to review enacted policies on investment into Electronic Document Management Systems to ensure that they support the initiative. This move will address the existing roadblocks and guarantee a smoother and faster implementation of IT projects.

5.5. Suggested Areas for Future Study

The study established that the 69.2% variations in between adoption and implementation levels of Electronic Document Management Systems was explained jointly by technological, organizational and human resource factors. This implies that there are other factors that explain the remaining 30.8%. Hence, further studies need to be done to establish these factors.

The findings of this study was limited to Suraya Property Group Limited. The researcher recommends for further studies focusing on other sectors in order to allow for generalizations.

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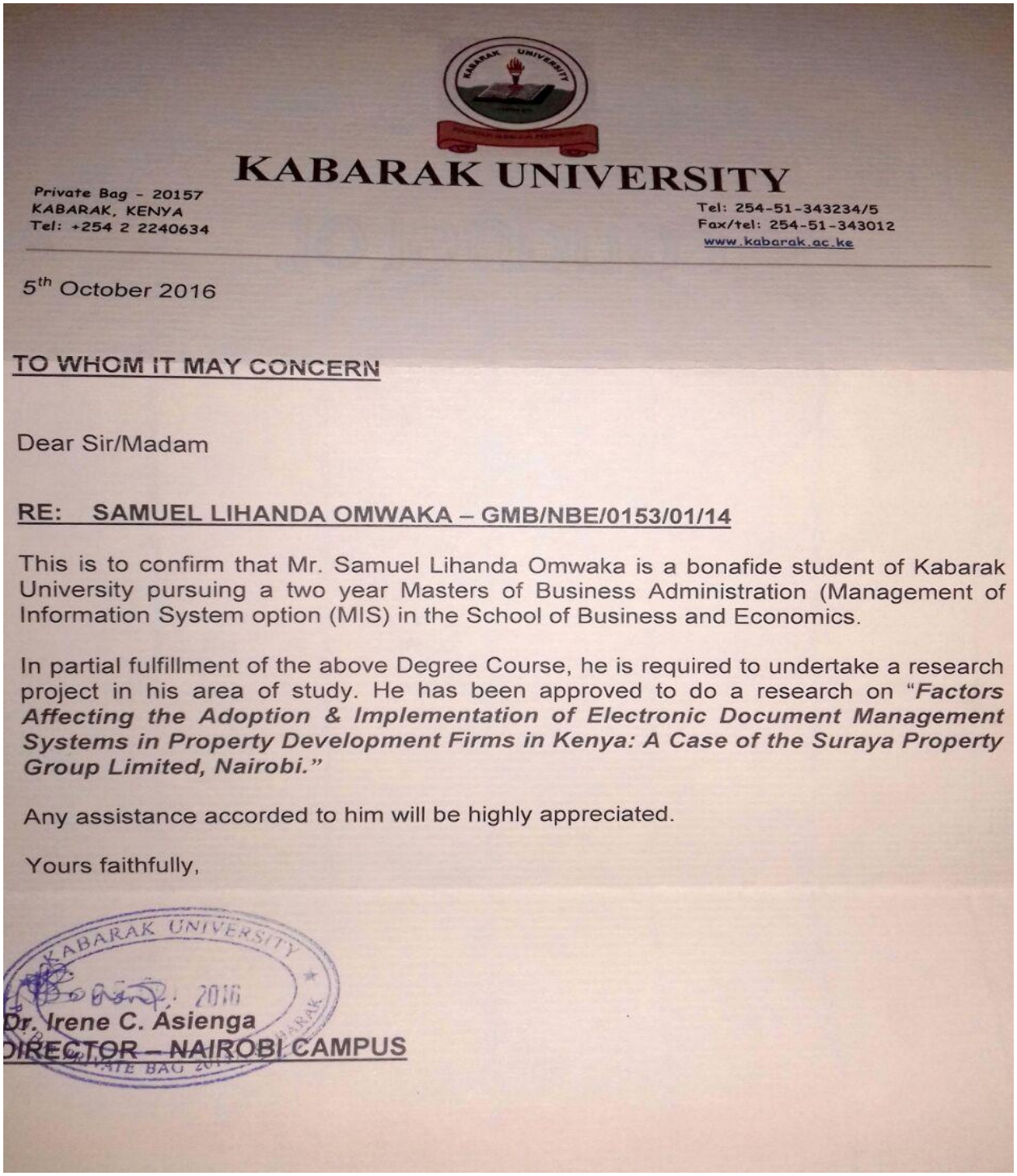
APPENDICES

Appendix I: University Letter



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5th October 2016

TO WHOM IT MAY CONCERN

Dear Sir/Madam

RE: SAMUEL LIHANDA OMWAKA – GMB/NBE/0153/01/14

This is to confirm that Mr. Samuel Lihanda Omwaka is a bonafide student of Kabarak University pursuing a two year Masters of Business Administration (Management of Information System option (MIS) in the School of Business and Economics.

In partial fulfillment of the above Degree Course, he is required to undertake a research project in his area of study. He has been approved to do a research on "***Factors Affecting the Adoption & Implementation of Electronic Document Management Systems in Property Development Firms in Kenya: A Case of the Suraya Property Group Limited, Nairobi.***"

Any assistance accorded to him will be highly appreciated.

Yours faithfully,

KABARAK UNIVERSITY
2016
Dr. Irene C. Asienga
DIRECTOR – NAIROBI CAMPUS

Appendix II: Questionnaire Distribution Letter

Samuel Lihanda Omwaka,

P. O. Box 76069 – 00508,

Nairobi.

Dear Respondent,

My name is Samuel Lihanda a final year MBA (Management Information Systems) student at Kabarak University - Nairobi Campus. As part of my coursework requirement, I am required to conduct a research in my area of study. In this regard, my research is on Factors that Affect Adoption and Implementation of Electronic Document Management Systems in A case study of Suraya Property Group Limited. Kindly take a moment and complete this questionnaire.

"An Electronic Document Management System refers to a computer program used to generate, track and store electronic documents and/or images of paper-based documents."

Your responses will be kept confidential and will only be used for the purposes of the study.

Thank you.

Yours sincerely,

Samuel Lihanda

Appendix III: Questionnaire

Questionnaire on: Factors affecting adoption levels of Electronic Document Management Systems (EDMS) in Property Development Firms in Kenya: "A Case Study of Suraya Property Group Limited (SPGL)."

INSTRUCTIONS:

1. Please do not write your name on the questionnaire

2. If any of the questions as presented to you are is not clear, feel free to ask for clarification, but the research questions have been simplified to make them much easier to understand.

3. Place a tick as is applicable to you and as accurately as you can be.

PART A

Please put a (√) in the box next to the right response.

1. Gender? Male (….) Female (….)
2. Age? 18-25 (….); 26-33 (….); 34-41 (….); 41-49 (….); 50 and above (….)
3. Indicate your department unit? (Place a tick where applicable)

	Department	**Tick**
a	Administration	
b	Finance	
c	Consultants	
d	Information Technology (IT)	
e	Construction	
f	Legal	
g	Management	
h	Procurement	
i	Project Management	
j	Sales and Business Development	

4. How long have you been working for this organization? 1-3years (….); 3-4 years (….); 5 years and above (….)

5. What is your highest level of education? (Place a tick where applicable)

	Education Level	**Tick**
a	College Diploma	
b	Bachelor's Degree	
c	Masters	
d	Doctorate	

NOTE: Throughout the rest of this survey, Electronic Document Management Systems will be abbreviated as EDMS**.**

PART B (Adoption Levels of EDMS)

1. Indicate your level of agreement on how you store your official documents? (Place a tick where applicable)

	Mode of Document Storage	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a	In paper-based manual files					
b	In our Head Of Department's (HOD's) office					
c	In our centralized file server system					
d	On my Personal Computer (PC) or workstation					
e	External/Portable storage/hard drive					

2. Which of the following do you attribute to be the biggest barrier to proper storage of documents? (Place a tick where applicable)

	Barriers to Document Storage	**Tick**
a	Lack of time/too busy	

b	Lethargy by staff	
c	Poor organizational policy/directives	
d	Lack of appropriate Information Technology (IT) systems	
e	Lack of the know-how	

3. How frequent do you use computers to carry out your daily tasks and activities? (Place a tick where applicable)

	Frequency of Computer Use	**Tick**
a	Daily	
b	Once a week	
c	Once a month	
d	Once a year	
e	I have no access to a Personal Computer (PC)	

PART C (Factors Under Study Affecting Adoption Levels of EDMS)

Kindly answer each of the questions as listed below to the best of your knowledge by placing a tick mark in the respective section that corresponds with your response. For each question, your responses will use a scale from 1 to 5 as a response (5 is Strongly Agree, 4 is Agree, 3 is Neutral, 2 is Disagree and 1 is Strongly Disagree.

1. **Technological factors**

Information and Communications Technology (ICT) Infrastructure & User Support	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The organization has invested in appropriate and adequate hardware to support Electronic Document Management Systems (EDMS)					

The organization has invested in appropriate and adequate software to support Electronic Document Management Systems (EDMS)					
There exist appropriate communication networks to support Electronic Document Management Systems (EDMS)					
The organization readily adopts new and improved technological innovations available in the market					
There's an organized team internally that offers adequate support regarding the use of technology					

2. Organizational factors

Financial Resources	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The business owners supports your organization with adequate funding for Information and Communications Technology (ICT) projects					
The administration provides financial support to build and develop efficient document management systems					

The organization gets grants for its Information and Communications Technology (ICT) projects					

Top management support	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The administration supports the exerted efforts towards proper document management					
The top administration supports Information and Communications Technology (ICT) policies and strategies that guides implementation of Electronic Document Management Systems (EDMS)					
Management has set up a team tasked with monitoring and evaluation of the Electronic Document Management Systems (EDMS) project					
Top managers support the Electronic Document Management Systems (EDMS) project by word and action					

3. Human resource factors

Skills and Training	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

I need training on how to make use of Electronic Document Management Systems (EDMS)					
I consider myself proficient in the use of computers to carry out my tasks					
My Information and Communications Technology (ICT) experience will greatly influence my decision to make use of Electronic Document Management Systems (EDMS)					
I am familiar with good document management practices					
I consider myself trainable as far as technology use is concerned.					

Thank you for your time.