INFLUENCE OF INFORMATION COMMUNICATION TECHNOLOGIES ON KNOWLEDGE SHARING IN STATE CORPORATIONS:A CASE OF THE KENYA NATIONAL LIBRARY SERVICE

PATRICK MWANGI NGUYO

MASTERS OF SCIENCE
(ICT Policy and Regulation)

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY.

2016

Influence of Information Communication Technologies on Knowledge Sharing in State Corporations: A Case of the Kenya National Library Service

Patrick Mwangi Nguyo

A thesis submitted in partial fulfillment for the Degree of Masters of Science in ICT Policy and Regulation in the Jomo Kenyatta University of Agriculture and Technology.

2016

DECLARATION

This thesis is my original work and has not been presented for a degree in any other University

Signature_____   Date_____

Patrick Mwangi Nguyo

This thesis has been submitted for examination with our approval as University Supervisors

Signature_____   Date_____

    Dr. Michael W. Kimwele

    JKUAT, Kenya

Signature_____   Date_____

    Dr. Wario Guyo

    JKUAT, Kenya

DEDICATION

Dedicated to my parents Ann and Cyrus. It is your continued support, counsel and exemplary way of life that has given me energy to persevere. There is no other quality that is as essential to academic success as the quality of perseverance you have instilled in me over the years.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

AfDB	African Development Bank Group
ANOVA	Analysis of Variance
AST	Adaptive Structuration Theory
FAQ	Frequently Asked Questions
ICT	Information Communication Technology
JKUAT	Jomo Kenyatta University of Agriculture and Technology
K4D	Knowledge for Development
KNLS	Kenya National Library Service
KSP	Knowledge Sharing Program
OECD	Organization for Economic Co-operation and Development
UTAUT	Unified Theory of Acceptance and Use of Technology

ABSTRACT

Knowledge Sharing is a complex and key activity for State Corporations. This study argues Knowledge Sharing as a catalyst to employee's productivity and sustainable economic growth towards a knowledge-based economy. This study accentuated the role of Information Communication Technology (ICT) in Knowledge Sharing by assessing its influence on Knowledge Sharing in State Corporations in Kenya with reference to the Kenya National Library Service; a state corporation whose employees constitutes the target population for this study. The research used stratified random sampling to select a sample of 142 members from the population of 675 employees. Descriptive research design was used for this study. Data collected through questionnaires and interviews was inductively analyzed using SPSS (version 20). The findings were presented and descriptively discussed in line with the literature that appraised the study. The results of the study statistically significantly revealed that 65.2% of any positive change in knowledge sharing in state corporations in Kenya can be attributed to ICT. Precisely, ICT tools was found to explain 70.1% of positive variability in Knowledge sharing, ICT infrastructure 89.40%, ICT skills 87.3% while structural aspects of ICT, were found to significantly affect 97.2% of variability in Knowledge sharing. The study findings are of paramount significance in policy formulation and knowledge management in public sector. This study recommends development of an integrated ICT and Knowledge sharing policy framework and increased ICT investment to entrench Collaborative Knowledge Sharing in State Corporations in Kenya.

CHAPTER ONE

INTRODUCTION

Knowledge Sharing is an interactive practice of disseminating veracious knowledge, to the right people at the right time, in an intelligible way that allows them to act prudently and to enrich the organization's knowledge base. Jackson *et al*. (2006) asserts that Knowledge Sharing is the fundamental way through which employees can contribute to knowledge application, innovation, and to the competitive advantage of an organization. Knowledge sharing amongst employees, within and across organizations allows them to efficiently exploit available knowledge-based resources. World Bank Group (2012) defines Knowledge Sharing as the just-in-time sharing of information and experiences among development practitioners and leaders. Though Knowledge Sharing is an all-time event, its role and capacity in economic growth and development is not always obvious.

In knowledge-based economy, Knowledge Sharing is arguably the most critical process to employee's performance and organizational effectiveness (Quigley *et al*., 2007). Knowledge Sharing has for this reason been a key managerial aspect in many government organizations. This notwithstanding, knowledge sharing according to Lin *et al*. (2008) is and has been very challenging in public sector because of two main reasons. First, tacitly held knowledge, is naturally hard to transfer and secondly Knowledge Sharing is to a great extent voluntary (Lin *et al*., 2008). Thus, the ability of state corporations to use technology to effectively share their knowledge is a strategic function. However, as Ardichvili (2008) asserts, inappropriate or incompatible ICTs is a major knowledge sharing barrier. Reluctance of employee's in use technology to accelerate Knowledge Sharing in Public Sector is a major contributor of poor public services (Santos *et al*., 2012; Sandhu *et al*., 2011). Assessing the Influence of Technologies in Knowledge Sharing in Public Sector is therefore key to all state corporations in Kenya. Putting this in a local and global perspective is a keynote to this study.

1.1   Background of the study

1.1.1   Global Perspective of Knowledge sharing

State Corporations continually adopt Knowledge Sharing practices to become sustainable knowledge-based organizations that thrive on the competence of knowledge workers to deliver the best possible services, function effectively and operate in transparency and accountability. In recognition of this need and as a policy, Knowledge Sharing was set as one of the nine pillars of the G-20 Seoul Multi Year Action Plan on Development at a G20 summit held in Korea in November 2010 (G20 Seoul Summit, 2010). G20 Seoul Summit (2010) approved that Knowledge Sharing especially on development experiences contributes to effective solutions to development problems. As a matter of paramount importance, the G20 Seoul Summit (2010) advocated that international organizations such as OECD, World Bank, United Nations (UN), and Regional Development Banks drive Knowledge Sharing platforms to strengthen and broaden sources of knowledge on growth and development.

According to KSP (2012), the republic of Korea having achieved significant economic growth and development, recognizes Knowledge Sharing as an effective tool for development and has been actively sharing knowledge for development through a Knowledge Sharing Program (KSP). This is used as a paradigm of development cooperation. The program was launched in 2004 with an aim to share its development knowledge base with partner countries with a view to lessen the knowledge divide. KSP (2012) defines the KSP as a policy research program that utilizes Korea's knowledge and development experiences to assist the development of other Countries. The Korea's KSP partners in Sub-Saharan Africa include South Sudan, Equatorial Guinea, Mozambique, Ethiopia, Gabon, South-Africa and Tanzania.

In Africa, the World Bank Group (2011), in its Knowledge for Development (K4D) program provides a platform for stakeholders and policy makers in African economies to access, apply and share knowledge to grow and become more competitive. The World

Bank Group (2011) add that K4D program has been rolled out in countries such as Senegal, Tanzania, South Africa and Ghana. The African Development Bank (AfDB), asserts that generating and sharing knowledge is key to poverty reduction and sustainable economic development on the continent (African Development Bank Group, 2014). To achieve this, AfDB has systematically emphasized the critical role that Knowledge Sharing plays in the transformation of African economies.

1.1.2 Local Perspective of Knowledge sharing

In Kenya, demand for more efficient and effective delivery of services has increased over recent years. In response to this, and in line with trends in other developing countries, Kenya has embraced the public sector reforms invigorated by the Public Knowledge Management school of thought. This is manifested in Vision 2030 which is the country's development blueprint. The Kenya Vision 2030, envisions Kenya as a knowledge-based economy; that is highly reliant on effective Knowledge Sharing and management practices (Kenya Vision 2030, 2014). The Kenya Vision 2030, articulates knowledge creation and management as the fundamental aspect of growth and competitiveness in the Kenyan economy. It further asserts that measures need to be devised in public service to allow better Knowledge Sharing and dissemination especially on public sector reforms. This amplifies the inexorable role and need for effective Knowledge Sharing in development of Kenya's economy and specifically in public sector

State Corporations in Kenya are huge repositories of knowledge that is vital to them and to the country. As one of Vision 2030 flagship projects, Kenya ICT Authority, has launched the second National ICT Master Plan in which the government plans to intensively invest in National ICT infrastructure to improve service delivery to its citizens (Kenya ICT Authority, 2014). State Corporations must therefore make the best use of these ICT infrastructure in order to facilitate effective Knowledge Sharing among government employees, within and across State Corporations. Assessing the influence of ICT on Knowledge Sharing is essential to the respective State Corporations and the country.

The quest for knowledge and Knowledge Sharing requires availability and accessibility of relevant and timely information to the citizens. The Kenya National Library Service plays this great role in Kenya through the Public Library System. According to KNLS website (KNLS, 2014) , KNLS is a statutory organization mandated to establish, manage and maintain the National and Public libraries in Kenya; promote reading culture among Kenyans; advice the Government on all matters relating to library, documentation and related services; preserve and conserve the national imprint for reference and research and maintain the National Bibliographic Control through issuance of the International Standard Book Number (ISBN), publication of the Kenya Periodicals Directory. KNLS has an establishment of 11 departments, 60 branch libraries countrywide and 675 information officers according to KNLS establishment file. These employees who are mainly information officers, are the target group for this study. The group under focus, engage in the provision of information and information materials to Kenyans. Essentially, due to the fact that the employees are spread-out countrywide and are actively engaged in the activity of information and knowledge management, makes them suitable target group for this study.

1.2   Statement of the problem

In this time of economic stress in Kenya, the government is focused on sidestepping worst-case scenarios of the global financial crisis while guaranteeing sustainable economic growth and development levels. To double up in these efforts, the government's best option is to transform Kenya's economy through knowledge driven approaches to create a knowledge-based economy as envisioned in Kenya's vision 2030 (Kenya Vision 2030, 2014). The success of a knowledge-based economy depends largely on the ability to effectively and efficiently create, use and share Knowledge. The International Monetary Fund reveals that in Kenya, there is lack of institutionalization of Technology based Knowledge Sharing and there is no promotion of efficient use of existing knowledge in Public Service (International Monetary Fund, 2010). This study seeks to affirm the need for institutionalization of Technology Based Knowledge Sharing in Kenya.

Keyes (2012), estimates that an organization with 1,000 workers can easily incur a cost of more than USD 6 million per year in lost productivity as a result of employee's failure to find existing knowledge and re-create knowledge that was available but could not be found. Keyes (2012) further observes that averagely 6% of revenue, is possibly lost from failure to exploit available knowledge. According to Kenya Bureau of statistics, there are over 2,127, 700 government employees in Kenya working in different State Corporations (Kenya Bureau of Statistics, 2013). This is a red-light indicator that the government could be losing billions of money annually in lost productivity through ineffective Knowledge Sharing frameworks. In determining the influence of ICT on effective Knowledge Sharing in State Corporations in Kenya, this study argues a strong base for saving on productivity and revenue loss. The study adds value to public knowledge management as envisioned in Kenya's vision 2030. The findings of this study will guide State Corporations in institutionalization and promotion of technology based Knowledge Sharing.

1.3   Objectives of the Study

1.3.1   Main Objectives of the Study

The main objective of this study was to assess the influence of ICT on Knowledge Sharing in State Corporations in Kenya with reference to the Kenya National Library service.

1.3.2   Specific Objectives of the Study

The specific objectives of the study were:

1. To investigate the effect of ICT tools on Knowledge Sharing in State Corporations in Kenya
2. To examine the influence of ICT Infrastructure on Knowledge Sharing in State Corporations in Kenya
3. To determine the influence of ICT skills on Knowledge Sharing in State Corporations in Kenya

4. To establish the effect of ICT structure on Knowledge Sharing in State Corporations in Kenya

1.4 Research Questions

The study was premised on answering the following questions:

1. What is the effect of ICT tools on Knowledge Sharing in State Corporations in Kenya?
2. How does ICT infrastructure influence Knowledge Sharing in State Corporations in Kenya?
3. To what extent does ICT skills influence Knowledge Sharing in State Corporations in Kenya?
4. How does ICT structure influence Knowledge Sharing in State Corporations in Kenya?

1.5 Justification of the study

State Corporations in discharging their mandate generate huge amount of knowledge and heavily rely on such knowledge for effective service delivery. More to it, article 35 of the Constitution of Kenya (CoK, 2010) gives every citizen the right to access information held by the State. Citizens' expectation and demand for efficient service delivery, and effects of changes in the global economy have fueled the consideration by the State Corporations to implement effective Knowledge Sharing as service delivery improvement strategy. This study is based on the need for better public knowledge management for competitiveness towards knowledge-based economy as envisioned in Kenya's vision 2030. Additionally, the demand for better service delivery in State Corporations, improved productivity of government employees and better utilization of available resources informs this research.

Several researchers corroborate this in their view that Knowledge is the most valuable resource of any organization which must be efficiently managed (Al-Aama, 2014; Mayweg *et al*., 2011; Remondino & Bresciani, 2011; Arora, 2011; Chen & Huang, 2009; Bordoloi & Islam, 2012). These authors' further reveals that Knowledge Sharing leads to

improved decision making in public organizations by providing employees with the knowledge needed to make critical decisions. This inspires innovation in service delivery. Remondino and Bresciani (2011) adds that Knowledge Sharing enhances competence while Chen and Huang (2009); Bordoloi and Islam (2012) argues that Knowledge Sharing has a strong positive effect on government functions and performance. In a contemporary organization, Knowledge Sharing activities are highly facilitated by ICTs. This not only informs this research but also justifies the need to assess the influence of ICT on Knowledge Sharing in State Corporations in Kenya.

This research is beneficial to key stakeholders in State Corporations by providing them with vital information required in policy formulation, and in strategic management based on recognizing and using knowledge as a tool for competitiveness and improved productivity. Kenyan citizens expect better service delivery and better utilization of government resources on implementation of the recommendations of this study. The productivity of government employees is set to rise with identification and improvement on influences of ICT on Knowledge Sharing in the organizations they work for. Future researchers on this field will refer to this study to identify areas of further research and guide their research with a view to expand knowledge in the Knowledge Management field.

1.6   The scope of the study

The study narrowed down to influence of ICT tools, ICT infrastructure, ICT skills and ICT structure on Knowledge Sharing in Kenya National Library service, a State Corporation with 60 branches countrywide and a workforce of 675 which constituted the study population.

1.7   Limitations of the study

This research was conducted on one State Corporation. This was pursued beside Kenya having many State Corporations. An assumption was therefore made that with

countrywide representation, the views expressed by KNLS employees to a great extent represented the views of many Kenyan government employees. A representative sample size was considered for the study but since employee's Knowledge Sharing is a personal character, ability of one individual, to accurately represent Knowledge Sharing levels for another can be a limitation in itself. This limitation was addressed through stratified random sampling and generating very objective questions for questionnaire and the interview. The proposed use of the Likert scale-or opinion based survey as part of the data collection was another limitation. This instrument has no clear interval scale and is ordinal in nature. This limitation was addressed through use of parametric analysis techniques such as correlation and regression that provided very low chance of errors.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The idea of Sharing Knowledge between a State Corporation, and its customers (citizens) is essentially a service delivery market platform that positions the Corporation as supplier and the citizens as the consumers. Knowledge sharing within and across an organization aligns the organization's orientation to focus on citizen's service delivery issues. Wang and Noe (2010) defines Knowledge as information possessed by individuals including concepts, facts, proficiency, and judgments relevant for individual and entire organizational performance. Ho and Madden-Hallett (2011) defines Knowledge Sharing as the provision of task information and know-how to other employees to collaborate with them in problem solving, in implementation of policies and procedures and to leverage opportunities within and across organization. Paulin and Suneson (2012) expounds on Knowledge Sharing as exchange of knowledge between two individuals where one communicates knowledge and the other assimilates it.

2.2 Theoretical review

Research studies on Knowledge Sharing has educed upon a number of theories such as Social Capital Theory, Adaptive Structuration Theory (AST), Theory of Reasonable Action, and Unified Theory of Acceptance and Use of Technology (UTAUT) among others.

2.2.1 Social Capital Theory

Wang and Noe (2010) asserts that a number of researchers in Knowledge sharing used Social Capital theory to assess the role of various skills in knowledge sharing. According to Mu, *et al*. (2008) Knowledge Sharing cannot be induced by any form of coercion since it is a social process enabled by social capital. For Chua (2002), social interaction

improves the quality of knowledge shared in an organization. In its implication for this study, ICT skills forms essential part of Social Capital that is key for Knowledge sharing in organizations. This well-articulated by Mark *et al*. (2006), who asserts that social capital not only comprises knowledge in form of trust, norms rules and beliefs but also the capacity to learn either individually or collectively in networks. In corroboration, Bolino, *et al*. (2002) asserts that Knowledge sharing is effective in a network where there is mutual trust and members interact more frequently. Mark, *et al*. (2006) further argues that learning and sharing knowledge through such Networks, Online brainstorming and Web Meetings and Social Networks is the most important form of social capital. Social capital theory has also been considered as a basis for analysis of online collaborations for knowledge sharing specifically trust, rules and skills. Social Capital theory delivers the skills, the rules or links and trust that forms knowledge sharing networks. Tomsic and Suthers (2006) corroborates that social capital prospects of skills trust and norms spurs development of new collaborative relations that significantly thrives knowledge sharing.

2.2.2   Adaptive Structuration Theory (AST)

Research studies on influence of ICT has increasingly applied the structuration theory (Chatterjee *et al*., 2002; Salisbury *et al*., 2002). DeSanctis and Poole (1994) explains how adoption of ICT works in line with existing organization structures to realize innovative use of technology and achieve the desired outcomes. DeSanctis and Poole (1994) argues that AST acumens on structuration leads to enhanced technology structures with productive adaptations. On this foundation, the study seeks to establish the effect of ICT structure on Knowledge Sharing in State Corporations in Kenya.

AST particularly not only elaborate how user's experience with ICT yields innovative use but also throws a challenge for organizations in this case State Corporations to establish communal structures-in-use for Knowledge Sharing. This is informed by the fact that in most organizations, Knowledge sharing technologies' adopted by a certain group differs from another (DeSanctis & Poole, 1994). It is important then that users utilize the adopted

Knowledge sharing structures to achieve better results in Knowledge sharing. Social presence structure is a major component of AST that affects how a specific technology is chosen and implemented. Structural Features of ICT that include Restrictiveness, Level of Sophistication and Comprehensiveness impacts heavily on appropriation, altitudes and usage of ICT in Knowledge sharing. AST identifies Decision Process, Leadership, Efficiency and Conflict management as key features that give to spirit to structures of Advanced ICT. Though this study concentrates on structural features, the spirit of structure of advanced structure of ICT as shown in figure 2.1 equally affects appropriation and usage of ICT in Knowledge sharing.
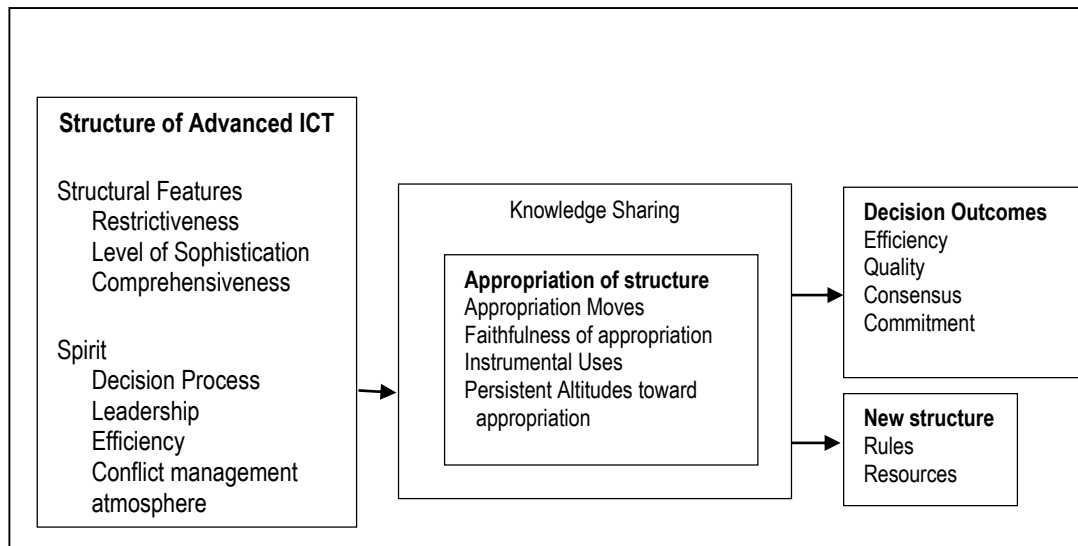
Figure 2.1: Effect of ICT structure on Knowledge Sharing (DeSanctis & Poole, 1994)

In assessing the impact of ICT structure on Knowledge sharing in state Corporations in Kenya, how the users utilize ICT in social interaction and how the existing ICT structure affects its adoption will be analyzed. Specifically, how restrictiveness, level of sophistication and comprehensiveness of ICT structure (DeSanctis & Poole, 1994), affects appropriation, altitudes and usage of ICT in Knowledge sharing in state corporations in Kenya.

11

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

The Unified Theory of Acceptance and Use of Technology (UTAUT) as described by Venkatesh *et al*. (2012), is the most widely applied theory to assess the use of technology. According Venkatesh *et al*. (2012), the extent to which technology will provide benefits (Performance Expectancy); extent of ease as result of use of ICT (Effort Expectancy); Social Influence by others and Facilitating Conditions are constructs of UTAUT that define effects/intention of technology use. Today in Kenya, Government is investing heavily on ICT infrastructure in State Corporation to improve the performance of these Corporations and minimize the effort required to accomplish such results. UTAUT will be applied in assessing the influence of ICT tools and Infrastructure. Specifically, the study will determine on the basis of Performance Expectancy, Effort Expectancy and Social influence whether ICT tools and ICT Infrastructure Influences Knowledge Sharing in State Corporations in Kenya. Venkatesh *et al*. (2012) posited age, gender, and experience as moderators of other constructs of UTAUT. This study will also adopt these moderators in analyzing the data collected. Figure 2.2 shows an adapted model of UTAUT for this study.
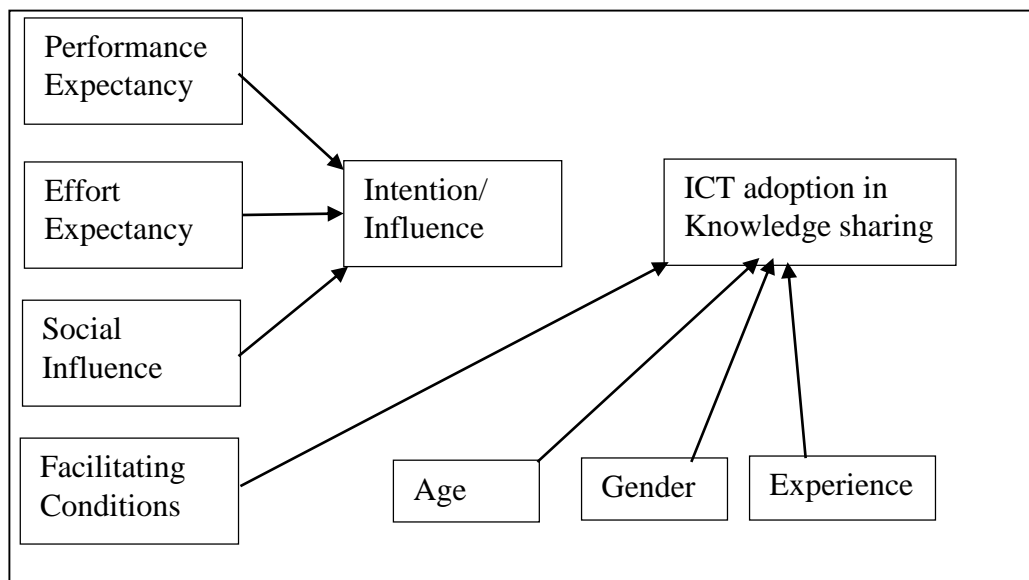
Figure 2.2: ICT Adoption in Knowledge sharing -Venkatesh *et al*. (2003)

2.3   Conceptual Framework

According to Sulisworo (2012) the adoption and use of ICT to facilitate Knowledge Management and by extension Knowledge Sharing has brought to focus the urgent need to come out with innovative methods and tools for development of Knowledge Management systems, policy frameworks, knowledge processes and knowledge technologies. Sulisworo (2012) further adds that through ICT, public servants who are experts and professionals in different fields are empowered to contribute their knowledge effectively and efficiently in public service delivery. Zawiyah and Mohd (2009); Noor and Salim (2011) believes that ICT infrastructures, ICT know-how and ICT tools influences heavily on Knowledge Sharing in public sector in Malaysia (Zawiyah & Mohd, 2009; Noor & Salim, 2011).

Martins and Martins (2011) posits that ICT infrastructure and certain ICT tools must be properly implemented to aid in knowledge retention and sharing. DeSanctis and Poole, (1994), Zhang *et al*., (2006) corroborates that the structure built into an ICT can constraint its usage in various organization strategies including Knowledge Sharing. Zhang *et al*. (2006) adds that misalignments between the structure of the ICT and the organization structure reduces usage of the ICT and the productivity of the organization.

From extant literature (Zawiyah & Mohd, 2009; Toro & Joshi, 2013; Noor & Salim, 2011; Sulisworo, 2012; Quadri, 2012; Murray & Mohamed, 2010), it has been hypothesized that ICT tools, ICT structure, ICT infrastructure, ICT skills (know-how) are possible major ICT factors that influence Knowledge Sharing in State Corporations. These hypothesized factors will be studied as independent variables that influences Knowledge Sharing which is the dependent variable. Further review of relevant literature, has revealed that several constituent sub-factors adds up to each of these factors. A conceptual framework that states and sketches together the research variables and demonstrates how independent variables affects Knowledge Sharing is designed and presented in Figure 2.1.

Independent Variables   **Dependent Variable**

ICT Tools
- Collaborative Workspaces
- Discussion Forums
- Social Communities
- Web meetings & Portals
- Corporate Emails

ICT Infrastructure
- Hardware & Software Availability
- Network Availability
- Internet connectivity
- Virtual Workspace Availability

Knowledge sharing
Improved Quality & Quantity

ICT skills
- Employee experience in ICT
- Online Brainstorming
- Frequently Asked Questions
- How-to-Guides

ICT Structure
- Restrictiveness
- Comprehensiveness
- Level of sophistication

Figure 2.3: Conceptual Framework

2.3.1   ICT Tools

KS Toolkit (2014) considers ICT tools as websites or software that can be used to support personal and group Knowledge Sharing adding that tools are used together with Knowledge Sharing methods. According to Sulisworo (2012), creating and sharing knowledge via web-based ICT tools enables its fast replication for future wellbeing.

Palvalin *et al*. (2013) and Bettiol *et al*. (2012) corroborated this when they observed that ICT tools aids efficient information processing and communication. Perhaps, to Nooshinfard and Nemati-Anaraki (2012), ICT tools can accelerate Knowledge Sharing in government organizations and government support in policy making, can play a crucial role in betterment of Knowledge Sharing. Ofori-Dwumfuo and Kommey (2013) opined that ICT tools can be used for gathering, documentation, storage and preservation of knowledge. This implies that besides facilitating Knowledge Sharing now, ICT tools can safeguard knowledge for future use and sharing.

According to Toro and Joshi (2013) web meetings and Portals are quick references for knowledge and are used to create and share knowledge. Toro and Joshi (2013) further observed that Discussion forums allow, ubiquitous access and transfer of knowledge. Gyensare and Asare (2012) argued that use of intranet and corporate emails provides documents that support problem solving and decision making in an organization. Yates and Paquette (2011), corroboartes that social communities are key drivers in knowledge sharing especially in critical situations. King (2009) contends that Collaborative workspaces accelerates collaborative decision-making and collective learning.

2.3.2   ICT Infrastructure

Lindner and Wald (2011) believes that besides ICT infrastructure being a key factor of knowledge management, it has in most cases been underestimated even in previous research. According to Toro and Joshi (2013) and Quadri (2012), good ICT infrastructure is an inevitable precondition for any successful knowledge management practice in an organization. Bwalya (2009) contends that any country that intends to promote knowledge and shift towards a knowledge-based economy should have a well-defined ICT infrastructure and that ICT infrastructure is important in ensuring easy and near-costless sharing of information in this knowledge age. Susana *et al*. (2009) argued that existence of networks that spread information throughout the whole firm helps decentralize decision-making power and initiative.

Bataweel and Alsuraihi (2013) observed that an adequately internet-enabled infrastructure is of paramount importance in creating, sharing and applying knowledge in organization and therefore sees internet as an enabler and a perfect solution to Knowledge Sharing. However, according to Mohamed *et al*. (2010), for ICT infrastructure to be translated into meaningful returns, organizations must espouse knowledge-oriented ICT infrastructure as substantiated by ICT's role in decision making and Knowledge Sharing. Omona *et al*. (2012) believes that computer networks supporting Knowledge sharing must be robust and reliable to enable the provision of a multiplicity of Knowledge Sharing applications and services in order to meet customer needs, more so in respect to efficiencies and timeliness. Malhotra and Majchrzak (2012) argues that virtual workspaces are highly relied upon by team members to provide affordances and to coordinate individual knowledge that each team member brings to the team. Cheng *et al*. (2009) observes that software and hardware used in knowledge sharing technically facilitate the creation, storage and dissemination of relevant knowledge.

2.3.3   ICT skills

Various literature refers to ICT skills differently. Quadri (2012) refer to this factor as ICT skills, Susana *et al*. (2009) as IT competency. Zawiyah and Mohd (2009) refers it as ICT know-how same as Noor and Salim (2011). While this study adopts ICT skills, in implication ICT know-how and ICT competency are inferred and will interchangeably be used. Susana *et al*. (2009), observes that IT revolution has facilitated the processes of searching and sharing knowledge, but at the same time ICT has led to an important growth in information. In this light, State Corporations must be able to use ICTs to effectively obtain useful information for their decision-making. Thus ICT skill becomes handy. In concurrence, Quadri (2012) point out that ICT know-how is a pre-requisite for Knowledge Sharing and sufficient ICT skill is essential for the successful application of Knowledge in State Corporations. The ability of information officers especially the government employees, to transmit this information has tremendously influenced the storage, retrieval, and sharing of knowledge in their places of work.

According to Quadri (2012) the value of knowledge-based resources and services lies in the easiness with which they can be shared, distributed, updated, manipulated, and rapidly searched. ICT skills are necessary and key because information officers with high computational skills are more likely to use the knowledge-based resources better and more than those with inadequate ICT skills. Susana *et al*. (2009) corroborates that IT competency influences Knowledge Sharing directly, favoring its processes and indirectly by favoring the development of an organizational structure that in turn favors Knowledge Sharing. Bataweel and Alsuraihi (2013) claims that Knowledge Sharing in an organization is enabled by and through adequate technology and people who possess knowledge and know how to use it.

To shed more light on this, Bataweel and Alsuraihi (2013) underscores exploiting employees experience on ICT in teaching, guiding, and coaching new users to utilize existing ICTs to interact, communicate and share knowledge. Salokhe and Dejene (2015) asserts that Frequently Asked Questions (FAQ) are resourceful, convenient, and standard way of impacting knowledge through answering basic questions asked. KStoolkit (2015) argues that How-to-guides provide procedural suggestions on how to best perform a certain task to achieve the desired results. Paulus and Brown (2007) observes that any organization that is in need of new ideas and knowledge is likely to use online brainstorming. According to Paulus and Brown (2007) online brainstorming is an inexpensive way of generating and sharing new knowledge by exposing participants to a pool of new ideas.

2.3.4   ICT Structure

Adaptive Structuration Theory identifies three structural features of ICTs that affects their use as restrictiveness, comprehensiveness and level of sophistication (DeSanctis & Poole, 1994). According to Wheeler and Valacich (1996), Restrictiveness is a component of ICTs that limits the choices of the user in using ICT for knowledge sharing. In this study, this

implies that the more restrictive the ICTs are, the less possible the usage of the ICT in Knowledge sharing and the less the amount of knowledge shared.

Wheeler and Valacich (1996) and Zhang *et al*. (2006), describes Comprehensiveness as the productivity of the ICT adding that the more comprehensive the ICT, the greater the number of features available for use by users. Zhang *et al*. (2006) posits that sophisticated systems are less adaptable to use by the users where adaptivity means the ability of systems to change the rules, structures and contents of the social community. Zhang *et al*. (2006) concludes that structural properties of various ICTs including restrictiveness, sophistication, and comprehensiveness affects the Knowledge management systems. Alignment of ICT structure with the organization structure greatly improves Knowledge sharing in these organization.

2.3.5 Operationalization of variables

The independent variables of this study were ICT tools, ICT infrastructure, ICT Skills and ICT Structure. These were perceived to play different roles in knowledge sharing process and hence differently influence the dependent variable of the study as discussed and indicated on the conceptual framework (see figure 2.3). To empirically measure the effect of the independent variables on the dependent variables, this research used various indicators to get both attributed and assimilated aspects. Respondents were asked to answer questions that provided information about themselves such as age, gender and length of service in the current organization. The respondents then were asked to answer questions based on various indicators to measure their perception on these indicators using a 5-item likert scale. Table 2.1 summarizes the operationalization of both independent and dependent variables

Table 2.1: Operationalization of Variables

Variable Measured	Indicators	Questionnaire Item
ICT Tools	-Collaborative Workspaces	6
	-Discussion Forums	
	-Social Communities	
	-Web meetings & Portals	
	-Corporate Emails	
	Source: Toro and Joshi (2013); Gyensare and Asare (2012); Yates and Paquette (2011).	
ICT Infrastructure	-Hardware & Software Availability	7
	-Network Availability	
	-Internet connectivity	
	-Virtual Workspace Availability	
	Source: Bataweel and Alsuraihi (2013); Mohamed *et al*. (2010); Omona *et al*. (2012); Malhotra and Majchrzak (2012).	
ICT skills	-Employee experience in ICT	8
	-Online Brainstorming	
	-Frequently Asked Questions	
	-How-to-Guides	
	Source: Bataweel and Alsuraihi (2013); Salokhe and Dejene (2015); Paulus and Brown (2007) .	
ICT Structure	-Restrictiveness	9
	-Comprehensiveness	
	-Level of sophistication	
	Source: Wheeler and Valacich (1996); Zhang *et al.* (2006)	
Knowledge Sharing	-Improved Quality and Quantity	5,6,7,8,9,10
	Source: Toro and Joshi (2013); Bataweel and Alsuraihi (2013); Salokhe and Dejene (2015); Paulus and Brown (2007); Zhang *et al*. (2006)	

2.4   Empirical Review

Knowledge sharing in state corporations is of great concern to researchers and experts in field of knowledge Management. Knowledge sharing advances performance of state corporations (Lesser & Storck, 2001) and enhances their competitive advantage and institutional learning (Argotea & Ingram, 2000). Public sector interactions are limited and directed and this hinders knowledge creation and sharing (Gau, 2011), this can be demystified by use of such ICTs as Social networks, online forums and blogs in Knowledge Sharing in government organizations. In fact, Gau (2011) found out that lack of mechanisms to share knowledge, are a major reason for the governments not being able to provide quality public services and low development indexes. Gau (2011) discovered that Knowledge Sharing in an organization determines it efficiency.

Empirically, various authors have shown that various ICT elements greatly influence knowledge sharing. Masa'deh *et al*. (2013) revealed that ICT is positively and significantly correlated with knowledge sharing capability. In corroboration, Jelena *et al*. (2012) strongly suggests that ICT has positive impact in knowledge sharing practices. Jelena *et al*. (2012) empirically proved that besides the fact that Knowledge Management heavily relies on ICT, many organizations including state corporations experience difficulties using ICT in Knowledge Management.

According to Kanaan *et al*. (2013), there is statistically significant impact of ICT in enabling Knowledge Sharing. Kanaan *et al*. (2013), corroborates (Lin, 2007) findings that ICT among other enablers are instruments of furthering organizational learning and accelerates knowledge sharing within and across organizations. Study by Wu and Zhu (2012) revealed factors that influence knowledge sharing include tools and technologies among others. In a study to empirically test the influence of different knowledge sharing mechanisms, Sáenz *et al*. (2012) found out that ICTs such blogs, intranets knowledge repositories and discussion forums play a major facilitating role in Knowledge Sharing. This is conceivably due to their level of complexity and sophistication. Studies in medium-

low and low technology firms where complexity is lower show that ICT-based knowledge sharing mechanisms are effective in fostering innovation. (Sáenz *et al*., 2012)

Omona *et al*. (2012) conducted an empirical assessment on enhancing Knowledge Management with ICT and found out that for Knowledge sharing and management to succeed, ICT infrastructure and support must be reliable to enable diversity in Knowledge Sharing applications. He further found out that use of appropriate ICT skills in Knowledge Management enables organization to transform to learning organization. The study revealed that ICT is key in stepping up knowledge access through collaboration and managing organizational knowledge as an asset.

2.5   Critique of the existing literature relevant to the study.

Though extant literature (Zawiyah & Mohd, 2009; Toro & Joshi, 2013; Noor & Salim, 2011; Sulisworo, 2012; Quadri, 2012), seems to agree that ICT tools, ICT structure, ICT infrastructure and ICT skills (know-how) affects Knowledge Sharing in public sector, none of these studies have explicitly studied the various components of these factors to establish their influences on Knowledge Sharing. Literature review reveals that study on influence of ICT on Knowledge Sharing have yet not taken the final shape and greatly remains on a theoretical level. This proliferation of study clearly shows that the influence of ICT on Knowledge Sharing remains at the very basic theoretical level.

There is a handful research on knowledge management and Knowledge Sharing in Kenya (Mosoti & Masheka, 2010; Cheruiyot *et al*., 2010; Khoda & Moturi, 2012; Omieno & Wanyembi, 2012). However, none of the researches comprehensively describe the influence of ICT on Knowledge Sharing in State Corporations. Omieno and Wanyembi (2012) concentrated only on a single tool and theoretically concluded that intranets can be useful in Knowledge Sharing in universities but it is not clear whether the same is applicable to other State Corporations. Extant Literature (Mansell, 2010; Omona *et al*., 2012; ITU, 2011) has revealed that there is a strong relationship between ICT and Knowledge Sharing. Mansell (2010) asserts that among the various important issues that

recur on the ICT policy agenda is the need to give much attention to Knowledge Sharing and enhance knowledge societies. However, besides this theoretically expressed need to marry ICT with Knowledge Sharing, none of the extant research on Knowledge Sharing assess the influence of Knowledge Sharing in State Corporations.

2.6   Summary

From theoretical review, knowledge sharing cannot be induced by any form of coercion but it is a social process that is enabled by social capital (Mu, *et al*., 2008). It is as such differently influenced by different aspects and constructs of ICT as explained by Venkatesh *et al*. (2012).   Structuration leads to enhanced technology structures with productive adaptations according DeSanctis and Poole (1994). Empirically, authors have revealed that various ICT elements greatly influence knowledge sharing (Masa'deh *et al*., 2013; Jelena *et al*., 2012). In fact it is empirically proved that besides the fact Knowledge Management heavily relies on ICT, many organizations including state corporations experience difficulties using ICT in Knowledge Management. Review of extant Literature has revealed that ICT tools, ICT infrastructure, ICT skills and ICT structure affects Knowledge Sharing (Zawiyah & Mohd, 2009; Toro & Joshi, 2013; Noor & Salim, 2011; Sulisworo, 2012; Quadri, 2012; Murray & Mohamed, 2010).

Therefore, this review of literature has not only to a great extent informed the objective of this study but has given direction to the methodology to be adopted by this research. The main objective of this study as informed by the literature will be accomplished in twofold. First is to determine out the influence of ICT in Knowledge Sharing in the agency under study. In doing so, inductive analysis will be done to conclusively infer the new knowledge as it becomes evident in the study. The second fold is to make practical recommendations to the State Corporations to aid them in effective implementation of Knowledge Sharing strategies and by extension to the government in its effort to transform Kenya to a knowledge-based economy.

2.7   Research gaps

While various authors agree that technology affects knowledge sharing very little attention has been given to strategic technology based knowledge sharing especially in public sector. From literature (Ezra & Janet 2009; Cheruiyot *et al.*, 2012; Mosoti & Masheka, 2010; Ogara *et al.*, 2010), there is a lack of strategies and policies targeting knowledge sharing as key to improve employee productivity and competitive advantage. This gap is well articulated by the Kenya Vision 2030, in its assertion that knowledge sharing and management is a fundamental aspect of growth and competitiveness in Kenyan economy. Strategic use of ICTs to positively enhance knowledge sharing in public service delivery appropriately deals with lack of competitiveness in state corporations. By relating public service delivery, employees' productivity and organization's competitive advantage with technology based knowledge sharing in state corporations, this study seeks to bridge this gap.

Globally, extant studies on Knowledge Sharing are limited to ICT as a single hindering factor (Zawiyah & Mohd, 2009; Noor & Salim, 2011). The recommend approaches focus implicitly on integration of ICT in knowledge creation and knowledge storage, rather than sharing knowledge and do not address a holistic strategy for technology based knowledge sharing. The relevance of specific ICT skills, tools, infrastructure and structure to strategic knowledge sharing is neglected. Equally, there is no proven evidence that an experiential study has been conducted to determine the influence of such ICTs on Knowledge Sharing in State Corporations in Kenya. This is the main objective of this study upon whose achievement this gap will be bridged.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Developing an efficient research strategy to be used in undertaking the study is underscored by Sekaran (2010) as the central part of the research. In strategic positioning of this study, this chapter discusses the research design, the target population, the sampling frame, sample and sampling techniques, data collection instrument and procedure, pilot testing, and data analysis procedure used in the study.

3.2 Research design

In Orodho (2003) and Ogula (2005) it is ascertained that research design is the scheme, structure, outline, plan or strategy of investigation used to give answers to the research questions. This study aimed to establish and describe the influences of ICT on Knowledge Sharing and as such the research adopted a descriptive research design. This is informed by Mugenda and Mugenda (2008) and Creswell (2003) argument that descriptive research design seeks to obtain information that describes existing phenomena as-is by seeking respondents' perceptions, attitude, behaviour or values. Mugenda and Mugenda (2008) further adds that descriptive approach uses a pre-planned design for analysis that allows research findings to be presented through simple statistics such as tables and measures of central tendency can be used. Kothari (2008) in recapitulation asserts that descriptive design has enough provision for protection of bias and maximization of reliability.

3.3 Target Population

Population is defined as the entire group of people or objects having common observable characteristic of interest that the researcher desires to investigate and upon whom the research findings are generalized (Mugenda & Mugenda, 2008; Sekaran, 2010). In this study the target population was made up of 675 information officers employed by Kenya

National Library Service. The observable characteristic of the population desirable and relevant to this study was the fact that all the individuals that constituted the population engage heavily in business of sharing information.

3.4   Sample, Sampling frame and sampling technique

Kothari (2008) asserts that sampling frame is physical representation of the target population that comprises all units that are potential members of a sample. Cooper and Schindler (2011) corroborates that sampling frame describes the list of all population units from which the sample will be selected. Sample according to Cooper and Schindler (2011) is a carefully selected and representative subset of the population to be studied.   In selecting the most representative sample, the researcher used stratified random sampling. Orodho (2003) describes stratified sampling as applicable if the population is not completely homogeneous.

In this study the population was structured into 11 departments and 60 branches in different regions and sharing different pieces of knowledge in different ways. Each department or branch was taken as a stratum and from each stratum approximately 20% of the population was randomly selected. This constituted a sample of 142 members representing 21.04% of the population. This is validated by Mugenda and Mugenda (2008) assertion that a sample size of 10% of the target population is large enough and allows for reliable data analysis and testing for significance of differences between estimates.

3.5   Instruments of data collection

Creswell (2003) explains data collection as a means of obtaining information from the selected respondents of an investigation. The researcher collected data by administering questionnaires and conducting interviews. The study used structured and unstructured questionnaires with open and close ended questions to collect both qualitative and quantitative data from respondents. The researcher prepared interview schedule guides to focus the interview on the intended purpose. The structured questions were employed not

only to save time and money but also to enable smooth data analysis. The unstructured questions aided in prompting respondents to give profound and painstaking response with no feeling of being weighed down in revealing of any information. Likert scale was used in the questionnaire to give respondent an opportunity to rank their views on the questions.

3.6   Data collection procedure.

The researcher obtained a research permit and a research authorization letter from Jomo Kenyatta University of Agriculture and Technology (JKUAT) to facilitate permission to conduct the research at the Kenya National Library Service. The researcher disseminated the web based questionnaires electronically and visited a representative number of branches to conduct the interviews. The researcher used telephone to follow up and explain any issues arising from the questionnaires.

3.7   Pilot testing

According to Cooper and Schindler (2011), pilot test is conducted to detect weaknesses in design and instrumentation. Kvale (2007) corroborates that Pilot test enables the researcher to determine if there are flaws, limitations, or other weaknesses in the interview design allowing corrections to be made before conducting the study. Pilot testing was conducted on 15 information officers of Kenya National Library Service who were not be included in the final study. This was informed by (Cooper & Schindler, 2011, Creswell, 2003) rule of thumb that 1% of the sample should constitute the pilot test.

3.7.1   Validity of the Research Instruments

According to Somekh and Cathy (2005) validity is defined as the degree by which the sample of test items represents the content the test is designed to measure. Mugenda and Mugenda (2008) argues that the content validity of a research instrument is tested by use of a professional or expert in a particular field. The researcher established the validity of the research instruments by seeking the opinions of the experts in knowledge management and the supervisors.

26

3.7.2 Reliability of the Research Instruments

Reliability of a research instrument means that the instrument yields the same results on repeated trials. The researcher used Cronbach's alpha (Cronbach, 1951) to measure the internal consistency of the research instruments. SPSS was used to compute the Cronbach's alpha values. The recommended alpha value of 0.7 was used as a cut-off point for the reliabilities.

3.8 Data Processing and analysis

Data analysis comprised organizing, coding, analyzing and summarizing data collected. Using the SPSS Version 20, descriptive statistics were generated to help establish relationships, trends and patterns. This made it easy to understand and interpret the influence of independent variable on the dependent variable. The study used multiple regression analysis to establish relationship between independent and dependent variables. This was modelled as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where Y is Knowledge Sharing; β_0 is the coefficient of Intercept; β_1, β_2, β_3 and β_4 are the regression coefficients of independent variables; X_1, X_2, X_3 and X_4 represents independent Variables (ICT tools; ICT infrastructure; ICT skills, ICT structure) and ε is error term.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The findings and the results of the application of the study variables are presented in this chapter. Data analysis was done in line with the specific objectives of the study where patterns and trends were studied and implications derived from them.

4.2 Response Rate

Response from 101 questionnaires out of the administered 142 was received, this represents a 71.1% response rate. According to Mugenda and Mugenda (2003) a response rate of 50% is adequate, 60% is good and from 70% is very good. On this basis, the response rate for the study was very good. Use of convenient and time saving web-based questionnaire and telephone call follow up can be attributed to the high response rate. The researcher interviewed 11 Heads of department and 60 heads of branches representing a response rate of 100% of the targeted sample for interviewing.

4.3 Results of Pilot Test

During Pilot testing, the reliability of the Questionnaire as a data collection tool for the research was tested using the Cronbach's Alpha. All the variables tested had alpha value of above the recommended 0.7 and were therefore accepted as reliable. The high alpha values implied high reliability of the questionnaire in measuring the influence of ICT in Knowledge sharing. The results are as shown in table 4.1.

Table 4.1: Results of Pilot Test

ICT Factor	Cronbach's Alpha Value	Remarks
ICT tools	0.835	Accept
ICT Skills	0.803	Accept
ICT Infrastructure	0.798	Accept
ICT structure	0.902	Accept

4.4 Respondents Background Information

4.4.1 Gender Distribution

The study sought to find out the gender of the respondents. The findings showed that 50.51% of the respondents were female while 49.49% of the respondents were male. Both genders were almost equally represented. Relative to this study, is that Knowledge Sharing in state corporations is balanced across gender lines.
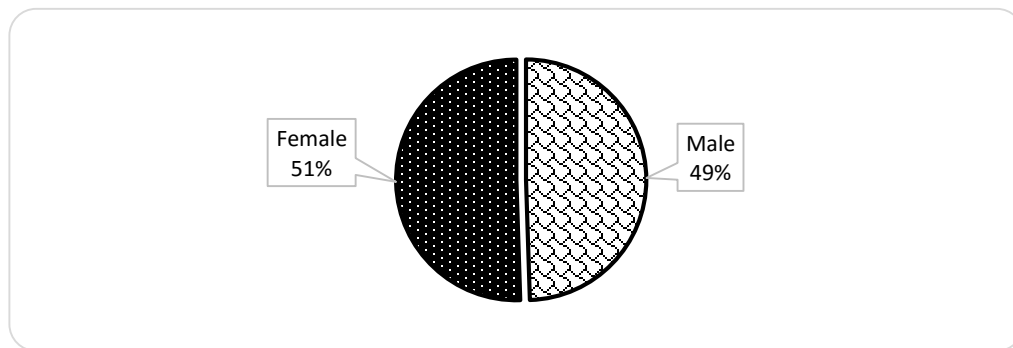
Figure 4.1: Gender of the respondents

4.4.2 Respondents' Age bracket

The study sought to find out the age bracket of the respondents. From the findings, none of the respondents were below 21years and none were older than 60years. 5.94% of the respondents were aged between 21 – 30 years, 35.59% of the respondents were aged between 31-40years, 47.57% of the respondents were aged 41-50 years and 10.90% of the respondents were aged between 51-60years as illustrated in Table 4.2. It is evident that majority of

respondents were between 31-40 years, followed by those between 21-30years of age. An enriching feature of this data is that young but mature respondents are shouldering the role of Knowledge sharing in State Corporations.

Table 4.2: Age bracket of the Respondent

Age Bracket	% Respondents
Below 20	0%
21 – 30years	5.94%
31-40years	35.59%
41-50years	47.57%
51-60 years	10.90%
Above 60years	0%
Total	**100**

4.4.3   Respondents' Length of service

The study sought to find out how long the respondents had worked at Kenya National Library Service. The findings revealed that 11.88% of the respondents had worked at KNLS for Less than 5 years, 8.91% for 5-10 years, 26.73% for 11-15 years, 29.70% for 16-20 years and 22.78% had worked for more than 20 years. This implied that majority of respondents had adequate experience on use of ICT in Knowledge Sharing that can enrich this study.

Table 4.3: Length of service of the Respondent

Length of service	% Respondents
Less than 5 years	11.88%
5-10 years	8.91%
11-15 years	26.73%
16-20 years	29.70%
More than 20 years	22.78%

4.4.4 Behavioral intention for use of ICT in Knowledge sharing

The study sought to find the respondents' behavioral intention for use of ICT in Knowledge sharing. From the findings, 25% of the respondents indicated "Effort expectancy" as their behavioral intention for use of ICT in Knowledge sharing, 10.42% indicated "Facilitating conditions", 53.13% indicated the "Performance expectancy", 4.17% indicated the "Social influence" while 7.28% indicated "self-efficacy" as their behavioral intention for use of ICT as shown in table 4.4. Performance Expectancy, Effort Expectancy, Social Influence by others and Facilitating Conditions are constructs of UTAUT that define intention for use of technology in knowledge sharing. In shaping this study, more than 50% of the respondent indicated that gains attained through use of ICT in Knowledge sharing motivates them to use ICTs. This inspiration ignites this study.

Table 4.4: Behavioral Intention for use of ICT in Knowledge Sharing

Behavioral Intention for use of ICT	%Respondents
Effort expectancy	25.00%
Facilitating conditions	10.42%
Performance expectancy	53.13%
Social influence	4.17%
Self-efficacy	7.28%
Total	100%

4.4.5 Respondents use of ICTs in Knowledge Sharing

Using a five (5) point weighted likert scale, the study sought to find out how often respondents use ICTs to share knowledge. Using SPSS, weighted mean was computed to indicate the frequency of usage for each ICT. Corporate emails (weighted mean=3.89) and social communities (weighted mean=3.73) were the most frequently used, while collaborative workspaces were the least frequently used (weighted mean =2.23) Figure 4.2 shows the weighted average usage of various ICTs on a scale of 1 to 5, where five (5) is most frequently used and one (1) is the least frequently used. Generally, over 50% of

the respondents were found to more often use ICT to share Knowledge in State Corporation. This argument a strong basis for this study.
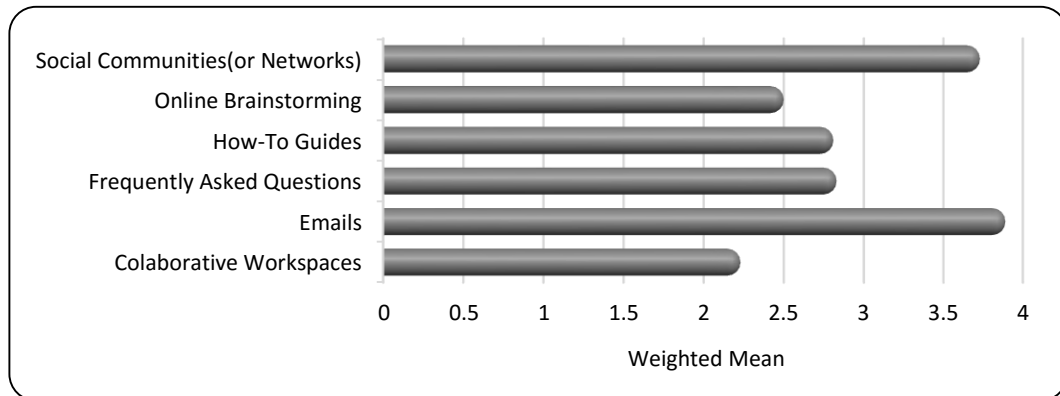
Figure 4.2: Respondents use of ICTs in Knowledge Sharing

4.5   Interview Results

The researcher interviewed purposively-selected 11 Heads of department and 60 heads of branches with an aim to understand underlying facts on ICT influence on Knowledge sharing that could not be quantitatively explained. An interview schedule guide was used to guide and moderate the interview (see appendix III). The results of the interview revealed that majority of respondents use ICTs such MS SharePoint, Discussion Forums, Corporate Emails, Skype, Facebook, Google talks, How-to-guides among others to share knowledge in their work places. Corporate Emails were the mostly used as they are principally recognized and utilized as an official means of communication within and outside the organization.

The interviewees confirmed that the organization has fairly good ICT infrastructure specifically Local Area Network and a number of branches are connected to the Internet. The interviewees however felt that this infrastructure is inadequate for effective Knowledge Sharing citing old communication technologies such as fax, hardcopy memos, old telecom-leased telephone lines and low internet speeds as hindrances to effective knowledge sharing. The participants informed the researcher that a great number of staff under them have below average ICT competencies affecting their ability to utilize ICT in

Knowledge Sharing. This according to the interviewees is orchestrated by KNLS and to a great extent the government's reduced investment in capacity building. About half of the respondents were for the opinion that available ICTs impose limitation in their capacity to share knowledge while others were for the contrary opinion. This was greatly attributed to fast growth in ICTs with new Knowledge sharing platforms and technologies being introduced in the market at a faster rate than the staff could assimilate them. In addition, most of the interviewees felt that available ICTs have great adaptability to knowledge sharing practice in the organization.

Summarily, the interviewees general perception was that ICT largely affects the quantity and quality of Knowledge Shared in State corporation. However, different aspects of ICT differently influence not only how and when Knowledge sharing occurs but also the quality and quantity of knowledge shared. This informed this study in ascertaining the authentic influence of ICT tools, ICT infrastructure, ICT skills and ICT structure in Knowledge sharing.

4.6   Effects of ICT tools on Knowledge Sharing

4.6.1   Social Communication Platforms

Respondents' opinion on whether Facebook, Twitter, Skype and Whatsapp are quick ways to communicate was sought. Majority of the respondents, 82%, either agreed or strongly agreed that Facebook, Twitter, Skype and Whatsapp are quick ways to communicate with other employees within State Corporations. 14% of the respondents were neutral, 3% of the respondents disagreed and 1% of respondents strongly disagreed as shown in figure 4.3. The findings implies that respondents agree that social communication platforms are quick ways to communicate within an organization. This concurs with Yates and Paquette (2011) assertion that Social Networks are key drivers in Knowledge sharing especially in critical situations.
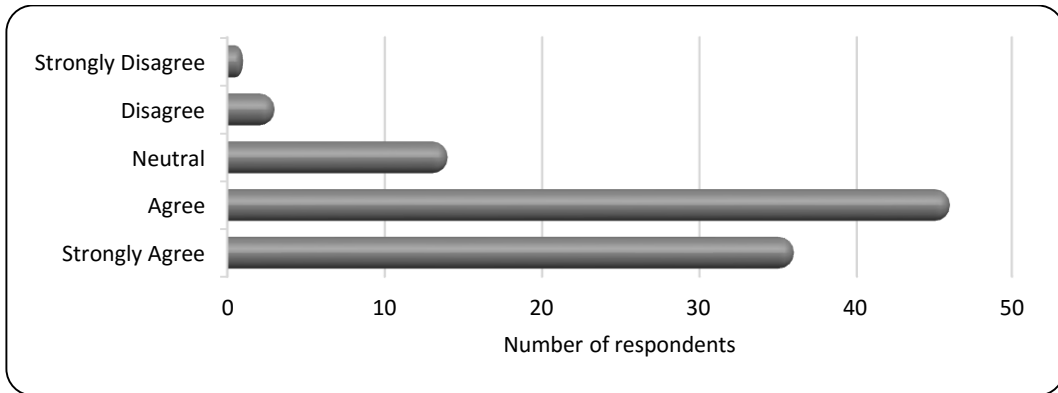
Figure 4.3: Social Communication platforms

4.6.2   Use of Corporate Emails

The study sought respondents' opinion on whether emails are used in problem solving and decision making. From the findings, 79% of respondents agreed or strongly agreed that corporate emails are used in problem solving and decision making in State Corporations. 15% of respondents neither agreed nor disagreed, 5% disagreed and 1% strongly disagreed as shown in figure 4.4. The findings indicate that corporate emails are used in problem solving and decision making. The findings concur with Gyensare and Asare (2012) argument that use of intranet and corporate emails provides documents that support problem solving and decision making in an organization.
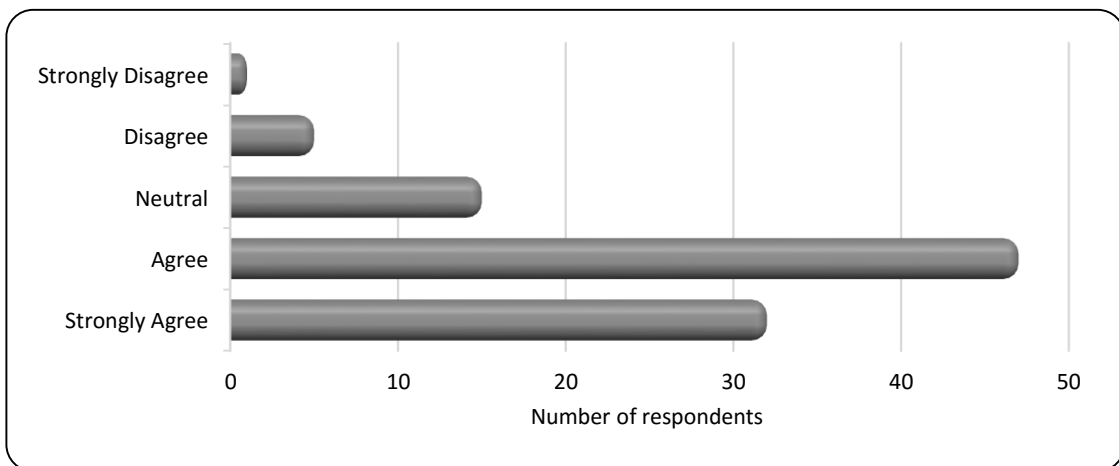
Figure 4.4: Use of Coporate Emails

4.6.3   Online Discussion Forums

The study sought respondents' opinion on whether Online Discussion Forums enable global Knowledge Sharing. Majority of the respondents 91%, either agreed or strongly agreed that Online Discussion Forums enable global Knowledge Sharing within and across state corporations. 7% of the respondents were neutral while 2% of the respondents disagreed as shown in figure 4.5. The findings indicates that Online Discussion forums enable Global knowledge sharing. This corroborates Toro and Joshi (2013) observation that Discussion forums allow, ubiquitous access and transfer of knowledge.
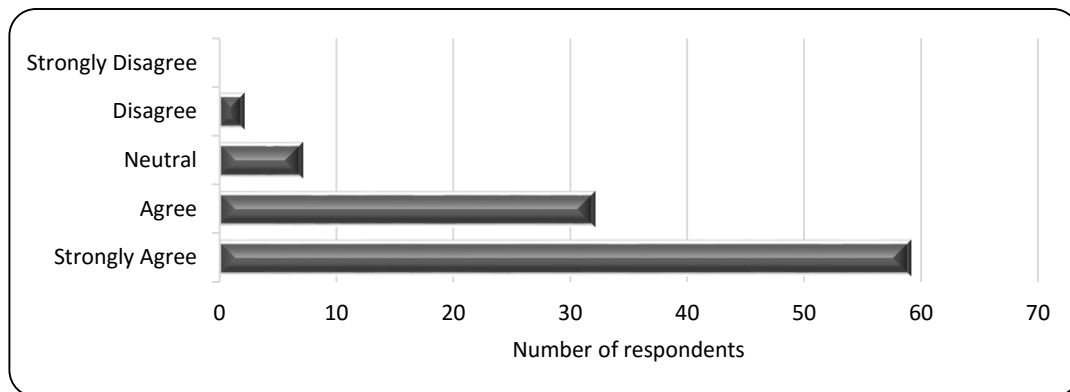
Figure 4.5: Online Disussion Forums

4.6.4   Collaborative Workspaces

Respondents' opinion on whether Collaborative Workspaces accelerate Knowledge Sharing was sought. The findings revealed that the 71% of the respondents either agreed or strongly agreed that Collaborative workspaces accelerate Knowledge sharing in state corporations. 24% of the respondents were neutral while 5% of the respondents disagreed as shown in figure 4.6. The findings suggests that collaborative workspaces accelerate Knowledge Sharing in State Corporations. This concurs with King (2009) assertion that Collaborative workspaces accelerates collaborative decision-making and collective learning in an organization.
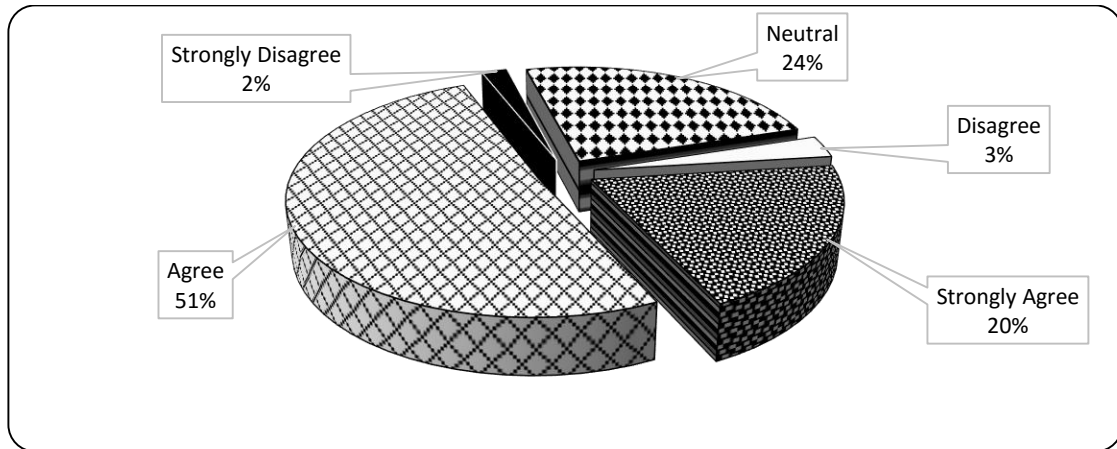
Figure 4.6: Collaborative Workspaces

4.6.5 Web Meetings and Portals

Respondents' opinion on whether Web meeting and portals are quick knowledge references that enhance quality of knowledge shared. Majority of the respondents, 91%, endorsed Web meeting and portals as quick knowledge references that enhance quality of knowledge shared, 6% of the respondents were neutral, while 3% of the respondents disagreed as shown in figure 4.7. The findings suggest that Web meeting and portals are quick knowledge references that enhance quality of knowledge shared. This is in line with Toro and Joshi (2013) findings that web meetings and Portals are quick references for knowledge and are used to create and share knowledge.
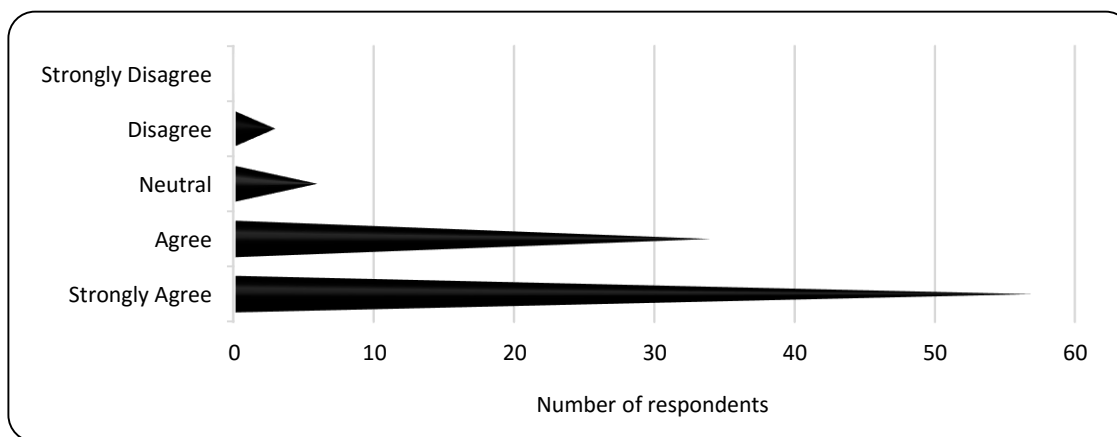
Figure 4.7: Web Meetings and Portals

4.7 Influence of ICT Infrastructure on Knowledge sharing

4.7.1 Network Availability

Respondents' opinion on whether computer networks are inevitable precondition for effective Knowledge sharing was sought. Majority of the respondents, 96%, agreed that Computers Networks are inevitable precondition for effective Knowledge Sharing. 3% neither agreed nor disagree while 1% of the respondents disagreed. The findings are shown in figure 4.8. The findings underscores computer network as an inevitable precondition for knowledge sharing. This concurs with Omona *et al*. (2012) assertion that computer networks supporting Knowledge sharing must be robust and reliable to enable the provision of a multiplicity of Knowledge Sharing applications and services in order to meet customer needs, more so in respect to efficiencies and timeliness.
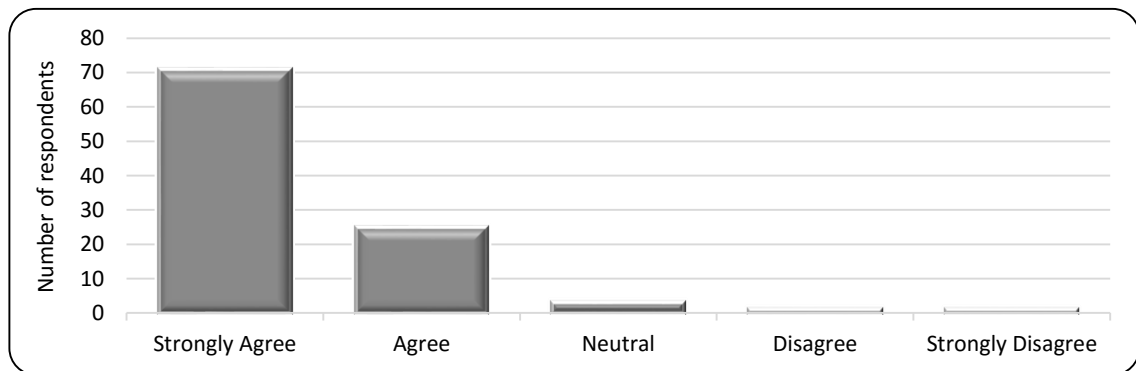
Figure 4.8: Network Availability

4.7.2 Computer Software and Hardware Availability

The study sought to find out whether Computer Software and Hardware available are used to create, store, retrieve, disseminate and apply knowledge. From the findings, 95% of respondents agreed that Computer Software and Hardware are used to create, store, retrieve, disseminate and apply knowledge. 4% neither agreed nor disagreed while 1% disagreed as shown in figure 4.9. The findings suggests that Computer Software and Hardware are useful in creation, storage, retrieval and sharing of knowledge. This agrees

Cheng *et al.* (2009) observation that software and hardware used in knowledge sharing technically facilitate the creation, storage and dissemination of relevant knowledge.
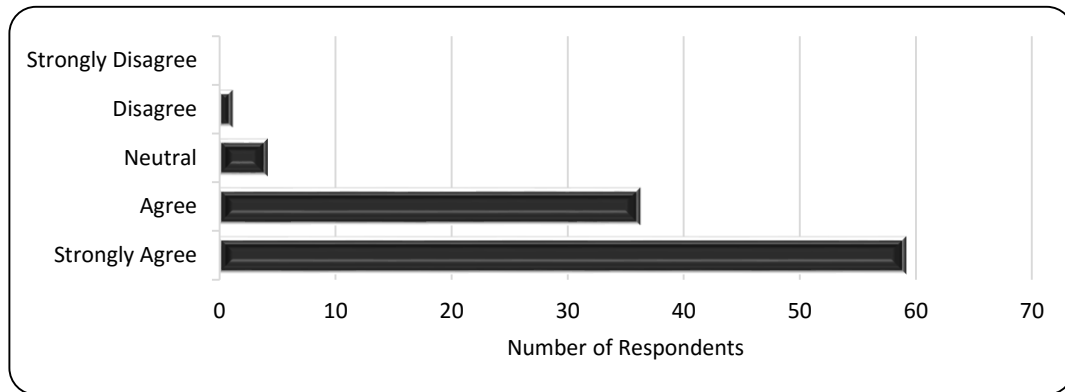
Figure 4.9: Hardware and Software Availability

4.7.3   Internet Connectivity

The study sought the respondents' opinion on whether internet connectivity improves knowledge sharing. From the findings majority of the respondents, 98%, agreed that Internet Connectivity improves knowledge sharing, 2% neither agreed nor disagreed, while 0% disagreed. The findings are as shown in figure 4.10. The findings strongly infers that internet connectivity improves knowledge sharing. This corresponds with Bataweel and Alsuraihi (2013) assertion that internet is an enabler and a perfect solution to Knowledge Sharing.
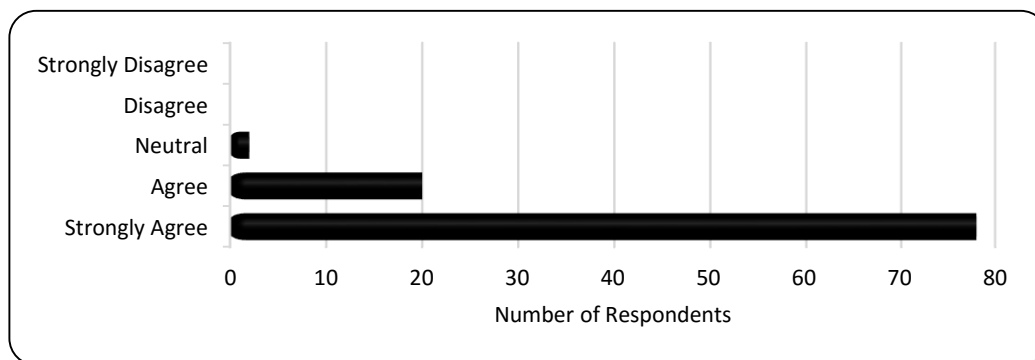
Figure 4.10: Internet Connectivity

4.7.4   Use of Virtual Workspace

Respondents' opinion on whether State Corporations should adopt virtual workspaces as convenient ways of remotely sharing knowledge was sought. The findings revealed 96% of the respondents agreed that state Corporations should adopt Virtual Workspaces as convenient ways of remotely sharing knowledge. 2% were neutral and 2% disagreed as shown in figure 4.11 below. The findings infer that State Corporations should adopt virtual workspaces as convenient ways of remotely sharing knowledge. The findings corroborate Malhotra and Majchrzak (2012) arguement that virtual workspaces are highly relied upon by team members to provide affordances and to coordinate individual knowledge that each team member brings to the team.
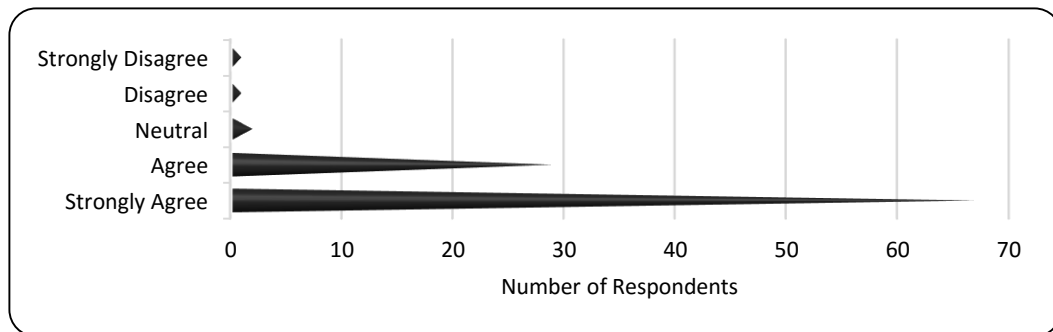
Figure 4.11: Use of Virtual workspace

4.8   Influence of ICT Skills on Knowledge Sharing

4.8.1   Use of Online Brainstorming

The study sought the respondents' opinion on how often Online Brainstorming is used as an inexpensive method to gain and disseminate new Knowledge. From the findings 34% of the respondents indicated that in at least half of the times, Online Brainstorming is used as an inexpensive method to gain and disseminate new knowledge, while 66% indicated that online Brainstorming is rarely or never used. Findings are shown in Figure 4.12. The findings implies that Online Brainstorming is rarely used to gain and disseminate new knowledge. This is in sharp contrast with Paulus and Brown (2007) assertion that any

organization that is in need of new ideas and knowledge is likely to use online brainstorming.
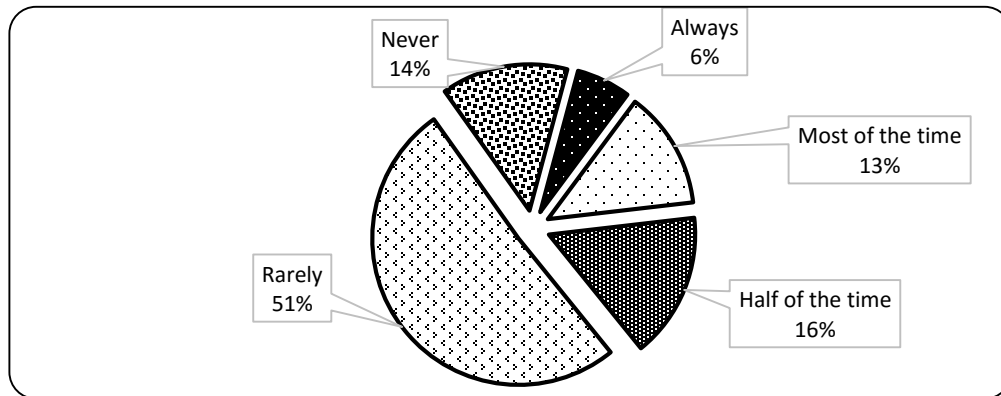
Figure 4.12: Use of Online Brainstorming

4.8.2 Frequently Asked Questions

Respondents' opinion on whether online lists of Frequently Asked Questions (FAQ) are maintained as a resourceful way of impacting new knowledge was sought. From the findings, 66% of the respondents indicated that in at least half of the times, State Corporations maintains online lists of Frequently Asked Questions (FAQ) as a resourceful way of impacting new knowledge while 34% were for the contrary opinions as shown in Figure 4.13. The findings indicates that lists of Frequently Asked Questions (FAQ) can be used as a resourceful way of impacting new knowledge. This is in line with Salokhe and Dejene (2015) claims that Frequently Asked Questions (FAQ) are resourceful, convenient, and standard way impacting knowledge through answering basic questions asked.
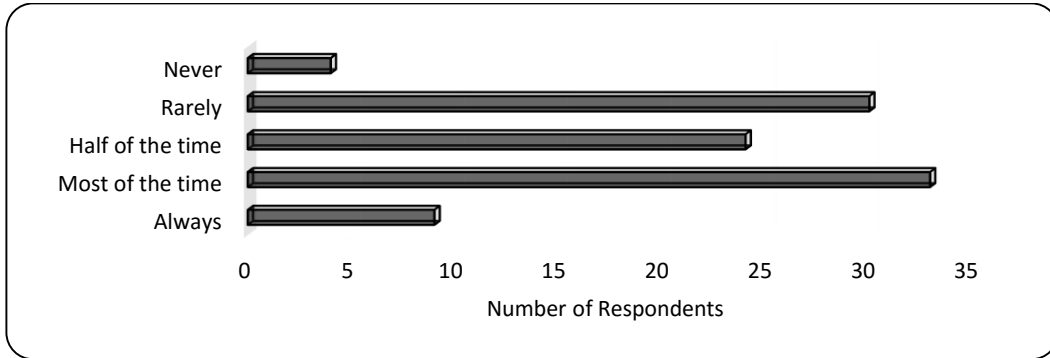
Figure 4.13: Frequently Asked Questions (FAQ)

4.8.3 Employee Experience in ICT

The study sought to find out the frequency with which State Corporations depend on Employee experience in ICT to orient new employees to Knowledge Sharing. From the findings, 85% of the respondents indicated that in at least half of the times, State Corporations depend on Employee's experience in ICT to orient new employees to Knowledge Sharing. 15% indicated that State Corporations rarely or never depend on employees experience in ICT as shown in figure 4.14. The findings indicate that State Corporations depend on Employee experience in ICT to orient new employees to Knowledge Sharing. This agrees with Bataweel and Alsuraihi (2013) suggestion that employees experience on ICT should be exploited in teaching, guiding, and coaching new users to utilize ICTs to interact, communicate and share knowledge.
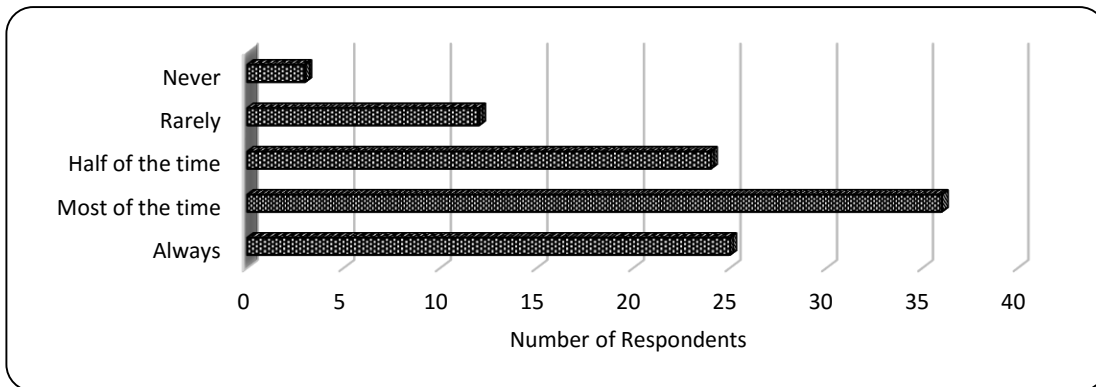
Figure 4.14: Employee Experience in ICT

4.8.4   Use of Online How-to-guides

Respondents' opinion on whether online How-to-guides are used to disseminate specific procedural knowledge to employees was sought. The findings revealed that 56% of the respondents indicated that in at least half of times online How-to-guides are used to disseminate specific procedural knowledge to employees while 44% indicate that it is rarely or never used shown in figure 4.15. The results suggests that online How-to-guides are used to disseminate specific procedural knowledge to employees. This concurs with KStoolkit (2015) argument that How-to-guides provide procedural suggestions on how to best perform a certain task to achieve the desired results.
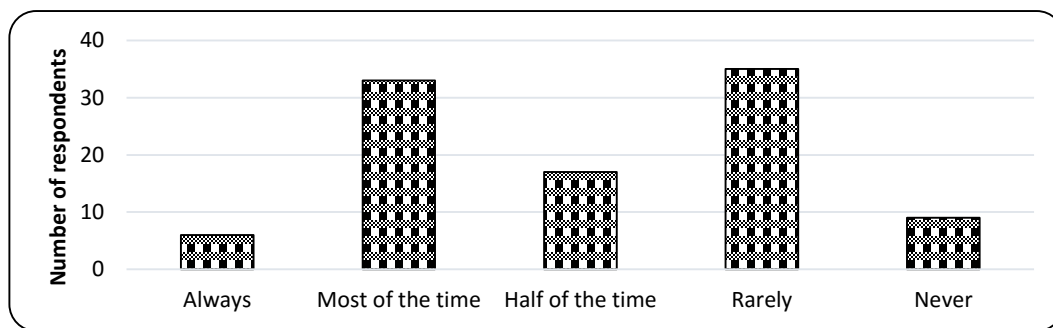
Figure 4.15: Use of How-to-guides

4.9   Effects of ICT Structure on Knowledge Sharing

4.9.1   Restrictiveness of ICTs

The study sought to find out the extent to which level of limits imposed on users by the existing ICT Hardware or Software (Restrictiveness) affects Knowledge Sharing. Majority, 62% of the respondents indicated that a great extent, restrictiveness of ICT affects Knowledge sharing, 29% indicated moderate extent, while 9% indicated low extent. The finding are as shown in figure 4.16. The finding implies that to a great extent, restrictiveness of ICT affects Knowledge sharing. This agrees with Wheeler and Valacich (1996) findings Restrictiveness of ICT limits the choices of the user in using ICT for knowledge sharing.
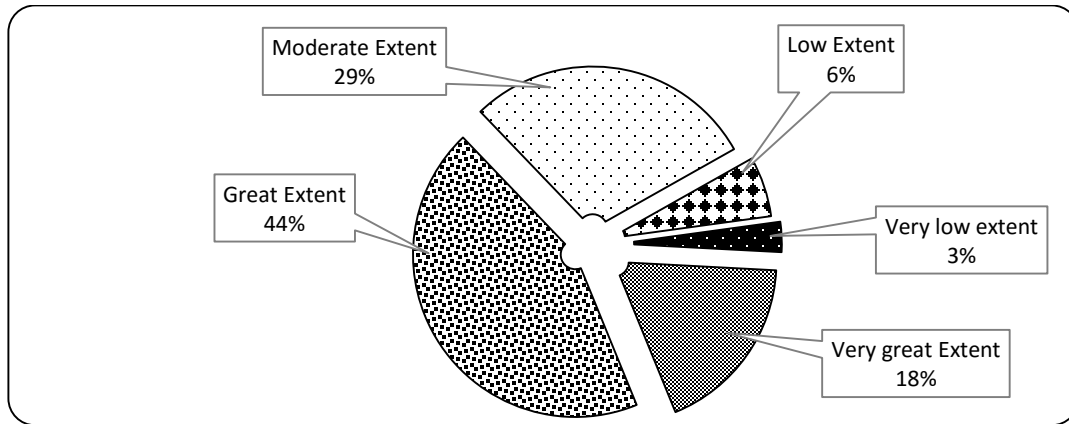
Figure 4.16: Restrictiveness of ICTs

4.9.2 Comprehensiveness of ICTs

The respondents' opinion on the extent to which Comprehensiveness of ICTs affect Knowledge sharing was sought. From the findings, 69% of the respondents indicated that the features and functionality available for use by users in ICTs (Comprehensiveness) to a great extent affects Knowledge sharing. 18% of the respondents indicated moderate extent while 13% indicated low extent. The finding are as shown in figure 4.17. The findings implies that comprehensiveness of ICTs greatly affects Knowledge Sharing. This assents Zhang *et al*. (2006), observation that the more comprehensive the ICT, the greater the usage and vice versa
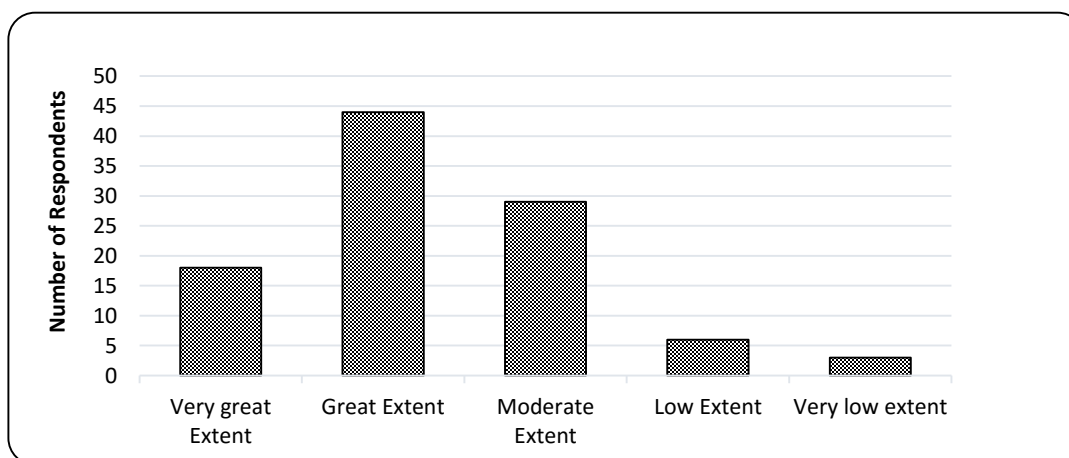
Figure 4.17: Comprehensiveness of ICTs

4.9.3 Level of sophistication of ICTs

The study sought respondents' opinion on the extent to which the Level of sophistication of ICTs affect Knowledge Sharing. The ability of ICT systems to allow new functions, upgrades, rules, structures and contents of the social community (Level of sophistication) was found to affect Knowledge sharing to a great extent as indicated by 68% of the respondents. 20% of the respondents indicated moderate extent while 9% indicated low extent. The findings are as shown in figure 4.18. It can therefore be inferred that the level of sophistication of ICTs greatly affects knowledge sharing. This concurs with Zhang *et al*. (2006) contention that sophisticated systems are less adaptable to use in knowledge sharing by the users.
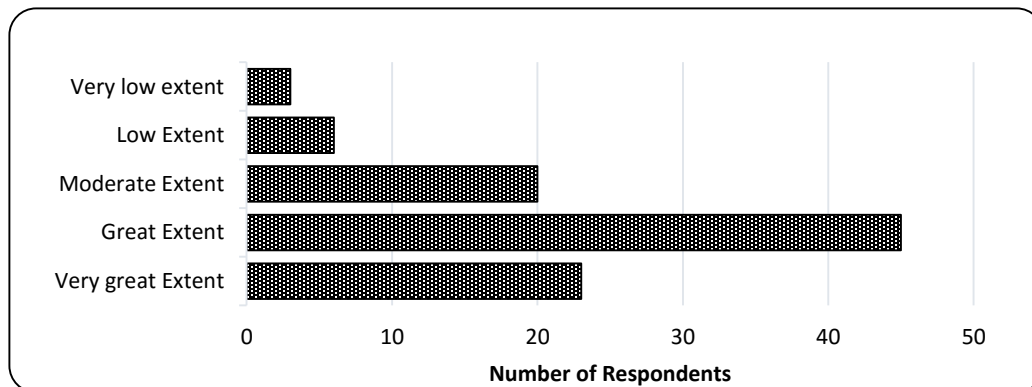
Figure 4.18: Level of Sophistication

4.10   Enhancing ICT use in Knowledge sharing

Using an open ended question, the study sought respondent's opinions on how ICT use in Knowledge Sharing can be enhanced. The responses were grouped into five thematic areas emerging from the responses as tabulated in table 4.5. From the findings Network availability and Internet connection were the best way of enhancing ICT use in Knowledge sharing as endorsed by 38.46% of the respondents, Alignment of ICT structure with Organizational structure was referred to by 24.18% of the respondents. Other areas emerging from the responses included Capacity building for ICT skills (15.38%), use of emails and social Networks (13.19%) and financial allocation for ICT (8.79%)

44

Table 4.5: Enhancing ICT use in Knowledge sharing

Thematic Area	Percentage
Align ICT Structure with organizational structure	24.18
Capacity Building for ICT skills	15.38
Increase Financial allocation for ICT	8.79
Network availability and Internet Connection	38.46
Use of emails and social networks	13.19
Total	100%

4.11   Regression analysis

4.11.1 Effect of ICT tools on Knowledge Sharing

A multiple regression was also conducted to predict the effects of ICT tools on knowledge sharing.   The predictors were Web Meetings & Portals, Corporate emails, Social Communities, Collaborative workspaces and Online Discussion Forums. The R-square value was obtained was 0.701 indicating that ICT tools explains 70.1% of variability in Knowledge sharing as shown in Table 4.6.1. The overall model was significant, F (5, 95) = 44.630, p<0.05, as shown in table 4.6.2

Table 4.6.1: Model of effect of ICT tools on Knowledge sharing

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.837	.701	.686	.274

Table 4.6.2: ANOVA for effect of ICT tools on Knowledge sharing

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	16.722	5	3.344	44.630	.000
1	Residual	7.119	95	.075		
	Total	23.842	100			

The results indicated that significantly, Collaborative Workspaces (t=4.366, p<0.05) accelerate Knowledge Sharing; Online Discussion Forums (t=5.856, p<0.05) enable global Knowledge Sharing; Social Communities (t=5.583, p<0.05), are quick ways to communicate with other employees; Web Meetings and Portals (t=7.898, p<0.00) are quick knowledge references that enhance quality of knowledge shared and Corporate Emails (t=3.623, p<0.05) are used in problem solving and decision making in State Corporations. The constant was insignificant with p=0.152. The results are shown in table 4.6.3. The findings concurs with Nooshinfard and Nemati-Anaraki (2012) findings that ICT tools accelerates diffusion of Knowledge. The findings enriches and concurs with Unified Theory of Acceptance and Use of Technology (UTAUT), ICT tools are facilitates Knowledge sharing; Performance Expectancy of these tools and reduced effort in sharing knowledge through use of various ICT tools are the reasons and strong basis for use of ICT in Knowledge sharing.

Table 4.6.3: Coefficients for effects of ICT tools on Knowledge sharing

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.380	.264		1.443	.152
Online Discussion Forums	.261	.045	.383	5.856	.000
Social Communities	.173	.031	.323	5.583	.000
Corporate emails	.135	.037	.242	3.623	.000
Collaborative workspaces	.146	.033	.255	4.366	.000
Web Meetings & Portals	.187	.024	.463	7.898	.000

4.11.2 Influence of ICT infrastructure on Knowledge Sharing

Multiple regression analysis was run to predict how ICT infrastructure influences Knowledge sharing. The predictors were Hardware & Software availability, Network Availability, Internet Connectivity and Virtual Workspace Availability. The R-square

value obtained was 0.894 meaning that ICT infrastructure positively influences 89.40% of the variability of knowledge sharing as shown in Table 4.7.1. The predictors, were found to statistically significantly predict knowledge sharing at $p<0.05$ significant level for $F(96,4)=203.203$ and actual p-value=0.000) as shown in Table 4.7.2.

Table 4.7.1: Model of influence of ICT Infrastructure on Knowledge sharing

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.946	.894	.890	.152

Table 4.7.2: ANOVA for influence of ICT infrastructure on Knowledge sharing

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	18.861	4	4.715	203.203	.000
1	Residual	2.228	96	.023		
	Total	21.089	100			

The results indicated that Network Availability (t=9.783, $p<0.05$) have the greatest Influence as an inevitable precondition for effective Knowledge Sharing. Virtual Workspaces (t=7.083, $p<0.05$) are convenient ways of remotely sharing knowledge and Internet Connectivity (t=4.433, $p<0.05$) improve Knowledge sharing. The results are shown in table 4.7.3. Computer Software and Hardware (t=1.305, p=0.195) was found not to have significant influence on Knowledge sharing. The constant had a significance influence to the model (t=2.208, $p<0.05$). The study findings suggest that ICT Infrastructure Facilitates 89.4% of Knowledge sharing, therefore the gains achieved through use of ICT infrastructure and subsequent effort reduction is evident from this study. Enriching, the Unified Theory of Acceptance and Use of Technology UTAUT this study agrees that Performance expectancy, effort reduction and facilitating conditions are behavioral intentions for deployment and use of ICT infrastructure in Knowledge Sharing in State Corporations.

Table 4.7.3: Coefficients for influence of ICT infrastructure on Knowledge sharing

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	**Std. Error**	**Beta**		
(Constant)	.376	.170		2.208	.030
Internet Connectivity	.208	.047	.217	4.433	.000
Networks Availability	.381	.039	.488	9.783	.000
Virtual workspaces	.284	.040	.420	7.083	.000
Software & Hardware availability	.056	.043	.076	1.305	.195

4.11.3 Influence of ICT skills on Knowledge Sharing

Multiple regression analysis was conducted to predict the extent to which ICT skills influences knowledge sharing. The predictors were How-to-guides, Employee experience in ICT, Online Brainstorming and Frequently Asked Questions (FAQ). The R-square was found to be 0.873 meaning that the weighted value of the ICT skills predictors explained approximately 87.3% of the positive change in Knowledge sharing as shown in table 4.8.1

Table 4.8.1: Model of influence of ICT Skills on Knowledge sharing

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.934[a]	.873	.868	.307

Analysis of variance revealed that ICT skills significantly influence knowledge sharing at $p < 0.05$ level for $F_{(4,96)} = 164.926$ and actual p-value=0.000 as shown in table 4.8.2

Table 4.8.2: ANOVA for influence of ICT Skills on Knowledge sharing

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	62.352	4	15.588	164.926	.000[b]
1	Residual	9.073	96	.095		
	Total	71.426	100			

Results indicated that there is significant influence of each of the ICT skills predictors in knowledge sharing. Explicitly, state corporations maintain an online list of Frequently Asked Questions (t=6.476, p<0.05) as a way of impacting new knowledge; depends on Employee's experience in ICT (t=8.045, p<0.05) to orient new employees to knowledge sharing; maintains Online How-to-guides (t=2.848, p<0.05) to disseminate specific procedural knowledge to its employees and employs Online Brainstorming (t=3.908; p<0.05) as inexpensive methods to gain and disseminate new knowledge. The constant had a significance influence to the model (t=3.189, p<0.05). The results are tabulated in table 4.8.3. The findings, indicate that ICT skill positively and significantly influence knowledge sharing activity, trusts and norms are key in this since people feel comfortable to share knowledge with people they trust and in a familiar space. The findings support and furthers the prospect of social capital theory and strongly upholds ICT skills as a social capital perspective of Knowledge Sharing. The study findings agree with Bataweel and Alsuraihi (2013) findings that Knowledge Sharing in an organization is enabled by and through adequate technology and people who know how to use it.

Table 4.8.3: Coefficients for influence of ICT Skills on Knowledge sharing

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	**Std. Error**	**Beta**		
(Constant)	.383	.120		3.189	.002
Employee experience in ICT	.261	.032	.338	8.045	.000
Online Brainstorming	.131	.033	.161	3.908	.000
FAQ	.369	.057	.467	6.476	.000
How-to-guides	.144	.051	.195	2.848	.005

4.11.4 Influence ICT structure on Knowledge Sharing

A multiple regression was run to predict the extent to which ICT structure influences knowledge sharing. The R square was found to be 0.972 implying that 97.2% of the variability of Knowledge sharing can be explained by ICT structure as shown in table

4.9.1. Analysis of variance revealed that the ICT structure predictors significantly predicted knowledge sharing for F=1111.368 and p<0.05 as shown in table 4.9.2.

Table 4.9.1: Model of influence of ICT Structure on Knowledge sharing

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.986	.972	.971	.156

Table 4.9.2: ANOVA for influence of ICT Structure on Knowledge sharing

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	81.394	3	27.131	1111.368	.000
1	Residual	2.368	97	.024		
	Total	83.762	100			

The study findings, revealed that all the predictors had a significant influence on knowledge sharing with p<0.05 as shown in table 4.9.3. The level of limits imposed on users by the existing ICT Hardware or Software (Restrictiveness) with a t-value of 18.982 had the greatest influence on Knowledge sharing in State Corporations. The ability of ICT systems to allow new functions, upgrades, rules, structures (Level of sophistication) with t-value of 11.410 and the features and functionality available for use by users in ICTs (Comprehensiveness) with t-value of 10.783 also significantly affects knowledge Sharing. The constant was insignificance to the model with a p>0.05. The study findings concur with Zhang *et al.* (2006) that structural properties of various ICTs including restrictiveness, sophistication, and comprehensiveness affects the Knowledge management systems and that alignment of ICT structure with the organization structure greatly improves Knowledge sharing. Therefore, the study conforms to DeSanctis and Poole (1994) argument that Adaptive Structuration Theory (AST) acumens on structuration leads to enhanced ICT structures with productive adaptations.

Table 4.9.3: Coefficients for influence of ICT Structure on Knowledge sharing

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.003	.068		-.043	.966
Level of sophistication	.310	.027	.369	11.410	.000
Comprehensiveness	.285	.026	.324	10.783	.000
Restrictiveness	.410	.022	.423	18.982	.000

4.11.5 Influence of ICT on Knowledge Sharing

A regression model to predict the overall influence independent variables (ICT tools, ICT infrastructure, ICT skills and ICT Structure) on the dependent variable (Knowledge Sharing) when taken together was obtained as shown in table 4.10.1. R-square was found to be 0.652 inferring that 65.2% of any positive change in knowledge sharing in state corporations in Kenya can be attributed to ICT. These findings were statistically significant at $p<0.05$ for $F(96,4)= 44.891$, actual p-value=0.000 and $R2=0.652$ as shown in Table 4.10.2.

Table 4.10.1: Model of influence of ICT on Knowledge sharing

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.807	.652	.637	.289

Predictors: (Constant), ICT structure, ICT Skills, ICT infrastructure, ICT Tools

Table 4.10.2: ANOVA for influence of ICT on Knowledge sharing

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	14.994	4	3.748	44.891	.000
1	Residual	8.016	96	.084		
	Total	23.010	100			

The coefficients of regression model were obtained are shown in table 4.10.3. The unstandardized coefficients indicated how knowledge sharing varied with each independent variable when other independent variables were held constant. The coefficients helped generate the regression the optimal model of influence of ICT on Knowledge sharing as:

$$Y = 0.266x_1 + 0.294x_2 + 0.199x_3 + 0.272x_4$$

Where Y is Knowledge Sharing; x_1 is ICT tools; x_2 is ICT infrastructure; x_3 is ICT skills and x_4 is ICT Structure. This implies that increase in ICT tools by one unit increases Knowledge Sharing in state corporations by 0.266, while improvement of ICT infrastructure by one unit increases Knowledge sharing in State Corporations by 0.294. Single unit of increase in ICT skills increases Knowledge sharing in State Corporations by 0.199 and improvement of ICT structure by one unit increases Knowledge sharing in State Corporations by 0.272.

Table 4.10.3: Coefficients for influence of ICT on Knowledge Sharing

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	-.059	.381		-.154	.878
	ICT infrastructure	.294	.064	.281	4.603	.000
1	ICT Skills	.199	.034	.351	5.796	.000
	ICT Tools	.266	.052	.314	5.089	.000
	ICT structure	.272	.032	.518	8.438	.000

All the predictors were significant ($p<0.05$) and indicated positive influence in Knowledge sharing. The t-values revealed that that ICT structure (t=8.438) is the greatest influencer of Knowledge sharing, followed by ICT Skills (t=5.796), ICT tools (t=5.089) and ICT infrastructure (t=4.603) in that order. This clearly indicates that besides investment in ICT tools and Infrastructure, Capacity building for ICT skills and proper ICT structure greatly determines the quality and quantity of Knowledge shared and the effectiveness of the knowledge sharing processes. All the predictor and independent variables except the

computer hardware and software significantly influence the dependent variable. Based on this a revised conceptual model was designed as shown in figure 4.19.

Independent Variables   **Dependent Variable**

ICT Tools
- Collaborative Workspaces
- Discussion Forums
- Social Communities
- Web meetings & Portals
- Corporate Emails

ICT Infrastructure
- Network Availability
- Internet connectivity
- Virtual Workspace Availability

Knowledge sharing

ICT skills
- Employee experience in ICT
- Online Brainstorming
- Frequently Asked Questions
- How-to-Guides

ICT Structure
- Restrictiveness
- Comprehensiveness
- Level of sophistication

Figure 4.19: Revised Conceptual Framework

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1   Introduction

The chapter summarizes the findings of the study; with the objectives of the study as units of summary and conclusion. The conclusion relates directly to the specific objectives and the recommendations were deduced from conclusions. Specific factors under study were ICT tools, ICT Infrastructure, ICT skills and ICT Structure.

5.2   Summary of Findings

5.2.1   Effects of ICT tools on Knowledge Sharing

The findings revealed that ICT tools explains 70.1% of positive variability in Knowledge sharing. The findings further revealed that Collaborative Workspaces accelerates Knowledge sharing; Online Discussion Forums enables global Knowledge Sharing; Social Communities are quick ways to communicate with other employees; Web Meetings and Portals are quick knowledge references that enhance quality of knowledge shared and Corporate Emails supports problem solving and decision making in State Corporations in Kenya. The findings enrich and concurs with Unified Theory of Acceptance and Use of Technology (UTAUT) constructs. ICT tools facilitates Knowledge sharing; Performance Expectancy of these tools and reduced effort in sharing knowledge through use of various ICT tools are the basis for use of ICT in Knowledge sharing.

5.2.2   Influence of ICT Infrastructure on Knowledge Sharing

Computer Network availability was found to be an inevitable precondition for effective Knowledge Sharing. Virtual Workspaces were found to be convenient ways of remotely sharing knowledge and internet Connectivity was found to enhance knowledge sharing. The study findings indicated that ICT Infrastructure Facilitates 89.4% of Knowledge sharing, therefore the gains achieved through use of ICT infrastructure and subsequent

effort reduction is evident from this study. Enriching, the Unified Theory of Acceptance and Use of Technology UTAUT this study agrees that Performance expectancy, effort reduction and facilitating conditions are behavioral intentions for deployment and use of ICT infrastructure in Knowledge Sharing in State Corporations.

5.2.3   Influence of ICT Skills on Knowledge Sharing

The findings revealed that ICT skills explains 87.3% of positive change in Knowledge sharing in state corporations. State Corporations were found to maintain list of Frequently Asked Questions (FAQ) as a way of impacting new Knowledge; employ Online Brainstorming as inexpensive method to gain and disseminate new Knowledge; use How-to-guides to disseminate specific procedural knowledge to its employees and utilize Employees experience to orient new employees in Knowledge Sharing. ICT skills are positively and significantly associated with knowledge sharing activity, trusts and norms are key since people feel comfortable to share knowledge with people they trust and in a familiar space. The findings supports and furthers the prospect of social capital theory and strongly upholds ICT skills as a social capital perspective of Knowledge Sharing.

5.2.4   Effect of ICT Structure on Knowledge Sharing

The study findings, revealed structural aspects of ICT significantly affects 97.2% of variability in knowledge sharing. Alignment of ICT structure with the organization structure was underscored as a great way to improve knowledge sharing in state corporations. This arguments Adaptive Structuration Theory (AST) acumens that structuration leads to enhanced ICT structures with productive adaptations and throws a challenge to state corporations to establish communal structures-in-use for Knowledge Sharing.

5.3   Conclusions

The study concludes that ICT tools are key drivers of efficiency and effectiveness in Knowledge sharing for competitive advantage. Innovative use of contemporary ICT tools such as Collaborative Workspaces, Online Discussion Forums; Social Communities; Corporate Emails, Web Meetings and Portals increase the quantity and quality of knowledge shared. The study found out that Network Availability is inevitable precondition for effective Knowledge Sharing and Virtual Workspaces are convenient ways of remotely sharing knowledge. The study therefore concludes that Internet enabled Computer Networks and internet based virtual workspaces are compulsory for sustainable and result-based Knowledge sharing in State Corporations in Kenya.

The study findings indicate that State Corporations uses Employee's experience in ICT to orient new employees; How-to-guides to disseminate procedural knowledge and Online Brainstorming to gain and disseminate new knowledge. Therefore, the study concludes that strategic and focused use of these and other ICT skills in Knowledge sharing can positively transform service delivery in state corporations in Kenya. Finally, the study found that ICT structure affects over 95% of Knowledge sharing processes. This implies that comprehensive, non-restrictive and less-sophisticated ICT structures strategically aligned with the organizational structures would greatly improve Knowledge sharing, innovativeness and productivity in service delivery in State Corporations in Kenya

5.4   Recommendations

In this information age, Kenya is determined to transform into a knowledge based economy. State Corporations in Kenya are the catalyst of this transformation. It is evident from the study that ICT has a strong positive influence on Knowledge sharing in the state corporations in Kenya. State Corporations must therefore strategically use ICT in Knowledge sharing to increase their competitive advantage and to enhance the productivity of their employees for result-based and improved service delivery to the Kenyans as envisaged in the Kenya Vision 2030. To achieve this, this study makes a number of recommendations.

To the Government, the study recommends increased budgetary allocation for ICT in State Corporation to fund development of mature ICT infrastructure through acquisition of the right ICT tools and deployment of the right ICT skills through capacity building. This will foster effective Knowledge sharing within and among state corporations in Kenya and foster innovation. The study further recommends entrenchment of public knowledge management in the national ICT policy and cascading such policies down to the State Corporations as guidelines.

This study recommends to the Management of State Corporations to ensure development and implementation of an integrated ICT and Knowledge Sharing policy framework to strategically align ICT enabled Knowledge sharing with the overall organization objective and management structure. In absence of such a strategic policy State Corporation and the Government at large may not reap benefits from investment in ICTs and in its effort towards Knowledge Based economy. To the management of State Corporations, this study further recommends institutionalization of Collaborative Knowledge Sharing culture grounded on innovative use virtual workspaces, social communities and online brainstorming to enhance productivity and organizational learning.

5.5   Proposed Areas for Future research

The study recommends increased investment in ICT to facilitate Knowledge sharing. It therefore important to study a model or measure of Knowledge sharing outputs against the ICT use to ascertain how much of ICT investment gives optimal productivity. The study recommends development of an integrated ICT and knowledge sharing policy framework, a study to find out the effect of such a policy framework in overall organizational productivity would be vital. Studying the impact of collaborative knowledge sharing culture on service delivery in State Corporations would help shape this study recommendation's. Studying the role of national ICT policy in public Knowledge management would be critical and necessary if Kenya was to transform to a knowledge based economy.

REFERENCES

African Development Bank (AfDB) Group. (2014). *About Us*. Retrieved from http://www.afdb.org/en/knowledge/economics-research/about-us/

Al-Aama Yousuf, A. (2014). Technology knowledge management (TKM) taxonomy: Using technology to manage knowledge in a Saudi municipality.*VINE: The journal of information and knowledge management systems*,*44*(1), 2-21.

ALA-APA. (2013). *Definition of Public Library*. Retrieved from ala-apa.org/certification/application/definition-of-a-public-library

Ardichvili, A. (2008). Learning and Knowledge Sharing in Virtual Communities of Practice: Motivators, Barriers, and Enablers. *Advances in Developing Human Resources, 10*, 541-554.

Argote, L., & Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms. *Organizational behavior and human decision processes*,*82*(1), 150-169.

Arora, E. (2011). Knowledge management in public sector. *Researchers World*, *2*(1), 165-171.

Aurelie Bechina Arntzen, A., Worasinchai, L., & Ribière, V. M. (2009). An insight into knowledge management practices at Bangkok University. *Journal of Knowledge Management*, *13*(2), 127-144.

Bataweel, A., & Alsuraihi, H. A. (2013). The Active Impact of knowledge sharing in Information Technology within University Environments: An Exploratory Study of KAU.*, International Journal of Advanced Trends in Computer Science and Engineering, 2*(3), 37-42

Bettiol, M., Di Maria, E., & Grandinetti, R. (2012). Codification and creativity: knowledge management strategies in KIBS. *Journal of Knowledge Management,, 16*(4), 550-562.

Bolino, M. C., Turnley, W. H., & Bloodgood, J. M. (2002). Citizenship behavior and the creation of social capital in organizations. *Academy of management review*, *27*(4), 505-522.

Bordoloi, P., & Islam, N. (2012). Knowledge management practices and healthcare delivery: a contingency framework. *Electronic Journal of Knowledge Management,, 10*(2), 110-120.

Brauna, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101.

Bwalya, K. J. (2009). Role Of Reliable Policies In Promoting Research And Knowledge Management: The African Context. *Journal of Knowledge Management Practice, 10*(4).

Chatterjee, D., Grewal, R., & Sambamurthy, V. (2002). Shaping up for e-commerce: institutional enablers of the organizational assimilation of Web technologies. *MIS-Quarterly, 26*(2), 65-89.

Chen, C., & Huang, J. (2009). Strategic human resource practices and innovationperformance – the mediating role of knowledge management capacity. *Journal of Business Research, 62*(1), 104-114.

Cheng, M.-Y., Ho, J. S.-Y., & Lau, P. M. (2009). Knowledge Sharing in Academic Institutions: a Study of Multimedia University Malaysia. *Electronic Journal of Knowledge Management, 7*(3), 313-324.

Cheruiyot, C. K., Jagongo, D. A., & Owino, E. O. (2012). Institutionalization of Knowledge Management in Manufacturing Enterprises in Kenya: A Case of

Selected Enterprises. *International Journal of Business and Social Science, 3*(10), 127-138.

Chua, A. (2002). The influence of social interaction on knowledge creation. *Journal of Intellectual Capital, 3*(4), 375-392.

Cooper, D. R., & Schindler, P. S. (2011). Business Research Methods. 1221 Avenue of the Americas. *New York, NY*, *10020*.

Creswell, J. W. (2003). Research design: *Qualitative, quantitative, and mixed methods approaches*. Sage publications

De Jager, L., Buitendag, A. A., & Van der Walt, J. S. (2012). Presenting a framework for knowledge management within a web-enabled Living Lab. *SA Journal of Information Management*, *14*(1), 13-pages.

DeSanctis, G., & Poole, S. M. (1994). Capturing the Complexity in Advanced Technology Use: Adaptive Structuration Theory. *Organization Science, 5*(2), 121-147.

Ezra, O.-O., & Janet, G. S. (2009). The role of knowledge management in enhancing government service-delivery in Kenya. *South African Journal of Libraries and Information Science, 75*(1), 28-39.

G20 Seoul Summit. (2010). *G-20 Multi Year Action Plan on Development.* Seoul. Retrieved from http://www.seoulsummit.kr/outcomes/index.jsp

Gau, W. B. (2011). A study of tacit knowledge management in the public sector. *Journal of Knowledge Management Practice*, *12*(1), 1-13.

Ghani, S. R. (2009, November). Knowledge Management: Tools and Techniques. *DESIDOC Journal of Library & Information Technology, 29*(6), 33-38.

Gyensare, M. A., & Asare, J. (2012). Enhancing innovation and productivity through knowledge management: The case of unique trust bank in Ghana.*Journal of Knowledge Management practice*, *13*(1), 1-15.

Ho, H. W., & Madden-Hallett, H. (2011). Knowledge Sharing Between Agency and Customers to Strengthen Market Orientation. *Journal of Business Studies Quarterly, 2*(2), 125-138.

Intenational Telcommunications Union. (2014). *Impact of Convergence*. Retrieved from http://www.ictregulationtoolkit.org/6.4.

International Monetary Fund. (2010). *Kenya: Poverty Reduction Strategy Paper*. Retrieved from https://www.imf.org/external/ pubs/ft/scr/2010/cr10224.pdf

International Telcommunications Uninon. (2011). *The Role of ICT in advancing growth in least Developed Countries: Trends, Challenges and Opportunities.* Geneva: International Telecommunication Union.

Jackson, S. E., Chuang, C. H., Harden, E. E., Jiang, Y., & Joseph, J. M. (2006). Toward developing human resource management systems for knowledge-intensive teamwork. *Research in personnel and human resources management*, *25*(6), 27-70.

Jelena, R., Vesna, B. V., & Mojca, I. Š. (2012). The Impact of Knowledge Management on organisational performace. *Economic and Business Review, 14*(2), 147–168.

Kanaan, R., & Gharibeh, A. (2013). The Impact of Knowledge Sharing Enablers on Knowledge Sharing Capability: An Empirical Study on Jordanian Telecommunication Firms. *European Scientific Journal, 9*(22), 237-258.

Kee, K. F., & Thompson-Hayes, M. (2012). Conducting Effective Interviews about Virtual Work: Gathering and Analyzing Data Using. *Virtual work and human interaction research*, 192.

Kenya ICT Authority. (2014). *The Kenya National ICT Master Plan.* Retrieved from www.ict.go.ke/docs/MasterPlan2017.pdf

Kenya National Bureau of statistics. (2013). *Labour*. Retrieved from http://www.knbs.or.ke/index.php?option=com_phocadownload&view=category &download=205:employment_statistics&id=69:labor&Itemid=1136

Kenya Vision 2030. (2014). *Kenya Vision 2030*. Retrieved from http://www.vision2030.go.ke/

Keyes, J. (2012). *Enterprise 2.0: Social Networking Tools to Transform Your Organization.* Nairobi: CRC Press.

Khoda, A., & Moturi, C. A. (2012). Knowledge Management to boost Perfomance of the Kenya's Key Economic Contributor: The Wildlife Conservation Sector. *African Journal of Business and Management, 2*, 174-188.

King, W. R. (2009). *Knowledge management and organizational learning* (pp. 3-13). Springer US.

KNLS. (2014). *Background*. Retrieved from Kenya National Library Service: www.knls.ac.ke

Kothari, C. R. (2008). *Research methodology: Methods and techniques*. New Delhi: New Age International.

KSP. (2012). *Korea and Knowledge Sharing:*. Retrieved from http://www.ksp.go.kr

KSToolkit. (2015). *How-To Guides*. Retrieved from http://www.kstoolkit.org/

Kvale, S. (2007). *Doing interviews.* Thousand Oaks, CA London: Sage Publications Inc.

Lesser, E. L., & Storck, J. (2001). Communities of practice and organizational performance. *IBM systems journal*, *40*(4), 831.

Lin, H. F. (2007). Knowledge sharing and firm innovation capability: an empirical study. *International Journal of manpower*, *28*(3/4), 315-332.

Lindner, F., & Wald, A. (2011). Success factors of knowledge management in temporary organizations. *International Journal of project management*, *29*(7), 877-888.

Malhotra, A., & Majchrzak, A. (2012). How virtual teams use their virtual workspace to coordinate knowledge. *ACM Transactions on Management Information Systems (TMIS)*, *3*(1), 6.

Mannie, A., Van Niekerk, H. J., & Adendorff, C. M. (2013). Significant factors for enabling knowledge sharing between government agencies within South Africa. *SA Journal of Information Management*, *15*(2), 8-pages.

Mansell, R. (2010). The information society and ICT policy: A critique of the mainstream vision and an alternative research framework. *Journal of Information, Communication and Ethics in Society, 8*(1), 22-41.

Mark, W. M., Rene, J. J., & Engelen, J. v. (2006). Rethinking social capital theory: a knowledge management perspective. *Journal of Knowledge Management, 10*(5), 124-136.

Martins, E., & Martins, N. (2011). The role of organisational factors in combating tacit knowledge loss in organisations. *Southern African Business Review, 15*(1), 49-69.

Masa'deh, R., Gharaibeh, A., Maqableh, M., & Karajeh, H. (2013). An empirical study of antecedents and outcomes of knowledge sharing capability in Jordanian telecommunication firms: A structural equation modeling approach. *Life Science Journal*, *10*(4), 2284-2296.

Mayweg, A., Hofer, U., Schnider, P., Agnetti, F., Galley, G., Mattei, P., ... & Boehm, H. J. (2011). ROCK: the Roche medicinal chemistry knowledge application–design, use and impact. *Drug discovery today*, *16*(15), 691-696.

Mohamed, M., Murray, A., & Mohamed, M. (2010). The role of information and communication technology (ICT) in mobilization of sustainable development knowledge: a quantitative evaluation. *Journal of Knowledge Management*, 744 - 758.

Mosoti, Z., & Masheka, B. (2010). Knowledge Management: The Case for Kenya. *The Journal of Language, Technology & Entrepreneurship in Africa, 2*(1), 107-133.

Mu, J., Peng, G., & Love, E. (2008). Interfirm networks, social capital, and knowledge flow. *Journal of knowledge management, 12*(4), 86-100.

Mugenda, A., & Mugenda, O. (2008). *Research methods; quantitative and qualitative approaches.* Nairobi, Kenya: Africa Center for Technology (ACTS).

Ngechu, M. (2006). *Understanding the research process and methods*: *An introduction.* Nairobi, Kenya: University of Nairobi press.

Noor, N. M., & Salim, J. (2011). Factors influencing employee knowledge sharing capabilities in electronic government agencies in Malaysia .*International Journal of Computer Science Issues*, *8*(4).

Noor, N. M., & Salim, J. (2012). The Influence of Theories on Factors Affecting Knowledge Sharing and Its Relationship with Innovation and Organizational Performance. *Knowledge Management International Conference (KMICe)*, 509-514.

Nooshinfard, F., & Nemati-Anaraki, L. (2012). Information Technology as a Medium Ofori-Dwumfuo, G. O., & Kommey, R. E. (2013). Utilization of ICT in knowledge management at the Ghana Volta River Authority. *Current Research Journal of Social Sciences*, *5*(3), 91-102.

Ogara, W. O., Jalang'o, J., & Othieno, O. (2010). Knowledge Management & Institutional Framework: Kenyan Veterinary Services. *Journal of Knowledge Management Practice, 11*(3).

Ogot, M., & Nganga, W. (2012). Anchoring and Weighting Knowledge Economy and Knowledge Indices as Improved Measures of a Country's Readiness for the Knowledge Economy: A Case Study of Kenya. *OIDA International Journal of Sustainable Development, 4*(10), 25-40.

Ogula, P. A. (2005). *Research Methods.* Nairobi: CUEA Publications.

Omieno, K. K., & Wanyembi, G. (2012). Managing Knowledge Sharing: Mutual understanding, Strategic Alignment and Contribution of Corporate Intranets in Knowledge Management in Kenyan Public Universities. *International Journal of Science and Technology , 2*(1), 51-54.

Omona, W., Lubega, J. T., & Weide, T. V. (2012). Enhancing Knowledge Management Using ICT in Higher Education: An Empirical Assessment. *Journal of Knowledge Management Practice, 13*(3).

Orodho, A. J. (2003). *Essentials of Educational and Social Sciences Research Methods.* Nairobi: Masola Publishers.

Palvalin, M., Lönnqvis, A., & Vuolle, M. (2013). Analysing the impacts of ICT on knowledge work productivity. *Journal of Knowledge Management, 17*(4), 545 - 557.

Paulin, D., & Suneson, K. (2012). Knowledge Transfer, Knowledge Sharing and Knowledge Barriers – Three Blurry Terms in KM. *The Electronic Journal of Knowledge Management, 10*(1), 81-91.

Paulus, P. B., & Brown, V. R. (2007). Toward more creative and innovative group idea generation: a cognitive-social-motivational perspective of brainstorming. *Social and Personality Psychology Compass*, *1*(1), 248-265.

Pham, Q. T. (2010, March). Measuring The ICT Maturity Of SMEs. *Journal of Knowledge Management Practice, 11*(1).

Quadri, G. O. (2012). *Impact of ICT skills on the use of e-resources by information professionals: a review of related literature.* Retrieved from http://digitalcommons.unl.edu/libphilprac/762/

Quigley, N., Tesluk, P., & Bartol, K. (2007). Amultilevel investigation of the motivationalmechanisms underlying knowledge sharing and performance. *Organization Science, 18*(1), 71-88.

Remondino, M., & Bresciani, S. (2011). R and D as enterprise strategy: knowledge management drivers and highlights in Nordic countries compared to Italy. *IUP Journal of Knowledge Management,, 9*(3), 7-40.

Sáenz, J., Aramburu, N., & Blanco, C. E. (2012). Knowledge sharing and innovation in Spanish and Colombian high-tech firms. *Journal of Knowledge Management, 16*(6), 919 - 933.

Salisbury, W. D., Chin, W. W., Gopal, A., & Newsted, P. R. (2002). Research report: better theory through measurement -- developing a scale to capture consensus on appropriation. *Information Systems Research, 13*(1), 91-103.

Salokhe, G., & Dejene, L. (2015). *Frequently Asked Questions.* Retrieved from http://www.kstoolkit.org/KSTools

Sandhu, M. S., Jain, K. K., & Ahmad, I. U. (2011). Knowledge sharing among public sector employees: evidence from Malaysia. *International Journal of Public Sector Management, 24*(3), 206–226.

Santos, V. R., Soares, A. L., & Carvalho, J. Á. (2012). Knowledge Sharing Barriers in Complex Research and Development Projects: an Exploratory Study on the Perceptions of Project Managers. *Knowledge and Process Management, 19*(1), 27-38.

Sekaran, U. (2010). *Research Methods for business :A skill Building Approach* (5th ed.). USA: John wiley and Sons Publisher.

Sharma, B. P., & Singh, M. D. (2012). Knowledge sharing barriers: An approach of interpretive structural modeling. *IUP Journal of Knowledge Management*, *10*(3), 35.

Silvi, R., & Cuganesan, S. (2006). Investigating the management of knowledge for competitive advantage: a strategic cost management perspective. *Journal of Intellectual Capital, 7*(3), 309-323.

Sirous, P., Jason, W., & Helen, P. (2012). Social Media and Tacit Knowledge Sharing: Developing a Conceptual Model. *World Academy of Science, Engineering and Technology*, 64, 1095-1102.

Somekh, B., & Cathy, L. (2005). *Research Methods in the Social Sciences.* London: Sage publications Inc.

Sulisworo, D. (2012). Enabling ICT and Knowledge Management to Enhance Competitiveness of Higher Education Institutions. *International Journal of Education, 4*(1), 112-121.

Susana, P. L., Peón, J. M., & Ordás, C. J. (2009). Information Technology as an Enabler of Knowledge Management: An Empirical Analysis. (W. King, Ed.) *Knowledge Management and Organizational Learning*, *4*, 111-129.

The World Bank Group. (2011). *Knowledge for Development (K4D)*. Retrieved from http://web.worldbank.org/wbsite/external/wbi/wbiprograms/kfdlp/0,,menuPK:46 1238~pagePK:64156143~piPK:64154155~theSitePK:461198,00.html

Tomsic, A., & Suthers, D. D. (2006). Discussion tool effects on collaborative learning and social network structure. *Educational Technology and Society, 9*(4), 63-77.

Toro, U., & Joshi, M. J. (2013). A Review of Literature on Knowledge Management using ICT in Higher. *International Journal of Computer Technology and Applications, 4*(1), 62-67.

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly, 36*(1), 157-178.

Walliman, N. (2001). *Your Research Project: A Step-by-Step Guide for the First-time Researcher.* London: Sage Publications Inc.

Wang, S., & Noe, R. (2010). Knowledge sharing: a review and directions for future research. *Human Resource Management Review,, 20*(2), 115-131.

Wheeler, B., & Valacich, J. (1996). Facilitation, GSS, and Training as Sources of Process Restrictiveness and Guidance for Structured Group Decision Making: An Empirical Assessment. *Information Systems Research,, 7*(4), 429-450.

World Bank. (2012). *KEI and KI Indexes (KAM 2012).* Retrieved from http://info.worldbank.org/etools/kam2/KAM_page5.asp

World Bank Group. (2012). *Knowledge Exchange*. Retrieved from http://wbi.worldbank.org/wbi/about/knowledge-exchange

Wu, Y., & Zhu, W. (2012). An integrated theoretical model for determinants of knowledge sharing behaviours. *Kybernetes, 41*(10), 1462 - 1482.

Yates, D., & Paquette, S. (2011). Emergency knowledge management and social media technologies: A case study of the 2010 Haitian earthquake. *International Journal of Information Management, 31*(1), 6-13.

Yulan, K., & MoonJoong, T. (2012). *Introduction to the Knowledge Sharing Program (KSP) of Korea*. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download? doi=10.1.1.357.5057&rep=rep1&type=pdf

Zawiyah, M. Y., & Mohd, B. I. (2009). Is There A Relationship Between Knowledge Sharing Practice And The Quality Of service delivery? *Journal of Knowledge Management Practice, 10*(1).

Zhang, J., Faerman, S. R., & Cresswell, A. M. (2006). The effect of organizational/technological factors and the nature of knowledge on knowledge sharing. In *System Sciences, 2006. HICSS'06. Proceedings of the 39th Annual Hawaii International Conference on* (Vol. 4, pp. 74a-74a). IEEE.

APPENDICES:

<u>Appendix I: Introductory Letter</u>

Patrick Mwangi Nguyo

P.o Box 30573-00100

Nairobi, Kenya

Dear Respondent,

<u>RE: DATA COLLECTION</u>

I am a post graduate student at Jomo Kenyatta University of Agriculture and Technology pursuing Degree of Master of Science in ICT Policy and Regulation. At the moment, I am conducting a Study on **Influence of ICT on Knowledge Sharing in State Corporations** with specific reference to Kenya National Library Service and in partial fulfillment of the requirements for the award of the master's degree.

To achieve this objective, you have been selected to participate in this study. Kindly, take a moment to completely, accurately, and honestly fill this questionnaire. Your response, views and considered feedback will be treated with utmost confidentiality and will be used for research purposes of this study only. Thank you in advance.

Yours Faithfully,

Patrick Mwangi Nguyo

Appendix II: Questionnaire

A guide to the Questionnaire

i.   *This study seeks to investigate the influence of ICT on effective Knowledge Sharing in State Corporations with reference to Kenya National Library Service. Data collected is purely for academic purposes and will be treated with utmost confidentiality.*

ii. *Please do not write your name on this questionnaire. Answer all questions completely and honestly by either filling in your response on the spaces provided or by ticking the option that best represents your opinion.*

Demographic Data

1. What is your gender?

    Male ☐   Female ☐

2. What is your age?

    Below 21yrs ☐   21-30yrs ☐   31-40yrs ☐

    41-50yrs ☐   51-60yrs ☐   Above 60 ☐

3. How long have you worked at KNLS?

    Below 5yrs ☐   5-10yrs ☐   11-15yrs ☐

    16-20yrs ☐   Over20yrs ☐

4. Which of these best explains your behavioral intention for making decision to use ICT in sharing Knowledge?

    i.   The level of ease associated with the use of ICT (Effort expectancy) ☐

    ii.   The level of support provided by ICTs (Facilitating conditions) ☐

    iii. The gains attained through use of ICT (Performance expectancy) ☐

    iv.   The belief by others that you should use ICT (Social influence) ☐

    v.   The level of belief in your ability to use ICTs (self-efficacy) ☐

    vi.   Others please specify _____

5. Please state how often you use the following ICTs to share knowledge

	4-Very Often (Daily)	3-Often (Weekly)	2-Occasionally	1-Never
Online Brainstorming				
Frequently Asked Questions				
How-To Guides				
Collaborative Workspace eg Office 365, MS SharePoint,				
Corporate Emails				
Social Communities (Skype, Facebook, Twitter, WhatsApp)				

ICT Tools

6. How much do you agree with each of the following statements?

	5-Strongly Agree	4-Agree	3-Neither Agree Nor	2-Disagree	1-Strongly Disagree
Facebook, Twitter, Skype, WhatsApp are quick ways to communicate with others within KNLS					
Emails are used in problem solving and decision making in KNLS					
Online Discussion Forums enable global Knowledge Sharing					
Collaborative workspaces accelerate Knowledge Sharing in KNLS					
Web Meetings and web portals are quick knowledge references used to enhance quality of knowledge shared in KNLS					

ICT Infrastructure

7. Please indicate your agreement or disagreement with the following statements

	5-Strongly Agree	4-Agree	3-Neither Agree Nor	2-Disagree	1-Strongly Disagree
Computers Networks are inevitable precondition for effective Knowledge Sharing in KNLS					
Computer Software and Hardware available in KNLS are used to create, store, retrieve, disseminate and apply knowledge					
Internet Connectivity improves knowledge sharing in KNLS					
KNLS should adopt virtual workspaces as convenient ways of remotely sharing knowledge					

ICT Skills

8. How often does KNLS engage in each of the following activities?

	5-Always	4-Most of the time	3-Half of the time	2-Rarely	1-Never
KNLS uses Online Brainstorming as an inexpensive method to gain and disseminate new knowledge					
KNLS maintains online lists of Frequently Asked Questions(FAQ) as a resourceful way of impacting new knowledge					
KNLS depends on Employee's ICT experience in ICT to orient and new employees to Knowledge Sharing					
KNLS uses Online How-to-guides to disseminate specific procedural knowledge to its employees					

ICT Structure

9. To what extent does the following ICT structural aspects affect knowledge sharing in KNLS?

	5-Very great extent	4-Great Extent	3-Moderate extent	2-Low extent	1-Very Low Extent
The level of limits imposed on users by the existing ICT Hardware or Software (Restrictiveness)					
The ability of ICT systems to allow new functions, upgrades, rules, structures and contents of the social community (Level of sophistication)					
The features and functionality available for use by users in ICTs provided by KNLS (Comprehensiveness)					

10. In your opinion how can ICT use in Knowledge sharing be enhanced in State Corporations in Kenya?

_____

_____

_____

_____

_____

_____

Thank you for your time

Appendix III: Interview Schedule Guide

1. How long have you been working with KNLS?
2. Do you prefer computer based or human interactions for sharing knowledge?
3. Do you use MS SharePoint, Discussion Forums, Corporate Emails, Skype, Facebook, Google talks, How-to-guides among other to share knowledge in work place? Which one(s) do you mostly use and why?
4. Do you have LAN, WAN and Internet facilities at your branch? Is infrastructure adequate for effective Knowledge Sharing?
5. Does the staff at your branch have ICT competencies necessary for Knowledge Sharing? Does your organization constantly invest in building such staff competencies?
6. Does ICT impose limitation in your capacity to share knowledge? If yes How?
7. What is your feeling on the adaptability of ICT to knowledge sharing practice?
8. What is your general perception on the influence ICT in Knowledge Sharing?

Thank you very much for your time