ADDIS ABABA UNIVERSITY

COLLAGE OF NATURAL AND COMPUTATIONAL SCIENCE

SCHOOL OF INFORMATION SCIENCE

Impact of Knowledge Management System on Customer Service Employees' Performance: the case of Ethio Telecom

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December 2021
Addis Ababa, Ethiopia

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Thesis Submitted to the School of Information science of Addis Ababa University in Partial Fulfillment of the Requirements for the Degree of Master of Science in Information Science.

By Meklit Mesele

December, 2021

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Declaration

I declare that thesis is my original work and has not been presented for a degree in any other University.

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Statement of certification

This is to certify that MEKLIT MESELE has carried out her research work on the topic entitled "Impact of Knowledge Management System on Customer Service Employees Performance: The case of Ethio telecom" The work is original in nature and is suitable for the award of Master's Degree in Information science.

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Acknowledgements

First and foremost, I would like to convey my deepest gratitude to the Almighty God for giving me the strength and motivation both physical and mental to complete this work and also I would also like to thank my husband for his excellent efforts andguidance.

Secondly, I would like to take this opportunity to express my profound gratitude and deep respect to my advisor Martha Yifiru(PHD) for her patience and excellent efforts via guidance, valuable feedback and constant encouragement throughout the duration of the thesis. Thirdly, I do also acknowledge the members of the call centers of ethio telecom for giving me information during my data collection and the respondents forfilling and returning questionnaires required for the research. I would not have done it without you.

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Acronyms and Abbreviations

KM…… Knowledge Managemen

KMS…… Knowledge Management system

ETC……Ethiopian Tele Communication Corporation

ET……..Ethio Telecom

OKMS……..Organizational Knowledge Management system

KA……..Knowledge Acquisition

KSH……..Knowledge Sharing

KS……..Knowledge Storage

ICT……..Information and Communication Technologies

CEO……..Chief Executive Officer

CKO……..Chief Knowledge Officer

IT……..Information Technology

IMF……..Information MonitoringFund

SPSS……..Statistical Package for Social Sciences

IP……..Innovation Performance

OP……..Operational Performance

QP……..Quality Performance

SEM……..Structural Equation Model

CFA……..Confirmatory Factor Analysis

Abstract

This research aimed to identify the impacts of knowledge management system on employee performance of ethio telecom customer service department, call center employees. The researcher used quantitative research design among the various quantitative methods to explain the relationship variables that is to show the impacts of four independent variables which are knowledge acquisition, knowledge storage, and knowledge sharing and knowledge management system application on three dependent variables which are indicators of employee performance (innovational performance, operational performance and quality performance). Based on the usability of knowledge management system ethio telecom call center employees, working on 994 contact center are randomly selected from two cluster and questionnaire were administered to collect data from 316 sample respondents selected. Structural equation model (SEM) and confirmatory factor analysis (CFA) were conducted to analyze the relationship and impact of KMS on employee performance of ethio telecom. The findings show that three of the independent variables (knowledge acquisition, knowledge sharing and KMS application) had a positive and significant impact on quality performance, that means we can increase our organizations quality performance by giving more attention for knowledge acquisition, knowledge sharing and KMS application, whereas knowledge management system application and knowledge acquisition had insignificant impact on innovational performance, but knowledge acquisition have positive and significant impact on operational performance, so to increase operational performance of an organization we should give more prominence to knowledge acquisition. And but the relationship between knowledge sharing, knowledge storage and KMS application on operational performance is insignificant.

Keywords: Ethio telecom, Knowledge management system, Employees `performance,

Chapter one

Introduction

1.1 Background to the Study

Knowledge has become one of the most highly valued commodities in the modern economy. Further, knowledge is considered the principal tool of competitiveness, innovation and national economic development (Barney, 1995). The fast-growingknowledge-based economy has increased the level of competition among organizations to sustain competitive positions (Muthuveloo, et al., 2017). That is why organizations are increasingly concentrating on employees' knowledge, experience, and expertise (Torabi, et al., 2017). Due to its competitive and economic significance, study and research about knowledge is intensified.

The concept of knowledge-based economy has drawn the attention towards managing knowledge besides being labor and capital intensive. Being knowledgeable provides an edge to work independently and promotes remaining creative (Tajali, et al., 2014). Knowledge management plays a strategic business role in organizations and affects teamwork, human capital and overall effectiveness (Feng, Chen, &Liou, 2005; Marques & Simon, 2006). The knowledge base view states human capital having important role to play in through acquiring knowledge, developing competencies, building up up-to-date technological skills, development of positive attitude and motivation to work for attaining organizational goals (Kianto et al., 2016).

O"Dell&Grayson (2008) describe knowledge management as the process of accurately transferring knowledge to the company staff in a timely manner to assist the staff in taking proper action to improve the continuity of organizational performance. The creation and subsequent management of an environment that encourages knowledge to be created, shared, learnt, enhanced, organized, and utilized for the benefit of the organization and its customers(Abell and Oxbrow, 2014). Wiig (2013, 2015) also emphasizes that, given the importance of knowledge in virtual form in all areas of daily activities and commercial life, two knowledge-related aspects are vital for viability and success at any level. These are knowledge assets andknowledge related processes, where knowledge asset that must be applied, nurtured, preserved, and used to the largest extent possible by both individuals and organizations; and knowledge-related processes is to create, build, compile, organize, transform, transfer, pool, apply, and safeguard knowledge.

KM is used to capture, document, retrieve and reuse knowledge, as well as to create, transfer and exchange it (Dayan and Evans, 2006). There is no limit to where KM can be applied, ranging from individual learning, small enterprises to large multinational corporations: KM has become increasingly more important for individuals to understand what information is essential, how to administer this essential information and how to transform essential information into permanent knowledge (Tseng *et al.*, 2012). KM plays a fundamental role in the success of an organization's activities and strategies (Castrogiovanni, *et al*, 2016). Therefore, managing and using knowledge effectively is vital for both individuals and organizations to take full advantage of the value of knowledge.

According to Leonard-Barton (2015), an organization that gives worth to knowledge as a source of gaining competitive edge than competitors, should build up system that ensure constant learning and an effective way of doing task. In order to systematically manage any company's potential knowledge, we need to develop a system which is knowledge management system (KMS). Knowledge management systems are used to gather, manage, share, and utilize knowledge that has been stored in different databases throughout the organization. The new paradigm is that within the organization knowledge should besharedfor it to grow.Sharing knowledge among staffs grows a company stronger and more competitive (uriarte, 2008). Knowledge management may help in obtaining competitive advantage and improved employee`s performance through innovation (Muthuveloo et al., 2017; Carneiro, 2000).

Ever increasing advancements give rise to the need of managing knowledge for enhanced performance (Ahearne, Jones, Rapp, & Mathieu, 2008) at individual and organizational levels. It is likely that using information technology support workload management (Amabile, Conti, Coon, Lazenby, & Herron, 1996) and ensure employee satisfaction (Kianto, Vanhala, &Heilmann, 2016). The spread and efficient use of knowledge has motivated the organizations to adopt knowledge management system (Cho &Korte, 2014; Tubigi&Alshawi, 2015).

According toBenbya, et al. (2004) KMS provide users with a single point of access to personalized information needed to make informed business decisions. KMS can bring significant benefits to organizations at both the individual and organizational levels.

Telecommunication services play significant role in the all-round political, economic and socialdevelopment of a given country. It is important in a day-to-day life of the society. Theremarkable development in telecommunications technology has made people to communicate instantly across a distance, share information and do business. The availability

and reliability of telecommunications services affect the successes of business and social interaction which started to rely on the service provider (Biratu, 2010). Therefore, among many other business success factors, knowledge management system plays a major role for telecom as well as other sectors.

1.2 Background of study area

Ethiopian Telecommunications Corporation (ETC) was introduced in 1894, seventeen years after the invention of telephone technology in the world. ETC is state owned sole telecommunication service provider in Ethiopia. The Ethiopian government has decided to transform the telecommunication infrastructure and services to world class standard, considering them as a key lever to the development of Ethiopia. Thus, Ethio Telecom (ET) was born out of ETC on December 2, 2011, in order to bring about a paradigm shift in the development of the telecom sector to support the steady growth of our country. Currently Ethio-telecom has 22,288 employees and provides different telecommunication services including fixed service, mobile service, data services and fixed broadband services. According to the website, as of September 2020, ethio telecom has more than 46.6 million mobile service subscribers, more than 980.6 thousand Fixed line subscribers, more than 24.2 million Data and internet subscribers and more than 263.2 thousand Fixed broadband subscribers.https://www.ethiotelecom.et/

According to Trevor Arden and Stephanie Edwards (2009), customer service is a sum of what an organization does to meet customer expectations and produce customer's satisfaction. In order to meet expectations of customer's ethio telecom establish customer service department. Customer service is the provision of service to customers before, during and after a purchase.

One of the types of customer service is call center. A large business will often devote an entire department to taking calls free of charge from customers who have needs or concerns about the business' service or product. The representatives who work at the call center will usually be the first people to hear about the customers' concerns and will either resolve the problem or contact the people who can.

Ethio telecom had a need to establish KMS supported call centers under customer service department to resolve customer problems and improve work efficiency of employees to meet the expectations and produce satisfaction. So, knowledge management system is deployed in

ethio telecom's call centers in 2010 G.C. At present time there are two service sites (Jemo site and Welosefersite) that use the same system.

The home page of customer service KMS consists of the following parts:**Newservices**to show new service, **Update services** that provides the services recently updated, **Recommended service ices** that provides the service recommended to employee`s, **Hot knowledge** to view the top new service, **Daily CTR**to view more CTR ranking information**, Individual hot knowledge** that provides the individual hot knowledge, **Statistics information** to show statistics information, **Weekly CTR** that provides the CTR ranking of services of the week.

Selecting a directory by expanding the tree it displays all the knowledge contained in the directory. The search area allows retrieving desired knowledge by a full search or keyword search.

1.3 Statement of the problem

The primary focus of KMS is to utilize information technology and tools, business processes, best practices, and culture to develop and share knowledge within an organization to have significant impact on organizational performance. So, it is obvious that there is an increasing importance of knowledge-based intangible assets (Marr, 2003) and knowledge management system process (KMS), and many organizations have realized that the creation, transfer, and management of knowledge are critical for success.

However, the dimension of KMSprocess has not received adequate attention (Holsapple& Joshi, 1999). Several organizations are attempting to use KMS to improve their employees' performance by using a KMS process initiative as investment decision, and we, therefore, must have an understanding of its challenges and outcomes.Benbya, etal. (2004) has also mentioned that to give effective and sustainable telecom services, telecommunication service providers are required to possess a high level of understanding of KMS services both internally and externally. Corbitt, et al. (2005) discussed about the factors which affects the implementation and usage of KMS portals to assist knowledge management objectives, like knowledge volume, knowledge quality, knowledge dissemination, and information system management.

Employees` performance is an important issue.Mulate (2014) on his research investigated determinants of employees` performance in ethio telecom within Addis Ababa city by examining the determinant factors of motivation, ability and same bio data variable in ethio telecom six zonal offices.Feyori(2010) on his research titled" factors affecting employees`

performance" indicated the variable that affect the performance of employees are Training, Motivation, Supervision, working environment, organizational culture, and Individual characteristics to do affect the employees` performance at ethio telecom.

Bekan (2019) also studied impact of working environment on employees` performance. From his study good organizational work environment contributes a lot to employees` performance and positive workplace relationship would motivate employees` to work hard and improve their performance.

Unfortunately, to date, none of the studies in the literature have assessed the impact of KMS processes on operation performance, quality performance and innovation performance, which are the three indicators of employee performance, though there have been few studies that looked at the impact of KMS processes on human resource related aspects such as job satisfaction and employee motivation. Moreover, the relatively limited numbers of studies that have investigated KMS processes in the public sector have been largely fragmented, investigating only a sub-set of issues in isolation such as knowledge creation (Purcarea et al., 2013; Akehurst et al., 2011) and knowledge sharing (Xue et al., 2011; Syed-Ikhsan and Rowland, 2004) rather than considering all aspects of KMS process together in a holistic manner. A comprehensive understanding of the relationships between KMS processes and performance would enable practitioners and policymakers to prioritize the implementation of KMS processes in line with performance goals (considering all three performance aspects). Furthermore, it would also enable to identify and make improvements (efficiency and effectiveness of implementation)to those existing KMS processes found to be lagging in delivering the desired performance.

The above gap in the literature formed the motivation of this research, which aims to investigate the impact of KMS on the customer service employees` performance at ethio telecom. The knowledge management system has knowledge acquisition, sharing, and storage and application as components. The employees' performance can be innovation performance, operational performance, and quality performance. Thus, the study will investigate the impact of each of the components of the KMS on the three pillars of employees' performance innovation, quality, and operational performances. The research tries to answer the following research questions.

i. Dose knowledge management system application has impact on employees` performance in ethio telecom?
i. Does knowledge sharing has impact on employees' performance in ethio telecom?
ii. Dose knowledge storage has impact on employees' performance in ethio telecom?

iii. Does knowledge acquisition has impact on employees' performance in ethio telecom?

1.4 Objective of the study

1.4.1 General objective

The general objective of the study is to investigate impact of knowledge management system on ethio telecom customer service employee's performance.

1.4.2 Specific objectives

The specific objectives of the study are: -

- ✓ To review literature so as to gain understanding on topics such as knowledge management system and employees' performance.
- ✓ To identify the impact of Knowledge management system Application on employees` performance.
- ✓ To identify the impact of knowledge acquisition on employees' performance.
- ✓ To identify the impact of knowledge sharing on employees' performance.
- ✓ To identify the impact of knowledge storage on employees' performance.

1.5 Significance of the study

The impact of knowledge management system and employees' performance need investigation for successful handling of customer. The findings of this study enable customer service department especially call center to understand the impact of knowledge management system on employees' performance. In addition, the study and the recommendation will benefit ethio telecom by increasing awareness on the impact of knowledge management system on employees' performance. The study helps as a source document and as a steppingstone for researchers who want to make further study on the area afterwards.

1.6 Scope and limitation of the study

The study on impact of knowledge management system on customer service employee performance of ethio telecom call center services was restricted only on some sampled call center employees from the two call center service sites. The company call center has two categories 994 and 980. 994 used for all types of customers whereas 980 used for enterprise customers categorized as high class based on the amount of revenue generated for ethio telecom. Due to its large number of employees, large number of customer coverage and well categorized population 994 is selected for the study.

Geographically the paper is delimited in Addis Ababa because ethio telecom's call center is centralized and found in Addis Ababa only and this research is mainly concentrated on impact of Knowledge acquisition, knowledge sharing and knowledge storage and kms use variables on key employee performances: innovation, quality, and operational performance due to time and resource constraints. In addition, due to the above constraints the researcher is unable to undertake pilot survey, where questionnaires are distributed to some of the call center employees who will not be included in sample respondents to get their feedback and check whether they have understood the question very well or not before distributing the questionnaire.

Chapter Two

Literature review

2.1 Theoretical Review

In this section, the different theoretical and practical published articles and books related to the study are explored in order to have clear image about the perceived impacts of knowledge management practice in enhancing employee performance at call center

2.1.1 Concept of Knowledge Management

Nowadays, for all types of organizations to achieve competitive advantage and be innovative, knowledge has been recognized as one of the most critical resources (Chen, Huang & Cheng, 2009). Knowledge even can serve as a key strategic resource; become the foundation of organizational competitiveness in the contemporary economy instead of a physical and tangible resource (Wang &Aspinwall, 2005; Chen, Huang & Cheng, 2009). Businesses, which can effectively capture the knowledge, embedded in their organization, and deploy it into their operations, production and services will have a competitive advantage over their competitors.

Knowledge can be referred as information possess in the people's minds or people's experience and understanding (Marwick, 2001; Alavi et al., 2005). It contains information that is ready and can be used in making decisions and actions (Chang & Lin, 2015).

Anand& Walsh (2016) claimed that knowledge contains information, skills, and expertise.

The main purpose to share the knowledge is to make the knowledge visible, to show the role of knowledge in organizations and encourage employees to foster behaviors such as knowledge sharing and build the knowledge infrastructure (Merlo, 2016). Notwithstanding,

knowledge without a proper management can be obsolete and useless (Ansari et al., 2012; Karimi&Javanmard, 2014). Thus, organizations need to implement and apply a series of processes for them to manage their knowledge (OuYang, 2014). Since knowledge are intangible, dynamic, boundary less, context-specific, and difficult to grasp, transfer, imitate and transact (Chen et al., 2009) effective Knowledge Management (KM) is therefore critical and central to succeed. According to Alavi and Leidner (2001) the recent growing interest in knowledge management and knowledge management systems is seen to have been boosted by the transition into the information age and the theories of knowledge as the primary source of performance sources.

Knowledge management is the capability to manage knowledge such as gathering internal or external knowledge of organizations, converting them to new idea or strategy and applying them and protecting those (Gold et al., 2001). Knowledge is personalized information, and knowledge management focuses on bringing individuals to potentially useful information and assisting information assimilation (Alavi&Leidner, 2001).

Lytras et al. (2002) defined knowledge management as a systematic, explicit and application of knowledge that will help the organizations to maximize the organizations' knowledge-related effectiveness and increase returns from the knowledge assets. It also creates new capabilities, encourage innovation and performance as well as increase customer value. Considering this, knowledge management can be defined as a process of capturing, storing, sharing and using knowledge (Leidner et al., 2006; Chang & Lin, 2015).

Knowledge management is the controlling of facts or proven approach, lessons, or best practices learned by employees that can be captured to maximizing the business value of knowledge and benefit the whole organization. Knowledge management is a process of acquiring, generating, accumulating, and using knowledge for the benefit of the organization to enable it to gain a competitive edge for survival, growth, and prosperity in a globalized competitive economy.

Knowledge Management refers to a range of practices and techniques used by organizations to identify, represent, and distribute knowledge, know-how, expertise, intellectual capital, and other forms of knowledge for leverage, reuse and transfer of knowledge and learning across the organization. It suffices crucial issues on organizational adaptation, survival and competence threatened by unpredictable environmental change. (Sunil Kumar, 2013).

Organizations can gain, maintain, and leverage their knowledge resources by turning to knowledge management initiatives and technologies (Kankanhalli et al., 2005; Greiner et al., 2007). Thus, the main goal of knowledge management is to enable the organizations to

beware of their knowledge and shape the knowledge, so that they can effectively and efficiently use of knowledge (Newell et al., 2004; Alavi et al., 2005). According to Liao &Wu (2009) an effective knowledge management through capabilities of development will be an advantage to organizational performance. When the organizations have a better development of capabilities, they can provide marketing offerings to meet customers' needs.

Knowledge management is the set of proactive activities to support an organization in creating, assimilating, disseminating, and applying its knowledge. Knowledge management is a continuous process to understand the organization's knowledge needs, the location of the knowledge, and how to improve the knowledge. Knowledge management involves a strategic commitment to improving the organization's effectiveness, as well as to improving its opportunity enhancement. The goal of knowledge management as a process is to improve the organization's ability to execute its core processes more efficiently. Davenport et al. (1998) describes four broad objectives of knowledge management systems in practice: create knowledge repository, improve knowledge assets, enhance the knowledge environment, and manage knowledge as an asset. The key to knowledge management is capturing intellectual assets for the tangible benefits for the organization. As such, imperative of knowledge management is to:

1. Transform knowledge to add value to the processes and operations of the business
2. Use knowledge to provide a competitive advantage for the business.

The aim of knowledge management is to continuously improve an organization's performance through the improvement and sharing of organizational knowledge throughout the organization i.e., the aim is to ensure the organization has the right knowledge at the right time and place.

According to Damodaran and Olphert (2000), knowledge management systems are information systems that are perceived as facilitating organizational learning by capturing important knowledge and making it available to employees as necessary. Alavi and Leidner (2001) defined KMS as Information Technology based systems developed to support and enhance the organizational processes of knowledge creation, storage/retrieval, transfer, and application. According to Abou-Zeid (2002) there are two different perspectives of KMS and that complement each other, the knowledge perspective, or the process perspective. Those are quite like the two common perceptions of organizational knowledge management systems (OKMS) according to Meso and Smith (2000), the technical perception and the socio-technical perception. KMS create an identity that are associated and loyal to the company in

the same time as it made people in the organization promote trust, social norms, expectations and obligations (Sherif et al., 2006).

For a system to be classified as a KMS, Alavi and Leidner (2001) argue that a chief purpose of the system must be to promote one or more of the four organizational processes (knowledge creation, storage/retrieval, transfer, and/or application). Examples of knowledge management systems can be collaborative systems, group decision systems, data mining tools, expert systems, knowledge repositories, Intranets, electronic bulletin boards, groupware, Lotus Notes, portals, data warehouses, etc. (Alavi&Leidner, 2001). Although there is a diversification of KMS forms, three salient features of KMS are identified: knowledge repositories, knowledge maps, and collaborative tools (Alavi&Leidner, 1999; Bernard, 2006). Knowledge repositories focus on the codification and storage of knowledge to encourage and support reuse of knowledge, and comprise databases that keep best practices, experiences, and other codified knowledge of experts. Knowledge maps, also referred to as expert directories, can be searchable indexes or catalogues of expertise held by individual employees (Gray, 2000), providing a means of finding and contacting individuals who have specialized knowledge and experiences (Alavi&Leidner, 1999). Collaborative tools such as groupware, email, chat, electronic forums, and conferencing, provide communication and collaboration services, enabling knowledge exchange among knowledge seekers and knowledge providers.

Different studies perceived knowledge from different perspective and altering the role of KMS accordingly, for instance if knowledge is considered as the state of knowing and understanding, KM takes part in enhancing the learning and understanding of individuals through information provision and KMS focus is to provide access to sources of knowledge . In contrast, if knowledge considered as an object to be stored and manipulated KM takes part in building and managing knowledge stock and KMS task is gathering, storing and transferring knowledge (Alavi&Leidner, 2001). If knowledge is seen as a process of applying expertise, KM is focused on knowledge flow and the process of creating, sharing and distributing knowledge and KMS is to improve intellectual capital by facilitating development of individual and organizational competency (Alavi&Leidner, 2001).

Hoffman and Thomas (2006) created a model out of hypotheses saying that KMS positively will impact an organization's social capital and that the social capital then will improve the organization's ability in knowledge creation and transfer.

2.1.2 Knowledge Management Processes in Organizations

KM processes are fundamental actions that an organization performs in processing and manipulating its knowledge resources (Holsapple and Joshi, 2000). Some authors have referred to them as KM activities, while others have called them KM tasks or KM processes but regardless of what they are referred to, they conceptually represent the same thing. They make up the central components of the KM framework because they inform the practitioners of the major activities that should be undertaken to operate successfully with their available knowledge resources.

The recognition of knowledge as a key resource for firms in the current business environment confirms the need for processes that facilitate individual and collective knowledge creation, transfer and leverage (McElroy, 2000; Becerra-Fernandez &Sabherwal, 2001; Ipe, 2003). According to McElroy (2000), a second-generation KM implies understanding how knowledge is created and how it is shared and diffused throughout the firm instead of considering knowledge only as a mean to support business operations. Every firm should understand the importance of knowledge and of teaching knowledge skills to their employees and every employee should be encouraged to create, share, search out and use knowledge in their daily routines (Firestone and McElroy, 2003).

Several attempts have been undertaken to identify and define the different KM processes (Gold et al, 2001; Ipe, 2003; Chang Lee et al, 2005; Chen and Huang, 2009; Denford and Chan, 2011). There are several approaches to classifying KM processes. One way of describing KM processes is by dividing them into four key phases, namely, knowledge creation, knowledge capture and storage, knowledge sharing and knowledge application and use (McAdam and Reid, 2000).

2.1.2.1 Knowledge Creation or Knowledge Acquisition:

This process involves gathering and implementation of new knowledge or replacing the current content within the organization's explicit and tacit knowledge. It is the process of extracting, structuring, and organizing knowledge from one source, usually human experts, so it can be used in software such as an expert system. Knowledge acquisition refers to the knowledge that a firm can try to obtain from external sources. External knowledge sources are important, and one should therefore take a holistic view of the value chain (Gamble & Blackwell 2001). Sources include suppliers, competitors, partners/alliances, customers, and external experts. It requires the organizations to search for new knowledge and information, both inside and outside of the organizations (Chen &Edgington, 2005; Carrion et al., 2012).

The organizations can acquire new knowledge through imitation, benchmarking, replication, or outsourcing (Abou-Zeid, 2002). This process has been considered as important role as it generates new knowledge within organization and this can be switched to key success factor and continuous innovation (Bhatt, 2000; Malhotra, 2000). Knowledge can be created, shared and enlarged through collaborative processes within organizations (Norman, 2004; Ajmal&Koskinen, 2008).

After new knowledge is acquired, Knowledge Management mechanisms should be in place to prepare it to be included into the organization's memory in a manner that maximizes its impact and long-term reusability. Knowledge refinement refers to the processes and mechanisms that are used to select, filter, purify and optimize knowledge for inclusion in various storage media (Van Beveren, 2002). The role of top managers is important for acquiring knowledge. (Gold and Malhotra, 2001) underscore that acquiring new knowledge results from organizational members sharing experiences and prior learning. Further, top management plays an important role in defining knowledge structures.

2.1.2.2 Knowledge Storage

Both explicit and tacit knowledge obtained by individuals within organizations should be stored. The organizations should arrange and manage the knowledge thus it can be accessed easier (Massey & Montoya-Weiss, 2006; Heisig, 2009; Ling et al., 2009). When the knowledge is integrated, it helps to reduce the redundancy thus enhance efficiency (Alavi et al., 2005). Nemati (2002) also stated that knowledge storage is not only vital for effectiveness of usage but also vital for reusing the knowledge.

Technologies and tools contribute a lot to the effective codification, storage and archiving of knowledge while also focusing attention on another important aspect in the Knowledge management process such as the quality, quantity, accessibility, and representation of the knowledge being stored.KM must manage organizational knowledge storage and retrieval capabilities and create an environment conducive to learning and knowledge sharing. The knowledge storage stage refers to the organizational memory formation process, in which knowledge is formally stored in physical memory systems and informally retained as values, rules and beliefs that are associated to culture and organizational structure (Alavi&Leidner, 2001; Argote et al., 2003). Walsh &Ungson (1991, p. 61) emphasize the importance of this phase, defining organizational memory as follows: stored information from an organization's history that can be expressed to bear on present decisions, i.e., it is information stored about history of the organization, which are considered in these decisions.

The organization stores knowledge in different ways. Walsh &Ungson (1991) identify five types of knowledge repositories ("bias"). The first is the individuals who compose the organization, which are based on their experiences and direct observations. Culture defines the way of thinking and feeling the problems by individuals. The third repository is the transformation process that occurs through the development, selection, and analysis of new working methods, which are subsequently socialized. Structure stores the set of rules, hierarchies, and attributes that define the functional model of the organization. Finally, ecology helps in the sharing process within the organization.

According to Gholami, Asli, Nazari-Shirkouhi and Noruzy (2013), knowledge storage involves both the soft or hard style recording and retention of both individual and organizational knowledge in a way to be easily retrieved. Knowledge storage utilizes technical systems such as modern informational hardware and software and human processes to identify the knowledge in an organization, then to code and index the knowledge for later retrieval. In other words, organizing and retrieving organizational knowledge means knowledge storage by providing the ability to retrieve and use the information by the individuals (Alavi&Leidner, 2001). Various impersonal bins such as computer and other artifacts are used to store explicit knowledge which can also be retrievable mostly using technologies. These technologies such as shared electronic databases and electronic bulletin boards are widely used examples of such systems in order to collect, store and make explicit knowledge accessible.

Storage bins manifest the multiple repositories or retention bins where knowledge in organizations resides. Although an individual is the most effective means for storage of knowledge, no one member of an organization is likely to be the sole repository of an organization's memory. So, there is a need to have companywide knowledge storage bin where each and every members of the organization should store their knowledge in somewhat articulated and codified form for future use. Such repository of an organizational memory will allow the knowledge user to do some homework before approaching a knowledge contributor for clarification of knowledge that they stored earlier (Cates, 2006).

2.1.2.3 Knowledge sharing

Knowledge sharing processes involve the activities of transferring or disseminating knowledge from one person to another. This happens via formulating a problem and suggesting potential solutions, supplying justifications, or stimulating events to reflect on something. Knowledge sharing is a learning activity; it comes about through observation,

listening and asking questions, sharing ideas, suggesting potential solutions, and adopting patterns of behavior (Boyne, 2002).

This process involves sharing and exchanging knowledge among individuals or network of individuals, a group of people to the organizations and individual to explicit sources (Alavi et al., 2005; Carrion et al., 2016). During the process, the organizations must ensure that the knowledge is transformed from tacit knowledge to explicit knowledge to prevent the loss of tacit knowledge (Ko et al., 2005; Massey & Montoya-Weiss, 2006; Eskerod & Skriver, 2007; Ajmal & Koskinen, 2008; Pirkkalainen & Pawlowski, 2013). It is making the right knowledge or the right knowledge sources (including people) available to the right people at the right time. Knowledge sharing is therefore perhaps the single most important aspect in this process, since the vast majority of KM initiatives depend upon it.

Knowledge sharing depends on the habit and willingness of the knowledge worker to seek out and/or be receptive to these knowledge sources. The right culture, incentives, and so on must therefore be present. Knowledge sharing is the behavior where individuals collectively increase other understanding via the articulation and demonstration of personal knowledge (Li and Zhang, 2010). The process allows individual to learn and assimilate the knowledge for applications in a practical way. Therefore, KS and organizational learning are closely related. The process of thinking, knowing, learning, and sharing have a reciprocity relationship. Besides, people can establish their mutual understandings via knowledge sharing inside an organization. Knowledge sharing among folks often not only improves their capability, but new knowledge is also generated during this process (Yi & Li, 2012). Knowledge sharing is defined as the exchange of knowledge between and among individuals, teams, departments, and organizations (Kuhn and Yockey, 2003).

2.1.2.4 Knowledge Application

This process involves the usage of knowledge in adjusting the strategic direction, solving the problems, making decision, improving the efficiency, and reducing costs (Markus et al., 2002; Orlikowski, 2002). The individual can make use of the knowledge possessed by other individuals without learning that knowledge (Hegazy & Ghorab, 2014).

This is the actual use of the knowledge and is generally measured by its effectiveness and usefulness. According to Zack (1999), knowledge use is associated with the ability of individuals of an organization to locate, access, and use information and knowledge stored in the formal and informal organization memory systems.

Gold et al (2001) do not make a distinction between the process of knowledge application and the process of knowledge storage/retrieval. We are going to consider them separately (Alavi and Leidner, 2001) due to its importance for an effective KM. Thus, we refer to knowledge application as the actual use of knowledge in the firm (Ipe, 2003; Jantunen, 2005). One of the most common ways to use knowledge is to adopt the best practices of a leader firm, to find the relevant knowledge and to apply it (Firestone & McElroy, 2003; Chang Lee et al, 2005). The application of knowledge implies the use of the knowledge generated in the phase of knowledge creation and retained in the phases of transfer and storage/retrieval.

KMS implementation is not only a technological issue, but also involved with organizational culture, structure, process, and human factors (Bertoni, Johansson, Larsson, &Isaksson, 2008; Quaddus&Xu, 2005). Therefore, KMS implementation may be comparatively more difficult, risky, and technologically innovative (Eisenhauer, 2015; Mankin, 2015; Soualhia, Maazoun, &Affes, 2014). Businesses usually invest significant time and resources to implement KM system project (Azhdari, MousaviMadani, & ZareBahramabadi, 2012). Therefore, it is critical to understand and identify the factors impacting on firms 'implementation of KMS.

2.1.3 Components of Knowledge Management

Many organizations have realized that technology based competitive advantages are transient and are sustainable competitive advantages so to remain at the forefront and maintain a competitive edge organization must have a good capacity to retain, develop, organize, and utilize their employee competencies (GroÈnhaug and Nordhaug, 1992).Knowledge management Processes and technology alone are not enough to drive an organization, but its human force (staff) is very integral part in organization's success. Therefore, to manage knowledge effectively, attention must be paid on to four key components: Knowledge, People, Processes and Technology (Desouza 2011). In essence, the focus of KM is to connect people, processes, and technology for the purpose of leveraging knowledge.

2.1.3.1 Knowledge: Knowledge is described as an essential part of KM. Baloh, Desouza, and Paquette (2011) explain that without having knowledge to manage, there would be no knowledge management. Knowledge basically refers to a collection/or a body of information. This could mean that the information is embedded in the form of theories, processes, systems, or it could be voiced in form of opinions, theories, ideas and analysis. Knowledge is a complex concept that attracts many philosophers, researchers of other disciplines, and practitioners. Different typologies have been developed but the only consensus is the notion that knowledge is more than just mere

data and information. Wang and Noe (2010) define knowledge as "information processed by individuals including ideas, facts, expertise, and judgment relevant for individual, team, and organizational performance." Davenport and Prusak (1998) define knowledge as "A fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knower's". Knowledge is the insights, understandings, and practical know-how that people possess. It is the fundamental resource that allows people function intelligently. It can then be stated that knowledge is an invisible or intangible asset, in which its acquisition involves complex cognitive processes of perception, learning, communication, association and reasoning (Epetimehin and Ekundayo, 2011). Davenport, De Long and Beers (1998) define knowledge as information combined with experience, context, interpretation, reflection, and perspective that adds a new level of insight. Allee (1997) says that knowledge becomes meaningful when it is seen in the larger context of culture, which evolves out of beliefs and philosophy. Sveiby (1997) describes knowledge as the capacity to act on information and thereby make it valuable, therefore knowledge can be said to be ineffectual if not used. In organizations, knowledge becomes embedded not only in documents or repositories, but also in organizational routines, processes, practices, norms, and cultures.

2.1.3.2 People: People are the sources of knowledge. The ability of humans to think creatively and uniquely, coupled with experiences and talents, make humans valuable sources of knowledge. People are the creators and consumers of knowledge because individuals consume knowledge from various sources daily, in addition to creating knowledge. In essence, KM begins, revolves around, and ends, with people. It is therefore pertinent to consider people in KM strategy and implementation. People face emergent knowledge needs as part of daily assignment or routine. And these needs should be met through tools, processes, systems, and protocols to seek integrate and apply relevant knowledge. As Drucker (1999) points out, workers (people) need to be able to seek out knowledge, experiment with it, learn from it, and even teach others as they innovate so as to promote new knowledge creation. Having a KM program that enables the sense of the importance of people is a very important to organizational success.

2.1.3.3 Process: Baloh et al. (2011) define processes, as mechanical and logical artifacts that guide how work is conducted in organizations. Processes govern work in organization and so are critical to the functioning of organization. It is therefore pertinent for a KM program to recognize their importance. Processes might be made of, and executed by, humans, machines, or a combination of the two. A critical requirement for KM is to be able to understand work processes and how to map them. By so doing, inputs, outputs, personnel, resources, and work being conducted in a given process can be easily described. Mapping of processes helps to depict what is really going on in the organization and how tasks are being accomplished. Knowledge needed to accomplish tasks can then be articulated and requisite technology or human intervention can be deployed to meet these needs with the goal of increasing effectiveness and efficiency in the organization.

2.1.3.4 Technology: Technology is a critical enabler and foundational element of a KM plan. With the advances in Information and Communication Technologies (ICTs), KM can be attained through technological solutions. ICTs facilitate collaboration between people and teams which are geographically dispersed. ICTs also facilitate KM activities through the codification of knowledge as well as rich and interactive forms of communication through the Internet. While technology is important and can significantly enable KM, it is pertinent to state that it is not a solution in and of itself. Technology does not make organization share knowledge, but if people want to share it, technology can increase the reach and scope of such exchanges. Putting an ICT-based KM system in place is not in and of itself going to make people utilize it, but the success of KM initiatives involves taking account of the socio-cultural factors which inhibit people's willingness to share knowledge, such as conflict, trust, time or concerns about loss of power/status (Sun and Scott, 2005).

2.1.4 Enablers of Knowledge Management

Many researchers have invested efforts into investigating the factors affecting implementation of KMS of firms. However, their proposed factors are slightly different from each other such as: strategic relevance of IT, installed user-centric technologies, and the levels of IT investment (Ryan & Prybutoka, 2001); technological factors including relative advantage, complexity, and compatibility, organizational factors including management support, company structure, and corporate culture, environmental factors including competitors‟ pressure and requirements from business partners (He & Wei, 2004);

organizational IT competence, KMS compatibility, KMS complexity, KMS relative advantage, lack of cross-department interaction, the opinion and behavior of top management, and the “Guanxi” and “Renqing” culture (Lee et al., 2009).

The success of KM implementation will not take place without the collective work of various enablers in the organizations. (Per Yang et al., 2006), KM enabler refers to the key factors that determine the effectiveness of executing KM within the organization. KM enablers among others include the extent that the management believes in KM effects, IT used, HR management and the culture of the organization (Al-Mabrouk, 2006). In fact, any KM system will include these variables to make knowledge related organizational functions practical. To ensure the success of KM implementation, it is crucial to acquire the key enablers. To make it possible for effectively utilizing an organization‘s limited resources, reduce the use of work force, material, time and still be able to achieve the expected results.

For effective KM to take place, organizations should create conducive KM environment. In addition, organizations are required to improve the organizational culture that enhance collaborative teamwork culture; network and virtual organization; learning, research and discovery culture.

2.1.4.1 Organizational enablers

The first phase of implementing KM is working to gain the support of the senior managers and to reach a common understanding about the concept of KM. An organizational structure reflects the organization‘s policy in discussing with its employees and in absorbing new ideas and experience within and outside its capacity (Alrawi and Elkhatib, 2009). Organizations have to maintain a balance between intrinsic and explicit rewards to encourage employees ‘behavior of knowledge system (KS). The most effective use of explicit rewards has been to encourage sharing at the onset of a KM initiative (Hasanali, 2002). Adequate training in KM implementation enabled by adequate technology and people who knows how to use it. Financial support, human resources and time are significant resources for successful KM adoption. Financial support is undoubtedly required if an investment in technological capabilities is made. Human resources are required to coordinate and manage the adoption of KM process, as well as to take up knowledge related roles (Al-Mabrouk, 2006).

2.1.4.2 Organizational Culture

Culture is important for facilitating sharing, learning, and knowledge creation. In general, culture highly values knowledge, encourages its creation, sharing, application, and promotes open climate for free flow of ideas. According to (Yeh, 2006), organizational culture is the combination of value, core belief; norms, behavioral model, and symbol. Organizational culture is the important part in forming a culture of knowledge sharing held by organizational members that distinguishes one organization from another (Schein, 2004). This system of shared meaning allows members to understand the context and underlying meaning of the knowledge being shared. Organizational culture also serves as a sense-making and control mechanism that guides and shapes the attitudes and behaviors of employees (Robbins, 2000). In other words, organizational culture will determine, to a large extent, how members interact with one another. For example, a culture that is open and encourages discussion will promote communication and knowledge sharing, whereas an organizational culture that fuels suspicion and power struggle will greatly inhibit the free sharing and exchange of knowledge, which is a source of power, among organizational members. (Von Krogh et al., 2000) propose that a culture of care, where organizational members are mutually interested in the progress and well-being of one another, is necessary for active knowledge sharing. It might need to be supplement by IT. Thus, management should promote the corporate attitude that focuses on co-operation and KS across the organization.

In generally, an appropriate culture that supports knowledge management practice is characterized by trust, collaboration, learning and incentives/rewards (Dunk and Jeng, 2013 and Nejatian et al., 2013).

Trust: can be defined as positive expectations of the behavior and intentions of other persons, based on an evaluation of their attributes including integrity, ability and benevolence. (Dovey, 2009) argued in turn that “trust is indispensable to the creation of a social environment in which ideas are freely generated, honestly assessed and selected and collectively transformed into profitable new products and services”. So trustful relationships are drivers for knowledge management practice to enhance service delivery in ethio telecom Company.

Collaboration: refers to “the degree to which people in a group actively help one another in their work” (Lee and Choi, 2003). It allows individuals to access to diverse sources of knowledge and highly correlated to collaboration among different organization members.

(Nejatian et al., 2013) noted that knowledge exchange "can be fostered by collaborative interactions to reduce fear and increase openness to other members".

Learning: It's the driver of knowledge management practice which defined as the "degree of opportunity, variety, satisfaction and encouragement for learning and development in organization" (Lee and Choi, 2003). Managers must encourage employees to learn by supporting training, constant questioning and collaborative problem solving and reflections. (Lopez et al., 2004) claimed that "knowledge management and learning go hand in hand". (Lee and Choi 2003) stated that "For successful knowledge creation, organizations should develop a deeply ingrained learning culture"

Incentives/rewards: Individuals are not always able to express what they know. Furthermore, they may not want to share their knowledge because they may feel deprived of some power by revealing it. Hence, managers should motivate them to share their knowledge. They can establish motivational drivers such as incentives and rewards in order to valorize employee's efforts. Menon and Pfeffer (2003) suggested that an employee, who is not rewarded, may refuse to share knowledge inside the organization. Incentives such as recognition, promotion, and monetary rewards, help companies in building a collaborative culture (Wang and Noe, 2010) and "in aligning the interests of employees and organizations" (Scekic et al., 2013).

2.1.4.3 Leadership

leaderships 'the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives' (Yukl, 2005, p. 8). By this definition, we can see that leadership is an organizational driver, arguably the most important one, which defines first the vision and values that organizations seek, and second how organizational members go about realizing these. As knowledge is created in the pursuit of organizational goals, leadership will determine what kind of knowledge is sought and created by members. To manage human capital, companies need a manager who can connect employees around a common goal particularly in order to boost Knowledge management practice. Managers must adopt the best leadership style that motivates and empowers knowledge workers. The role of leadership was identified by Nonaka et al. (2000) who stated that leaders "provide the knowledge vision, develop and promote sharing of knowledge assets, create, energize, enable and promote the continuous spiral of knowledge creation". Moreover, Nonaka and Toyama (2005) emphasized the role of leadership in implementing a mindset of sharing, communication and trust that enhance Knowledge management practice. So, leaders are responsible on how the companies should approach and deal with knowledge management

processes as well as practices. Leadership should create a climate that encourages the distribution of knowledge, so that people feel safe to contribute in every way, and the contributions are recognized by them. In addition, they should have the will to share and offer their knowledge to others in the organization, to learn constantly, and to seek new ideas and knowledge (Storey and Barnett, 2000). So, knowledge management practice depends on human resources.

2.1.4.4 KM Strategy

Zack (1999) defined knowledge strategy as the approaches an organization employs so as to bring into line its knowledge resources and capabilities to the rational requirements of its strategy. More simply, knowledge management strategy is the process of generating, codifying, and transferring explicit and tacit knowledge within an organization, getting the right information, to the right person, in the right place and at the right time. Knowledge strategy determines the needs, means, and the activities for the objective's accomplishment.

The effective knowledge management begins with a proper strategy. There is a crucial matter that affects the successful implementation of knowledge management, and that is how companies can better evaluate and select a favorable knowledge management strategy. The selection of knowledge management strategy, which is a strategic issue, comprises subjective and qualitative judgment (Wu, 2008).

2.1.4.5 IT Supports

Is the degree to which IT support for collative work, communication, searching, accessing, simulation and prediction, and systematic storing use" (Lee and Choi, 2003)? It is a powerful enabler of knowledge management success. IT makes available for organizations a range of tools such as Internet, Intranet, groupware, workflow, data mining, videoconferences which help them in managing knowledge. It permits to "connect people with reusable codified knowledge, as well as a conduit between newly created knowledge" (Dunk and Jeng, 2013). These technologies have a "catalytic effect on the development and systematization of knowledge management practices" (Mallet et al., 2006).IT has a vital factor to support the process of storing and distributing knowledge for sharing among employees. Technology provides tools and techniques to capture, create structure, communicate, and effectively exploit knowledge. The main role of technology is an enabling and facilitating interaction among people for the purpose of KS (Handzic et al., 2004). When we say technology, it includes e-mail, bulletin boards, chat rooms and whiteboards, audio and videoconferencing. It also covers various specialized groupware applications: Customer Relationship Management,

data mining, integrated portals, e-learning, intranets and extranets (Handzic et al., 2004 and Malhotra, 2005). Lopez et al. (2009) provided evidence for the effect of the IT infrastructure on knowledge generation, transfer, codification, and storage.

2.1.4.6 People

People are actors and the persons that carry out work within an organization. People create and share knowledge, and for this reason managing the persons who have the intension to create and share their knowledge is considered very important. Since, people are the exclusive creators of knowledge, managing knowledge is managing people, and managing people is managing knowledge (Davenport and Volpel, 2001).

Knowledge is hold by individuals and the process of transferring this hidden knowledge to other members within an organization is very important. In other words, to share, use, and convert individual knowledge into organizational knowledge is a crucial procedure of outmost importance. Thus, a key enabler for an organization to meet success is to support people communicate and share knowledge with others. So, people are a significant part of knowledge management and of organization because they are the source of creativeness. Many successful companies prepare to invest in their employees to enhance their visions, capabilities, and experiences for the universal working environment (Bozbura, 2007).

2.1.5 Knowledge Management Leadership

Leadership is an interaction between the leader and the team. Knowledge Management requires to invest that relationship to a deeper level of motivation (Trompenaars& Hampden-Turner, 2004). To effectively understand how to lead learning organizations the leader must understand what Garvin (1993) calls the three M's "management, meaning, and measurement". Cummings et al argued that "Leaders are idea brokers that enable the exchange of ideas to benefit their organization" (Cummings et al., 2004). This exchange of ideas is part of meaning and measurement, the ability to procure new knowledge and then integrate that into the framework of the organization. The overall mission of a leader in the world of KM is to learn how to guide the internal marketplace within their organization. By doing this, the leader creates an organization that is a learning team dedicated to meaning, management, and measurement within KM.

Ortenblad (2002) suggests that there are two basic perspectives (i) a futuristic perspective which conceptualizes individuals as agents of learning for the organization; the organization provides a positive learning culture and atmosphere for the individual, (ii) an interpretive perspective which is considered as a dominant paradigm. Reality is seen as a subjective

phenomenon; knowledge is viewed as context dependent; learning is a social practice, taking place between individuals; knowledge cannot be stored because it is determined by the situation.

To understand the meaning, management and measurement of learning organizations is a difficult task. The interpretive perspective places this task into the shifting sands of relativism and contextualization. Relativism makes measurement almost impossible because the norms are in constant flux. If the situation or context is the determining factor for knowledge, then learning is not based on the foundation of truth but on the environment. The implications of such a perspective are widespread including business ethics and cultural morality. The bandwagon of this popular paradigm should not be jumped upon too quickly.

One of the essential duties for leadership is the success of selecting a Chief Knowledge Officer (CKO) to fulfill the duties of knowledge management in the organization. The CKO is the organization's expert on knowledge management and integration. According to (Bontis, 2002). Therefore, leadership should find candidates for CKO who are enthusiastic, idealist, creative, resourceful. As a leadership skill, knowledge is inextricably related to the application and implementation of problem-solving skills in organizations, knowledge impacts a leader's ability to determine complex organizational problems and to develop a solution. Knowledge refers to the accumulation of information and the mental structures used to organize that information (Northouse, 2004). Once a leader formulates information into knowledge, individuals are more inclined to follow based the leader’s expertise. Greenberg and Baron (2003) contend that information power has become a lesser power due to technology and the availability of information to more people than ever before. Kluge et al. (2001) state that knowledge management presents unique leadership challenges. From a leadership perspective, knowledge management has been viewed more like a craft and less like a science. Because of the very nature of knowledge, it is difficult for managers to predict what measures can really improve performance, and how to encourage and guide knowledge flows within an organization" (Kluge et al. 2001). Rosenburg (2004) suggests that if the senior leadership of an organization is not able to adopt and embrace a KM program, it is far more likely to fail than to succeed.

Bolt and Brassard (2004) identified characteristics of effective CEOs that support their learning and knowledge management as "a desire to learn, an open and curious mind, show humility- willing to learn from their mistakes, make learning public, and tolerate risk. Successful organizations must harness all its potential and knowledge. Therefore, Goldsmith,

et al. (2004) suggested "Nothing is more important to the success of knowledge management initiative than the support of leaders and the visibility of KM role models. Generally speaking, the higher up in the organization these role models are the better". Goldsmith et al. (2004) contend that the sheer concept of knowledge management is fundamentally flawed it involves neither knowledge nor management and therefore cannot be expected to succeed. Instead, he suggests begin to focus on helping organizations truly share the intellectual capital their workers possess Gold smith et al., (2004).

2.1.6 Knowledge Management in Telecommunications Industry

Knowledge management is critical to all kinds of industry, which can help the organizations to consider how to capture the knowledge in the organization. Particularly for telecommunications industry in which its operation relays on hundreds of or thousands of knowledge workers all over the world, it is important for them to communicate and share their knowledge. Therefore, telecom companies nowadays are willing to make investments to capture as much knowledge as possible from different sources. Many large telecommunications service provides start to create a senior-level management position to ensure that KM activities operate effectively. According to Strouse (2001), large telecom companies such as British Telecom, AT&T, and Deutsche Telekom have created chief knowledge officer positions, it shows the fact that the telecommunications industry believe that intellectual assets have value. Strouse (2001) has also stated several components that are important to an effective KM system in telecommunications industry.

1. IT supports needs to be adequate in both scale and communications response time.
2. Database should include user-friendly search capabilities.
3. Tools in the search engine need to pinpoint the proper information when requested.
4. Processes need to support the facilitation of information retrieval and must be in place to assist in the creation of new information.
5. System performance metrics should be maintained in order to help to determine the criteria for new data to enter the system.
6. Type of data to be available must pass tests defined in the design phase, it should be limited to information that will increase the performance of employees or improve the customer's experience.

7. Effective incentives and supportive core values should be encouraged to the most expert employees to share their knowledge.

2.1.7 Importance's of Knowledge Management in the Telecom Sector

Telecommunications has taken up a long development history in world's economy. Commonly it is directly responsible for the growth of the service sector in the community. With state-of-the-art IT infrastructure and excellence world network built, telecommunication industry demonstrates its true worth to the Ethiopian society. There are some benefits of knowledge management in telecom sector; manage relationships with key customers, build up as valuable organization assets, keep along as good practice captured and serve as important business intelligence. Dewe and Wright (2007) and ErikaT. Rodell (2020) pointed out managing knowledge in a telecom has the following benefits; More informed decision making, avoiding wasteful duplication of resources, avoiding loss of commercial opportunity and loss of knowledge when staff exits. Also, increasing accessibility to the organizations recorded internal knowledge, improving information literacy of researchers, learners and administrators, increasing the discovery, transmission and use of recorded knowledge, and increasing the dissemination of new knowledge within the organization.

Pandya (2003) also described the importance of Knowledge management as:

- Knowledge management creates the opportunity for employees to develop their skills, performance and experience through group work and knowledge sharing.
- Knowledge management improves organizational performance by means of better quality, creativity, productivity and efficiency.
- Knowledge management increases the financial worth of an organization.
- Knowledge sharing creates value in an organization and strategically enables a competitive advantage.
- Knowledge management has mostly been associated with profit-making corporations which maybe a major reason for the organizational culture that predominates in the telecom sector.

2.1.8 Knowledge Management and Employee Performance

Employees are basic component of business that defines the interaction between organization and its customers and partners such as suppliers and clients, where the organization provides a product, whether that is information or a task, and the client either finds value or loses value as a result**.** Gunjal (2019) emphasizes the importance of sharing information and data within the organization to enhance the capability of running a business efficiently and effectively.

Promoting integration and collaboration approach in the overall organization department, lead to creating the enterprise's knowledge assets. These assets could intend to develop a knowledge management system that works on providing enterprises with machines and tools to restructure and manage knowledge. This system should identify components to enhance enterprises utilizes such as organizational learning and total quality management, which lead to creating sustainable competitive advantages (Gunjal, 2019).

The result of the investigation on the relationship between knowledge management and employee's performance has been positive in most literature. This positivity appeared in how four phases of the knowledge management process which are knowledge creation, knowledge capture and storage, knowledge sharing and knowledge applications correlated with the three essential pillars of performance which are innovation, quality of service delivery and operational efficiency of services (Ahbabi, Singh, Balasubramanian, & Gaur, 2019). It's strongly believed that organizations' survival and success depend on sharing skills, knowledge and experiences within employees and transform them into ideas of innovations (Soto-Acosta, Popa, & Palacios-Marqués, 2016).

In other words, helping employees in creating new knowledge and motivate them with learning abilities will promote the culture of creativity and innovation in the organization which influence on employees' attitude, behavior, skills and performance (Jyoti& Rani, 2017). Knowledge management infrastructure is a critical element in the knowledge management process. This result appeared when examining the positive relation of knowledge management infrastructure (Organizational Culture, IT Infrastructure, and Organizational Structure) on knowledge Management Process, and how knowledge management process significantly related to employees' performance (Aalmajali& Al-lozi, 2019). Abualoush, Masa'deh, Bataineh&Alrowwad(2018) conclude that knowledge management infrastructure contains two main factors: technical infrastructure factor and social infrastructure factor. Where technical infrastructure includes information technology infrastructures (software), tools, and hardware, on another hand, social infrastructure includes organizational culture, organization command structure and human resources. Another critical element in the knowledge management process is a performance management system that working on tracking the implementation of organizational strategic objectives by evaluating individual performance (Sales, 2019).

Employee performance is farther enhanced with the support of appropriate knowledge management technology utilization. Every knowledge management system achievement

marks a significant milestone in the relationship between employee performance and ICT. Tabatabaei, Omran, Hashemi, &Sedaghat (2017) gave emphasis on ICT as the main source for sustainable employee performance by facilitating knowledge exposure, skills gaining and sharing experiences which enhance the competitive advantages of the organization. Also, maintaining recruitment and selection, performance appraisal and workforce planning (Glaister, Karacay, Demirbag&Tatoglu, 2018). Ayesha &Yadav (2019) explain KMS as a combination of computer programs, software tools, databases, and hardware to record, store and analyze data necessary for the Human Resource (HR) applications. Organization portal considered as an interface which consist of Employee Portals, Enterprise Intranet Portals, Corporate Portals and Business-to-Employee Portals. These portals are serving different purposes like knowledge access, e-learning, online employees' communities.

2.1.9 Employee performance measurements

Performance benefits/improvement of KMS processes is critical to justify investment in KMS processes. However, for firms to assess the performance improvement from KMS processes' implementation, they first need to devise and take operational performance measures. Performance measures allow firms to see evaluate and report performance, identify problems and bottlenecks, set new objectives and targets, determine future courses of action and facilitate internal and external benchmarking (Gunasekaran et al., 2004).

Bond (1999) stated that performance measurement would indicate whether a company should continue with its current strategy or make adjustments. The precise measurement of benefits and progress regarding KMS implementation is of the utmost importance for an organization to ensure that the overall objectives of the KMS exercise are being fulfilled. Many organizations are embracing KMS processes, but few of them are able to implement them successfully to see the benefits. The three traditional pillars are innovation, quality of service delivery and operational efficiency of services (Cong and Pandya, 2003).

Innovation performance: - Innovation can be defined as a process that directly connects new ideas to the development of a newly introduced product, process or service (Aboelmaged, 2012). Similarly, West (2002) defines innovation as new or improved methods of producing, creating and providing services, as well as improving ways in which to work more productively. More specifically, innovation in the public sector can be defined as the "the introduction of new elements in the form of new knowledge, a new organization, and/or new management or procedural skills, which represents discontinuity with the past" (De Vries et al., 2015). This definition also implies that innovation is not merely about generating

new ideas, but that such skills also should be exercised into practice. Evidence from the literature illustrates the importance of KMS in bolstering a firm's innovative capabilities (Chang and Lee, 2007; Tseng et al., 2011). For instance, Cantner et al. (2011) have investigated innovative companies and identified that KMS is a critical factor contributing to their success. Innovation in terms of service and delivery includes the creation of new public services or changes to existing services (Windrum, 2008). Conceptual innovation includes the introduction of new concepts, frames of reference and new paradigms that help to reframe the nature of specific problems and their possible solutions (Bekkers et al., 2011).

Quality performance: -Quality in this context is defined as "an essential property of products (goods and services) in which high-quality products are those that meet customer needs, do not fail during use, and pose no threat to human well-being" (Juran, 2004). Quality management, however, involves an integrated approach to achieving and sustaining high-quality output, focusing on the maintenance and continuous improvement of processes and the prevention of defects at all levels and for all functions of the organization, to meet or exceed customer expectations. (Flynn et al., 1994). It is important to note, though, that knowledge is an integral part of the quality management process for a firm to achieve continuous improvement and performance excellence. Cong and Pandya (2003) have emphasized how KMS is important for public sector to improve their quality of delivery and decision-making. Understanding the relationship between KMS and quality performance has been said to be vital for the public sector (Akdere, 2009). SERVQUAL, a multi-item scale for measuring service quality, is now widely used in the public sector (Parasuraman et al.,1988).

Operational performance: -While various measures comprise operational performance, a review of studies conducted by international bodies, such as the IMF (2008), and others such as Curristine (2007) and Goelet al. (2010) have shown that operational performance is mainly aimed at reducing costs and improving both the timeliness of service delivery and productivity. Cong and Pandya (2003) have pointed out that KMS increases efficiency and productivity, and according to Curristine (2007), the firms must also strive to reduce the service delivery cycle time.

2.2 Empirical Literature Review

The study of Shewanawel (2015) Usability of Knowledge Management Portals at ethio telecom

On his study the "Usability of Knowledge Management portals" he mentioned the following problem. Knowledge management portal has lacks of awareness, inconsistent content

management, domain specific natures and some other related cases that hindered the proper usability of ethio telecom knowledge management portals. After identifying such problem, Shewanawel set an objective to assess the extent of usability of knowledge management portal at ethio telecom.Shewanawel used quantitative research method with descriptive type of survey to study usability of knowledge management portal at ethio telecom. From his finding terminology used, attractiveness of the portal interface, hyperlinks and user friendliness are satisfactory level but there is lack of knowledge sharing and no prior attention for having knowledge management strategy.

The study of Bekan (2019) the impact of working environment on employee`s performance.

The study aimed to investigates the effect of working environment on employee performance in the Etho-Telecom in Ambo branch. The target population was all the employees at Ambo Etho-Telecom. The total number was 102 and the study included all the Employees by using census study. Descriptive research design was adopted for the study. The study used primary data which was collected by use of semi structured and structured questionnaire. The findings of the study concluded that work environmental factors that influenced employee performance were organizational work environment factors, workplace relationship and organization cultural factors. The study found out that employees' performance was positively influenced by several work environment factors such as organizational work environment, workplace relationship and organization cultural.

The study of Feyori (2010) Factors affecting employees` performance in Ethio-Telecom in case of Addis Ababa zonal offices.

The study aimed to examine the factors affecting employee performance in ethio telecom zonal offices in Addis Ababa city. It considered all Ethio-Telecom Addis Ababa Zonal offices (6 Zonal Offices) by adopting concurrent quantitative research design. Using the quantitative method, the population of this study was 2377 and the sample size was 342 respondents with N=276. The respondents were selected using stratified sampling technique. The data analysis was on descriptive and inferential statistics and further by use of regression model run on Statistical Package for Social Sciences (SPSS) version 20. The primary data gathered in the form of questionnaires with a Likert typed-scale were then analyzed using the multiple regression method. The study found that there was a direct and positive relationship

of all variables on Employee Performance. While Motivation and Working Environment which have a significant effect on the Affecting Employee Performance in Ethio-Telecom.

The study of Mulate (2014) Determinant factors affecting employees' performance in Ethio telecom zonal offices; the case of Addis Ababa Zonal offices.

The purpose of the study is to explain the determinants of employees' performance in Ethio telecom within Addis Ababa city by examining the determinant factors of motivation, ability and some bio data variables in Ethio telecom six Zonal offices. Quantitative research approach was used through primary data collected from 140 respondents, individual performance, an ordered categorical variable, was regressed on motivation, ability, and certain bio data variables. The respondent was selected using stratified sampling technique.

The study found that ability has no significant effect on employees' performance. On the other hand, motivation positively determines performance until some stage of experience, beyond which performance declines with experience. Performance increases with age until some point and beyond that point performance declines with an increasing age. Training also significantly determines the performance of employees'. the researcher concludes further research is required into the dynamic nature of employees' performance.

In this study, knowledge management processes in organization refer to the collective name for knowledge acquisition, knowledge sharing, and knowledge storing and knowledge application/usage. They are deliberately taken together to show their combination and individual contribution to the influence of knowledge management processes to enhancing employees` performance in call center with social economic workforce diversity of employees. It is sufficient at this point to propose that the knowledge acquisition, knowledge sharing, knowledge storage and knowledge transfer will significantly predict knowledge management processes success among workforce diversity of employees' influencing of enhancing employees`` performance in call center section of ethio telecom.

On the above empirical review of local studies, it is revealed that there are different variables impacting employee performance; the main factor that has impact on employee performance according to the above studies are Motivation, Training, Organizational Culture, working Environment, meanwhile investigated ethio telecom's readiness to KMS strategy. But this research shows how knowledge management system impact employees' performance which is different from traditional employee performance improvers which are more of human resource development than information technology practices.

The study of Singh et al. (2018), Employee perception of impact of knowledge management processes on public sector performance.

The aim of the study is to analyze and understand the relationship between knowledge management process and public sector firm performance in terms of operational, quality and innovational performance. It was applied to 12 public sector entities across the UAE. The data was collected through the preparation of a questionnaire and give to 318 sample respondent. A survey-based research methodology is used to validate the proposed KM frame work and testing the hypothesis. The finding of the study shows that all four KM processes (knowledge creation, knowledge capture and storage, knowledge sharing and knowledge application and use) had a positive and significant impact on operational, quality and innovation performance of public sector in the UAE.

The study of Jaradat,et al. (2019).The impact of knowledge management on the performance of commercial banks` employees in Jordan.

The aim of the study is to examine the impact of knowledge management on the performance of commercial banks' employees in Jordan, the sample of the study consisted of 150 employees from 12 commercial banks located at Irbid Governorate of Jordan, a set of questionnaire was distributed to conduct this study. The researchers used descriptive statistics to analyze the data by using Statistical Package for the Social Sciences (SPSS). Researchers used Simple regression test to the hypotheses to achieve the objective of the study. The study found that there is significant impact of knowledge management on functional performance of employees of commercial banks.

Researcher	Gap	objective	method	Finding	different
Shewanawel (2015)	Knowledge management portal has lacks of awareness, inconsistent content management, domain specific natures	Assess the extent of usability of knowledge management portal at ethio telecom.	quantitative research method with descriptive type of survey	attractiveness of the portal interface, hyperlinks and user friendliness are satisfactory level and lack of knowledge sharing	Only study the usability of KMS
Bekan(2019)	the working environment also includes	investigates the effect of working	Descriptive research design was	employees' performance was positively	investigate performance of employees related

	work condition, job aid, policies, rules, culture, resources, working relationships, work location, internal and external environmental factors, all of which influence the Ways that employee perform their job functions.	environment on employee performance in the Etho-Telecom in Ambo branch	adopted for the study	influenced by several work environment factors such as organizational work environment, workplace Relationship and organization cultural.	to working environment
Feyori(2010)	motivates the researcher to conduct the study was revenue of Telecommunication industry in Ethiopia was not increased by pre-planned schedule	examine the factors affecting employee performanc e	quantitative method	Motivation and Working Environment which have a significant effect on the Affecting Employee Performance in Ethio-Telecom	Her study focused on factors affecting the performance of employees.
Mulate(2014)	level of employee‘s performance and what factors determine it did not get much attention	purpose of the study is to explain the determinants of employees’ performance	Quantitativ e research method are used.	Ability has no significant effect on employees’ On the other hand, motivation positively determines performance until some stage of experience, beyond whichperformance	He determine the factors that affect employee performance

	especially in the case of Ethio telecom.			declines with experience.	
Singh et al.(2018)	The academic enquiry of KM in public sector is at its nascent state.	to analyze and understand the relationship between knowledge management process and public sector firm performance	A survey-based research methodology is used	all four KM processes (knowledge creation, knowledge capture and storage, knowledge sharing and knowledge application and Use) had a positive and significant impact on employee performance.	They investigate km with public sector firm performance(only focused on knowledge management)
Jardat et al.(2019)	There is weakness and lack of awareness among some communities to know the role of knowledge management.	examines the impact of knowledge management on the performance of commercial banks' employees in Jordan	Used descriptive statistics to analyze	The funding show there is significant impact of knowledge management on functional performance of employees	In this study examine the impact of km on employee performance.
Meklit (2021)	There is a gap in understanding the impacts of KMS on employees' performance.	investigate impact of knowledge management system on ethio telecom customer service employee's performance	quantitative research design	The funding show that three of the independent variables (knowledge acquisition, knowledge sharing and KMS application) had a positive and significant impact	This study different with other study is investigate the impact of kms task with the three pillar of employee performance(innovational performance, operational

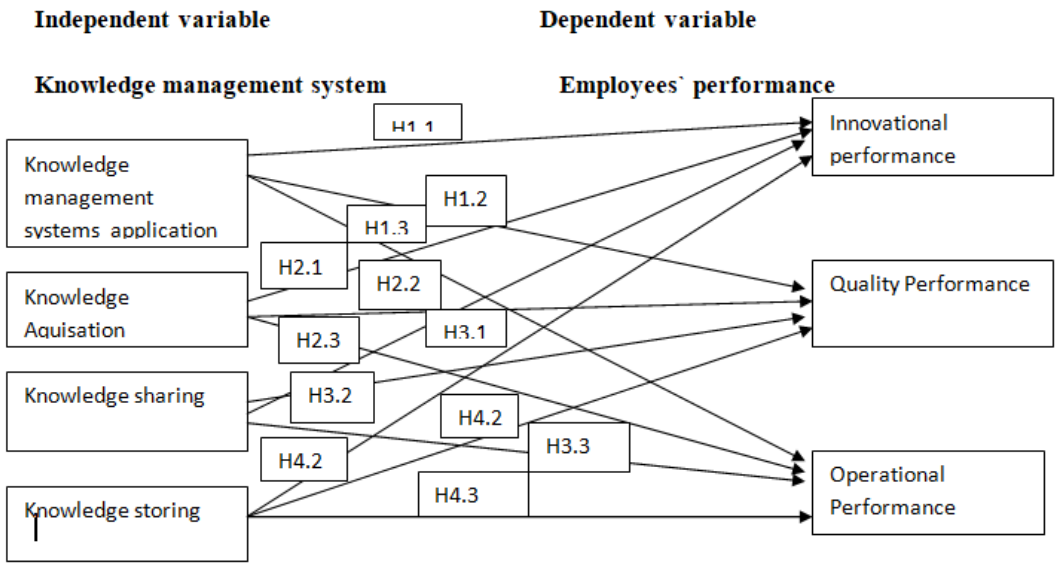
				on quality performance and knowledge management system application and knowledge acquisition had insignificant impact on innovational performance.	performance, quality performance)

2.3 Conceptual frameworks

Given the interconnected nature of the KMS constructs, understanding the interrelationships is essential to understand the impact of KMS on employees 'performance in an organization, and theoretical frameworks provide a way to conceptualize these complex relationships.

Conceptual framework is diagrammatical representation of variables in the study; it shows the interrelationship between dependent and independent variables. The independent variables are Knowledge acquisition, Knowledge sharing, Knowledge storage and knowledge management system application. The dependent variables areemployee performance key indicators: Innovational performance, Quality performance and Operational performance.For the framework purpose the researcher used conceptualframework developed by Singh et al. (2018) with some modification.

Figure 0-1 : The conceptual framework



Source: Singh et al. (2018) and model developed by using literatures by researcher.

Knowledge management systems application: use, application

Knowledge acquisition: such as on job training, purchase of expert's knowledge and hiring consultants

Knowledge storing such as Filing, updating information.

Knowledge Sharing: such as observation, discussion, Feedback, presentation, and new knowledge creation: creating, develop

Innovation: such as creation, development, idea generation.

Quality performance: such as first call resolution, information accuracy

Operational performance: such as occupancy rate, take time, working time

CHAPTER THREE

Research design and methodology

3.1 Introduction

This chapter discusses, research methodology and procedures undertaken by this study. Specifically, this chapter covers population of the study, sample size and sampling technique measures, method of data collection as well as method of data analysis used for the study.

3.1.1 Research Design

To meet the intended objective of the study quantitative research approach is used. Quantitative research method helps to determine the relationship between knowledge management system and employee's performance. According to Saunders, Lewis, and Thornhill (2009) the quantitative approach assumes that facts could be measured through a specific set of objective methods and the paradigm further believes there is a single apprehensive reality that can be known, categorized, and measured. Furthermore, explanatory research design was employed to explain the relationship between knowledge management system and employees' performance and answer the stated research questions since the nature of the research is cause and effect relationship. Quantitative approaches are used to measure and analyze causal relationships and differences in phenomena that are consistent across time and context (Lewis, 2015). The study used a survey research strategy because of the need to have factual quantitative information from a representative sample of a study population. The study utilized both primary and secondary data sources.

3.2 Population and Sampling Design

3.2.1 Population of the Study

The population of this study is all employees of the ethio telecom call center. The statistical report from call center section indicated that the total number of employees as of December 2020 is 1500.All are found in Addis Ababa city.

3.2.2 Sample size and sampling techniques

A sample has been defined by Zikmund et al(2010) as a subset or some part of a larger population.An ideal sample is needed to reduce the cost of sample error and to truly represent the population .Therefore in deciding the sample size for this study adopting a scientific approach becomes neccessary .Therefore Yamane's simplified formula(Israel , 2012)provides a way to calculate the sample size of the population as follows.

$$n = \frac{N}{1 + Ne^2} \qquad 0.1$$

Where n =corrected sample size, N=population size under study, e = Margin of error.

$$n = \frac{1500}{1 + 1500(0.05)^2} = 316$$

Therfore the sample size for this study is316and by using random sampling method questionareare distributed to the selected 316 sample staff members of the call center.

The study aimed to drawing samples from two ethio telecom call center site in Addis Ababa ,these call center are: Jemo site and Welo Safer site with a population of 900 and 600 respectively. Therefore there is a need for cluster sampling. Cluster sampling as the name implies involves classifying sample elements into groups from which elements of the population wereselected .Cluster sampling involved categorizing research location into groups and selecting elements from each group using a given sampling technique (zikmund et al 2010).We distribute the sample for the two specified clusters in proportion i.e. Multiplying number of each cluster's population with ratio of sample to population.

$$r = \frac{n}{N} \qquad 0.2$$

Where n =corrected sample size, N=population size under study.

$r = \frac{316}{1500}$=0.21

Then Jemo site sample size will be (900*0.21) =189 and welo safer site sample size will be (600*0.21) =127, and questioners are distributed to each cluster's randomly selected employees.

3.3 Data collection method

A survey-based research methodology was undertaken to validate the proposed conceptual framework and for testing the hypothesis as surveys are an effective tool to capture individual perceptions and for investigating cause and affect relationships (Ghauri and Gronhaug, 2002). Moreover, it allows structured data collection from a large representative sample population, thereby enhancing the generalizability of the findings to a larger population.

The primary data was collected using self-administrated five points Likert-scale questionnaires affixed by 1(Strongly disagree) to 5 (strongly agree). To ensure the content and face validity, the survey questionnaire was adapted from different source as shown in the table below. After checking the appropriateness of each item, readability, selection of terminology, clarity, and ease of understanding on the intended objective of the question, as well as the relevance of the questioners to the intended study, and finalizing the survey instrument preparation and modification, the questionnaire was distributed through in person for randomly selected employees of the two ethio telecom call center site.

Knowledge acquisition and creation		
KA1	Staff facilitates trainings for employee`s to acquire knowledge.	**(Alyoubi et al.,2018)**
KA2	My organization has mechanism for creating, acquiring knowledge from different sources.	**(Singh et al.,2018)**
KA3	My organization to encourage exchange of ideas between groups.	**(Singh et al.,2018)**
KA4	My organization rewards employee`s for new ideas.	**(Singh et al.,2018)**
KA5	My organization facilitate for creating new knowledge from existing knowledge.	**(Singh et al.,2018)**
KA6	I continually gather information that is relevant to my operation.	**(Alyoubi et al., 2018).**
KA7	I obtain important information from teamwork.	**(Alyoubi et al., 2018).**
KA8	My organization ensures that there is on the job training to make the service rendered to customers are efficient and reliable.	**Own contribution**
Knowledge sharing		

KS1	My organization send out timely report to employee`s.	**(Singh et al.,2018)**
KS2	Communication with other members of my work group is efficient.	**(Alyoubi et al.2018).**
KS3	Employees are encouraged to freely share knowledge to enhance efficiency.	**(Singh et al., 2018).**
KS4	My organization Conducts regular conference to sharing knowledge with employee's.	**(Singh et al.,2018)**
KS5	I share information from others.	**(Alyoubi et al.2018).**
KS6	Employee`s use latest file sharing system to share knowledge efficiently.	**(Singh et al., 2018).**
KS7	My colleagues interact to exchange idea widely across the organization.	**(Alyoubi et al.2018).**
KS8	Employees are encouraged to frequently participate in formal and informal discussion to sharing knowledge.	**(Singh et al., 2018).**
Knowledge storage		
KS1	I easily find the document needed in my work.	**(Alyoubi et al.2018).**
KS2	My organization responds to employee`s ideas, documented them for further development.	**(Singh et al., 2018).**
KS3	My organization facilitate in place to capture knowledge from employees.	**(Singh et al., 2018).**
KS4	My organization Captured knowledge is stored in company knowledge repositories.	**(Singh et al., 2018).**
KS5	My organization stored knowledge is readily accessible for employees who need it.	**(Singh et al., 2018).**
KS6	Previous made solutions and document are readily available to me	**(Alyoubi et al.2018).**
KS7	My organization uses databases to store knowledge distribute to practices among employees for use to effectively perform their task.	**(Singh et al., 2018).**
KS8	My organization has mechanisms in place to capture knowledge from employees.	**(Singh et al., 2018).**
Employee performance(innovation)		
I1	In my organization there is a high extent of Service innovation (e.g: introduction of a new service; changes to improve an existing service).	**(Singh et al., 2018).**
I2	In my organization there is service delivery innovation (new or altered ways of supplying public services).	**(Singh et al., 2018).**
I3	In my organization there is conceptual innovation (developing new views and challenging existing assumptions).	**(Singh et al., 2018).**
Quality Performance		
QP1	In my organization Promise with regards to the service offered is always kept.	**(Singh et al., 2018).**
QP2	In my organization the equipment's used are up to date.	**(Singh et al., 2018).**
QP3	In my organization Customers are always provided with individualized attention	**(Singh et al., 2018).**
QP4	In my organization Customers always feel safe in their transactions with the employees.	**(Singh et al., 2018).**

QP5	In my organization Employees always show willingness to help customers.	**(Singh et al., 2018).**
Operational Performance.		
OP1	In my organization Day to day operational expenses have reduced.	**(Singh et al., 2018).**
OP2	In my organization Employee productivity has increased.	**(Singh et al., 2018).**
OP3	In my organization the service delivery cycle time has reduced.	**(Singh et al., 2018).**

3.4 Method of Data analysis

3.4.1 Descriptive analysis

The data was analyzed by Structural Equation Modeling (SEM) using SPSS 20 and Smart PLS 2.0 software. SEM is a multivariate technique, which estimates a series of inter-related dependence relationships simultaneously. The hypothesized model can be tested statistically in a simultaneous analysis of the entire system of variables to determine the extent to which it is consistent with the data. The descriptive statistical results were presented by figure; tables and used Cronbach's alpha and confirmatory factor analysis are also used to assess the data's reliability and validity.

3.4.2 Reliability Test

Reliability is a measure of internal consistency. The most accepted measure for reliability is Cronbach's alpha (Cronbach, 1951). The coefficient alpha ranges from 0 to 1, in which a high score indicated high reliability. To measure consistency of the scale, the Cronbach's alpha coefficient was used as a measure of reliability.

3.4.3 Validity Test

Validity is the ability of instrument to measure what it supposed to be measured for a construct. (Ahmad et al., 2016) defines validity as an instrument's capacity to measure what it is intended to measure. Convergent and discriminate validity are the two types of validity tests that are commonly addressed in the research literature.

3.4.3.1 Convergent validity

The convergent validity is achieved when all items in a measurement model are statistically significant. This validity could also be verified through Average Variance Extracted (AVE). The value of AVE should be greater or equal to 0.5 to achieve this validity.

3.4.3.2 Discriminate validity

The discriminate validity is achieved when the measurement model is free from redundant items. Another requirement for discriminate validity is the correlation between each pair of latent exogenous construct should be less than 0.85. Other than that, the square root of AVE for the construct should be higher than the correlation between the respective constructs.

3.5 Research Hypothesis

H11: There is a significant relationship between knowledge management system Application and innovation performance.

H12: There is a significant relationship between knowledge management system Application and operational performance.

H13: There is a significant relationship between knowledge management system Application and quality performance.

H21: There is a significant relationship between knowledge acquisition and innovational performance.

H22: There is a significant relationship between knowledge acquisition and operational performance.

H23: There is a significant relationship between knowledge acquisition and quality performance.

H31: There is a significant relationship between knowledge sharing and innovational performance.

H32: There is a significant relationship between knowledge sharing and operational performance.

H33: There is a significant relationship between knowledge sharing and quality performance.

H41: There is a significant relationship between knowledge storage and innovational performance.

H42: There is a significant relationship between knowledge storage and operational performance.

H43: There is a significant relationship between knowledge storage and quality performance.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter is concerned with the display of the data obtained from the sample respondents via survey questionnaire. Descriptive statistics are used to present fundamental data features. Cronbach's alpha and confirmatory factor analysis are also used to assess the data's reliability and validity. Analyze the data with Smart PLS software, structural equation modeling (SEM) is used to develop an appropriate model with the data and test the hypothesis.

4.1.1 Demographic Characteristics of the Respondents

Respondent were asked to show their age group, gender, level of education and work experience. The researcher asks the participant demographic data for the sake of having valuable information about their sex, age, experience, and level of education and to create harmonization with the main objectives of the study.

Table 4.1Response Rate

Statistic0073

		Sex	Age	Experiences	lev.ofedu
N	Valid	316	316	316	316
	Missing	0	0	0	0

Table 4.2 Sex of the Respondents

		Frequency	Percent	Cumulative Percent
Valid	Male	172	54.4	54.4
	Female	144	45.6	100.0
	Total	316	100.0	

Table 4.3 Age of the respondents

		Frequency	Percent	Cumulative Percent
Valid	<25	80	25.3	25.3
	25-30	152	48.1	73.4
	31-35	73	23.1	96.5
	36-40	11	3.5	100.0

	Total	316	100.0	

Table 4.4 Age of the respondents

		Frequency	Cumulative Percent
Valid	<3year	50	15.8
	3-5	160	66.5
	6-8	106	100.0
	Total	316	

Table 4.5 of level of education of the respondents

		Frequency	Percent	Cumulative Percent
Valid	BSc	230	72.8	72.8
	Master	86	27.2	100.0
	Total	316	100.0	

As the table above (Table 4.1) indicated, the research has a 100% response rate. It has happened with the maximum effort of the researcher in the process of distributing and collecting data from the respondents.

On the other hand, (table 4.2) that, regarding with gender of the respondents, slight majority (54.4%) of the respondents are males and the rest 45.6% of the respondents are females. This implies that relatively it is possible to justify that, there is not any strong dominancy of male in the study area. On the other hand, regarding the age of participants (as indicated in Table 4.3) majority (48%) of the respondents are between the ages of 25 to 30. The rest of the respondents replied that they are at the age of less than 25, between31 to 35, 36 to 40 which represents 25.3%, 23.1%, 3.3% respectively.

Concerning with work experience of the respondents (Table 4.4), 33.5% of them have a six to eight years' service in the organization and 66.5% of the respondents three to five years working experience and (15.8%) less than three years work experience. Regarding to their levels of education (Table 4-5), majority of the respondents (72.8%) replied that they have Bachelor of Science degree and 27.2% of the respondents have master's degree.

4.2 Structural Equation Modeling (SEM)

The basic goal of SEM is to determine how well a proposed model fits or appropriately represents the sample data. The SEM model is made up of two models: the measurement model and the structural model. The measurement model establishes their relationship between the observable and unobserved variables, i.e. it establishes linkages between the scores on the measuring instrument (the observed indicator variables) and the underlying construct they are intended to measure (Byren, 2010). The measuring model represents the confirmatory factor analysis (CFA) model, which is explained more below.

The structural model, on the other hand, describes relationships among unobserved variables, i.e.it explains how certain latent variables directly or indirectly affect (cause) changes in the values of other latent variables in the model (Byrene, 2010)

4.2.1 Measurement Model.

The study made advantage of Smart PLS 2.0.M3 to test the model. (Tenenhaus, et al., 2005) proposed three metrics to define the overall quality of the model. The measurement model is used on the first level the structural model is used on the second level. The measurement model was assessed by examining the internal reliability, convergent validity, and discriminate validity. The convergent and discriminate validity of construct measures are used to track scale reliability and assessing the different sub-factors assessed in the measurement model.

The measurement model was validated by assessing the individual sub-factors and scale reliability, which were monitored by the convergent and discriminate validity of constructs 'measurements. Validity tests were performed to evaluate discriminating validity, convergent validity, and measurement model dependability, according to Henderson, Sheetz, &Trinkle (2012).

4.3.2.1 Confirmatory factor analysis

The un-dimensionality of each construct was tested using first-order confirmatory factor analysis (CFA). According to Hair et al. (2010) confirmatory factor analysis is a method of determining how effectively measured variables represent a subset of the constructs that are designed to assess. The CFA provides several statistics that demonstrate how well the theoretical definition of the factors corresponds to the actual data utilized. In this study, confirmatory factor analysis started by examining the fit of the measurement model, which examines how well the indictor variables fit to measure the latent variable. This is known as

construct validity, and it examines the amount to which a collection of measured items truly represents the underlying component model that those questions are meant to measure (Hair et al., 2010). Construct validity is divided in to discriminating and convergent validity.

4.3.2.2 Reliability and Validity

4.3.2.2.1 Reliability

Reliability is a measure of internal consistency. The degree to which data collecting techniques or analysis procedures produce consistent results is referred as reliability (Saunders, Lewis & Thormhill, 2007). Reliable observations produce the same results on different occasions and by different observers. For validity to be established, the interpretation of the raw data must also be clear. The scale's dependability is frequently determined by test-retest reliability or internal consistency (Zikmundetal., 2010). Internal consistency measures the degree to which the scale's items all measure the same underlying property (Zikmund et al., 2010). The Cronbach's alpha is the most widely used in calculating internal consistency or reliability (Cronbach, 1951). The coefficient alpha ranges from 0 to1, in which a high score indicated high reliability. The acceptable threshold forreliability is 0.70 (Nunnally and Bernstein, 1994). The reliability of the data is assessed using composite reliability and Cronbach's alpha, and the findings are shown in tables 4.6. All independent variables have a composite reliability of 0.8 or higher and a Cronbach's alpha of 0.7or higher. This demonstrate strong reliability for all the constructs.

4.3.2.2.2 Validity

Kumar (2005) defines validity as an instrument's capacity to measure what it is intended to measure. He also claims that validity relates to how well an empirical measure represents the true meaning of the topic under discussion. Convergent and discriminate validity are the two types of validity tests that are commonly addressed in the research literature.

4.3.2.2.2.1 Convergent validity

Convergent validity measures how closely items in a particular construct converge or share high proportion of variation in common (Hair et al, 2010). The convergent validity was calculated using average variance extracted (AVE) and factor loading. According to Hair, (1992), an average variance extracted (AVE) and factor loadings equal to or greater than 0.50 indicate convergent validity. As shown in Table 4.6, the factor loadings ranged from 0.723 to 0.881, and the average variance extracted ranged from 0.63 to 0.80, which is greater than the recommended threshold. As a result, all variables exceed the minimal

criterion, indicating extremely strong convergent validity. Therefore, the condition of convergent validity of the measurement instruments was satisfied in this study.

Table 4.*6 Convergent Validity*

Independent Variable		**Std. Factor Load**	**Cronbach's α**	**CR**	**AVE**
Knowledge Storage	(I easily find the document needed in my work) KS1	**0.772**	**0.85**	**0.90**	**0.75**
	(My organization responds to employee`s ideas for further development) KS2	**0.820**			
	(My organization facilitate in place to capture knowledge from employees and customer) KS3	**0.792**			
	(Captured knowledge is stored in company knowledge repositories) KS4	**0.871**			
	(Stored knowledge is readily accessible for employees who need it) KS5	**0.842**			
	(Previous made solutions document are readily available to me) KS6	**0.835**			
	(My organization uses databases to store best practices among employees for use to effectively perform their task) KS7	**0.798**			
	(My organization has mechanisms in place to capture knowledge from employees, customers and business partners) KS8	**0.726**			
Knowledge Sharing	(My organization send out timely report to employee`s) KSH1	**0.860**	**0.82**	**0.89**	**0.67**
	(Communication with other members of my work group is efficient) KSH2	**0.783**			
	(My organization encouraged employee`s to freely share information to enhance efficiency) KSH3	**0.861**			
	(My organization Conducts regular conference share knowledge) KSH4	**0.835**			
	(I share information with others) KSH5	**0.847**			
	(Employee`s use latest file sharing system to share knowledge efficiently) KSH6	**0.847**			
	(My colleagues exchange idea widely across the organization) KSH7	**0.864**			
	(Employees are encouraged to frequently participate in formal discussion to sharing knowledge) KSH8	**0.734**			
Knowledge Acquisition	(My organization facilitates trainings for employee`s to acquire knowledge) KA1	**0.736**	**0.79**	**0.90**	**0.65**
	(My organization has mechanism for acquiring knowledge from different sources) KA2	**0.769**			
	(My organization encourages for the exchange of ideas between group) KA3	**0.823**			
	(My organization rewards employee`s for new ideas and knowledge) KA4	**0.847**			

	(My organization facilitate for creating new knowledge from existing knowledge) KA5	**0.792**			
	(I continually gather information that is relevant to my operation and activities) KA6	**0.723**			
	(I obtain important information from teamwork) KA7	**0.772**			
	(My organization ensures that there is on the job training to make the service rendered to customers are efficient and reliable) KA8	**0.780**			
Knowledge Management System Application	(I understand the use of Knowledge Base system) KMS1	**0.881**	**0.73**	**0.87**	**0.63**
	(I can easily share the knowledge by using Knowledge Base system) KMS2	**0.780**			
	(I can easily get the knowledge by using Knowledge Base system) KMS3	**0.818**			
	(I have enough ability to use Knowledge Base system) KMS4	**0.807**			
	(I can store knowledge using Knowledge Base system) KMS5	**0.792**			
	(I can improve my knowledge by using knowledge base technology) KMS6	**0.780**			
Quality Performance	(In my organization Promise with regards to the service offered is always kept) QP1	**0.821**	**0.86**	**0.91**	**0.78**
	(In my organization the equipment's used are up to date) QP2	**0.803**			
	(In my organization Customers are always provided with individualized attention) QP3	**0.771**			
	(In my organization Customers always feel safe in their transactions with the employees) QP4	**0.837**			
	(In my organization Employees always show willingness to help customers) QP5	**0.818**			
Innovation	(In my organization there is a high extent of Service innovation (e.g.: introduction of a new service; changes to improve an existing service)) I1	**0.860**	**0.82**	**0.89**	**0.67**
	(In my organization there is service delivery innovation (new or altered ways of supplying public services)) I2	**0.783**			
	(In my organization there is conceptual innovation (developing new views and challenging existing assumptions)) I3	**0.861**			
Operational Performance	(In my organization Day to day employee`s working time reduced) OP1	**0.784**	**0.89**	**0.94**	**0.80**
	(In my organization Employee productivity has increased) OP2	**0.880**			
	(In my organization the service delivery time has reduced) OP3	**0.793**			

Source: Survey data (2021)

4.3.2.2.2.2 Discriminate validity

The idea of discriminate validity states that indicators for distinct constructs should not be so closely linked that one concludes they measure the same thing. The discriminate validity test is conducted to ensure that items representing different constructs are not related to each other. In other words, correlation of items representing different constructs should be low. The AVE square root and correlations of the dependent variables are examined to determine discriminate validity.IftheAVEsquarerootofadependentvariableisgreaterthanitscorrelationwith other dependent variables, it possesses discriminate validity.

Table 4.7: Discriminate Validity

	I	KA	KMS	KS	KSH	OP	QP
I	0.646						
KA	0.385	0.705					
KMS	0.239	0.502	0.661				
KS	0.584	0.570	0.554	0.551			
KSH	0.169	0.514	0.532	0.476	0.667		
OP	0.298	0.649	0.497	0.464	0.584	0.695	
QP	0.378	0.501	0.567	0.540	0.498	0.633	0.754

Source: Survey data(2021)

Note: Diagonals (inbold) represent the average variance extracted while the other entries represent the squared correlations matrix.

The square root of the AVE and a cross loading matrix were used to assess the discriminate validity. Table 4.7shows the pair-wise correlation between the variables. The square root of the average variance extracted of each construct **(bolded)** is greater than its correlation with the other constructs. This confirms that the discriminate validity of the data was satisfied. The results indicate that the inter-correlation between the constructs was less than suggested threshold of 0.85 (Kline, 2005). Furthermore, the square root of the AVE exceeded each pair wise correlation between the constructs. The results imply strong discriminate validity.

4.3.2.1 Collinearity Statistics (VIF)

One way to measure multi collinearity is the variance inflation factor (VIF), which assesses how much the variance of an estimated regression coefficient increases if your predictors are correlated. Collinearity is correlation between predictor variables (or independent variables). When predictor variables in the same regression model are correlated, they cannot independently predict the value of the dependent variable. Variance inflation factor (VIF) is used to detect the severity of multi collinearity in the process of analyzing data. The

Variance Inflation Factor (VIF) is 1/Tolerance, it is always greater than or equal to 1. If the VIF result scores less than 1, it implies that there is a multi-collinearity problem in the research. As of the table annexed (VIF statics'), the result depicts that there is no any collinearity problem in the data set since the variance Inflation Factor (VIF) is greater than 1.

4.3.3 Structural Model Analysis

Following the fitting of measurement models, the structural model for the hypothesized research model is developed by incorporating each individual latent variable. The structural model specifies how specific latent variables directly or indirectly influence (cause) changes in the values of certain other latent variables in the model (Byrene, 2010).

The structural mode includes path coefficient assessment, which indicates the strength of their relationships between the R-square values of the independent variables and dependent variables. A bootstrapping re- sampling approach (Efron and Tibshirani, 1993) of 316 samples was utilized to establish the consequence level of the routes defined inside the structural model. As a statistical conclusion measure, a5% significance threshold ($p<0.05$) is utilized. The resulting value indicates the level of significance considering the extent of the similar factor estimations between the constructs.

4.3.3.1 Path analysis

The Smart PLS method proved practical, and the resulting associations, coefficients, and loading values are given in Initial path which is presented in Figure4.1.

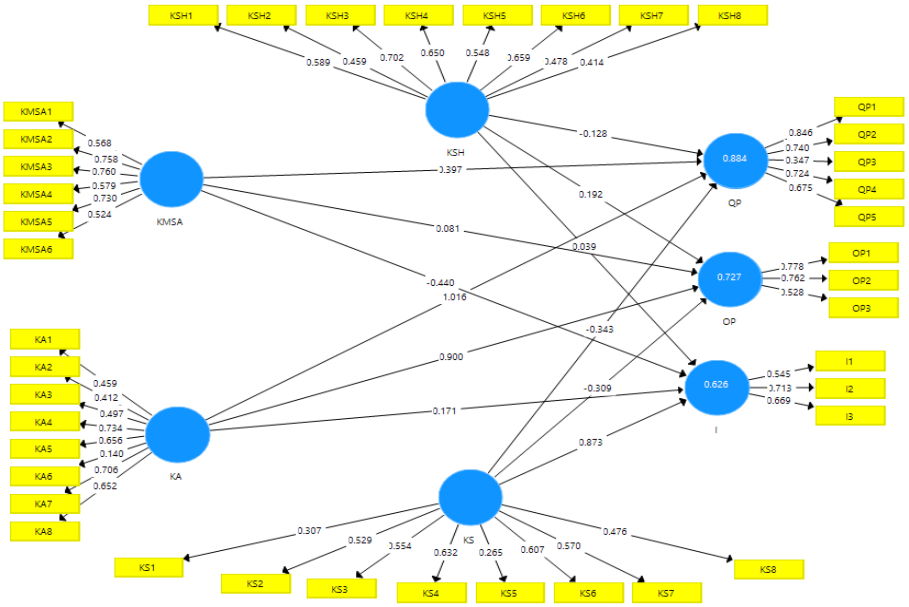


Figure 4-1 Initial Path Model

Source: Survey Data, (2021).

The figure above shows the overall variables of the study and their relationship among and between the variables. For instance, the figure has tried to indicate the relationship between the latent variables of independent variable (knowledge sharing, knowledge storage, knowledge acquisition and knowledge management system). After identifying the effect of each latent variable on the independent variable, the model also has indicated the impact of the independent variables on the dependent variables (innovation, quality performance and operational performance). However, based on the principle of structural equation modeling, the initial path model cannot directly be considered for analysis, and it must be redeveloped based on the significant level of the results. In the first level, Smart PLS analyzes and evaluates the measurement module's reliability and validity. The same factor loading was analyzed with Smart PLS software to assess the dependability of distinct sub-factors. The sub-factors loading measures of greater than 0.50, as indicated by (Hulland, 1999), were acceptable in this investigation. Based on the principles of structural equation modeling, results below 0.5 in the initial path model has no significant valus to make decision on the impact of the different independet variables on the dependet ones. Therefore, based on this truth, lower results (results less than 0.5) from the initial path model were not considered in the final path model and the final decision result of the study is based on the path model presented below. Where a result below 0.5 must be deducted from the initial path model and the researcher has developed the final path model. So, the dimension sub-factors that fund the latent constructs, the least were subsequently removed from the dimension model to enhance model fit. For further study, the result ant final route model in figure 4.2.

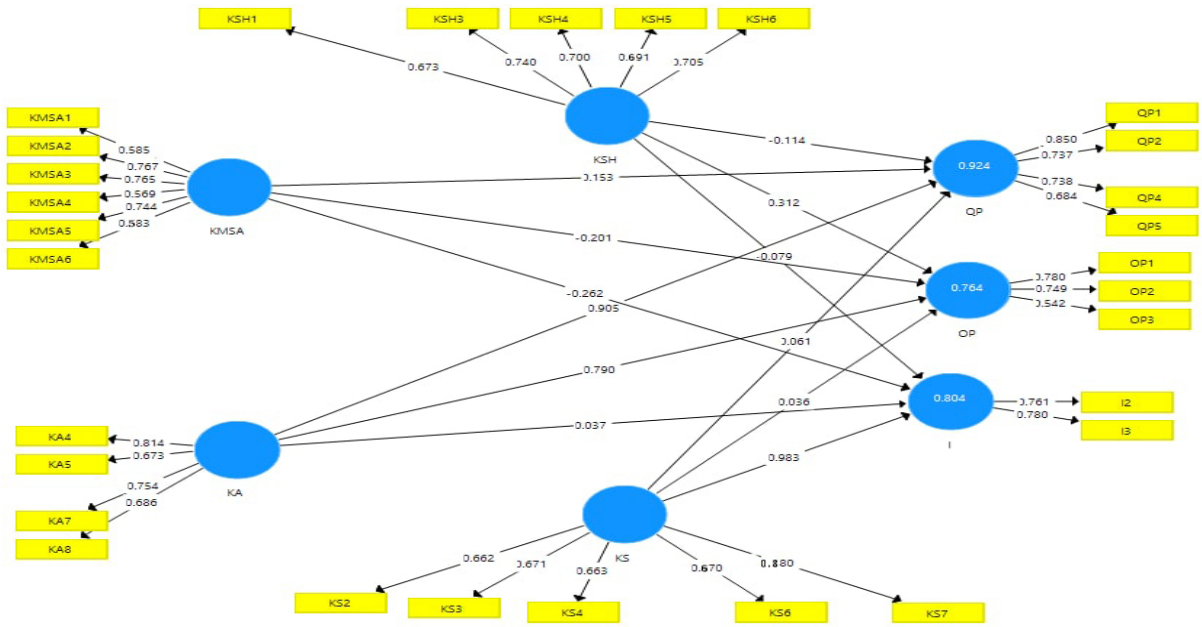


Figure 4-2Final Path Model

Source: Primary Data, (2021).

The figure above (figure 4-2) has tried to show the fnal path model of the research. As the researcher tried to explain in the initial path model, values below 0.5 from the initial path were removed and the fianl path model is developed based on the appropriate results.

4.3.3.2 Hypothesis Testing

Researchers usually employ P values for hypothesis testing in PLS-SEM, where each hypothesis refers to the path in a model. P values may be one-tailed or two-tailed, depending on the prior knowledge of the researcher about the path's direction and the sign of its associated coefficient (Kock, 2015a). A path coefficient indicates the direct effect of a variable assumed to be a cause on another variable assumed to be an effect. Path coefficients are standardized because they are estimated from correlations. Path analysis is simply standardized partial regression coefficient partitioning the correlation coefficients into the measures of direct and indirect effects of set of independent variables on the dependent variable. It is also known as cause-and-effect relationship**.**

Table 4.9: Path Coefficients along with their bootstrap values and 'T' Values

Mean, STDEV, T-Values, P-Values

Factors	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Supported
KA -> I	-0.017	-0.021	0.046	0.364	**0.716**	No
KA -> OP	0.651	0.631	0.110	5.930	**0.000**	Yes
KA -> QP	0.868	0.869	0.038	22.739	**0.000**	Yes
KMSA -> I	0.276	0.267	0.073	3.770	**0.000**	Yes
KMSA -> OP	-0.144	-0.139	0.188	0.764	**0.445**	No
KMSA -> QP	0.293	0.286	0.098	2.989	**0.003**	Yes
KS -> I	1.008	1.015	0.041	24.873	**0.000**	Yes
KS -> OP	0.002	0.002	0.054	0.035	**0.972**	No
KS -> QP	-0.030	-0.029	0.038	0.783	**0.434**	No
KSH -> I	-0.080	-0.086	0.053	1.516	**0.130**	No
KSH -> OP	0.367	0.378	0.274	1.339	**0.181**	No
KSH -> QP	0.180	0.172	0.083	2.173	**0.003**	Yes

Source: Survey data (2021)

As recommended by the study's conceptual framework, this study evaluated four independent variables which can have impact on the dependent variables:- Knowledge management system**(KMS)**, Knowledge Storage **(KS)**, knowledge Acquisition**(KA)** and knowledge sharing**(KSH)**and three endogenous(variables which can be affected by the independent variables):-Operational Performance**(OP)**, Quality Performance**(QP)** and innovation **(I)**This resulted in the formulation of four hypotheses, each with three sub hypotheses. The hypothesis of this study is represented by one-headed arrows between latent variables on the final structural model.

The hypotheses are tested using the +1.96t-value rule with a significance level or P value of 0.05, that is the critical ratio should be greater than1.96 at a significance level of $\alpha = 0.05$) (Byrne, 2010; Hair et al., 2010).

4.3.2.1.1 Knowledge Acquisition and Innovation

As the table above indicated (Table 4.9), the relationship between Knowledge Acquisition and innovation was not supported and not significant with the sample β=0.017, statistics (t)=0.364, and significant value (p) =**0.716** indicating that knowledge acquisition and innovation has no direct and positive relationship. Therefore, the hypothesis is not accepted.

4.3.2.1.2 Knowledge Acquisition and Operational Performance

As the table above indicated (Table 4.9), the relationship between Knowledge Acquisition and operational performance was supported and significant with the original sample (β) = 0.651, statistics (t) = 5.930 and significant value (p) < 0.01 indicates that operational performances are influenced directly and positively by knowledge acquisition. This implies that an increase of knowledge acquisition leads to 0.651 increase in operational performance.

4.3.2.1.3 Knowledge Acquisition and Quality Performance

As the table above indicated (Table 4.9), the relationship between Knowledge Acquisition and quality performance was supported and significant with the original sample (β) = 0.868, statistics (t) = 22.739 and significant value (p) < 0.01 indicates that quality performances are influenced directly and positively by knowledge acquisition. This implies that an increase of knowledge acquisition leads to 0.868 increase in quality performance.

4.3.2.1.4 Knowledge Storage and innovation

As the table above indicated (Table 4.9), the relationship between Knowledge storage and

innovation was supported and significant with the original sample (β) = 1.008, statistics (t) = 24.873 and significant value (p) < 0.01 indicates that innovations are influenced directly and positively by knowledge storage. This implies that an increase of knowledge storage leads to 1.008 increase in innovations.

4.3.2.1.5 Knowledge Storage and Operational performance

As the table above indicated (Table 4.9), the relationship between Knowledge storage and operational performance was not supported and is not significant with the original sample (β) = 0.002, statistics (t) = 0.035 and significant value (p) greater than 0.01 indicates that knowledge storage has no meaningful relationship with operational performance. Therefore, the hypothesis is not accepted.

4.3.2.1.6 Knowledge storage and Quality Performance

As the table above indicated (Table 4.9), the relationship between Knowledge storage and quality performance was not supported and is not significant with the original sample (β) = -0.030, statistics (t) = 0.783 and significant value (p) greater than 0.01 indicates that knowledge storage has no meaningful relationship with quality performance. Therefore, the hypothesis is not accepted.

4.3.2.1.7 Knowledge Sharing and Innovation

As the table above indicated (Table 4.9), the relationship between Knowledge sharing and innovation was not supported and not significant with the original sample β=-0.080, statistics (t) =1.516, and significant value (p) is greater than 0.01indicating that knowledge sharing, and innovation has no direct and positive relationship. Therefore, the hypothesis is not accepted.

4.3.2.1.8 Knowledge Sharing and Quality Performance

As the table above indicated (Table 4.9), the relationship between Knowledge sharing and quality performance was supported and significant with the original sample (β) = 0.180, statistics (t) = 2.173 and significant value (p) < 0.01 indicates that quality performances are influenced directly and positively by knowledge management system. This implies that an increase of knowledge sharing leads to 0.180 increases in quality performance.

4.3.2.1.9 Knowledge Sharing and Operational Performance

As the table above indicated (Table 4.9), the relationship between Knowledge sharing and

operational performance was not supported and is not significant with the original sample (β) = 0.367, statistics (t) = 1.339 and significant value (p) greater than 0.01 indicates that knowledge sharing has no meaningful relationship with operational performance. Therefore, the hypothesis is not accepted.

4.3.2.10 Knowledge Management System Application and Innovation

As the table above indicated (Table 4.9), the relationship between Knowledge management system and innovation was supported and significant with the original sample (β) = 0.276, statistics (t) = 3.770 and significant value (p) < 0.01 indicates that innovations are influenced directly and positively by knowledge management system. This implies that an increase of knowledge management system leads to 0.276 increase in innovations.

4.3.2.11 Knowledge Management System Application and Operational Performance

As the table above indicated (Table 4.9), the relationship between Knowledge management system and operational performance was not supported and is not significant with the original sample (β) = -0.144, statistics (t) = 0.764 and significant value (p) greater than 0.01 indicates that knowledge management system has no meaningful relationship with operational performance. Therefore, the hypothesis is not accepted.

4.3.2.12 Knowledge Management System Application and Quality Performance

As the table above indicated (Table 4.9), the relationship between Knowledge management system and quality performance was supported and significant with the original sample (β) = 0.293, statistics (t) = 2.989 and significant value (p) < 0.01 indicates that quality performances are influenced directly and positively by knowledge management system. This implies that an increase of knowledge management system leads to 0.293 increase in quality performance.

CHAPTER FIVE

DISCUSSION, CONCLUSSION AND RECOMMENDATION

This chapter summarizes the findings from Chapter4, as well as the conclusions and suggestions. The chapter also includes recommendations for future research in order to answer the research question or achieve the research aim.

5.1. 7 Summary of the major Findings

Based on the presented, analyzed, and interpreted data, the following summary of the major findings are developed as stated below.

The researcher's findings on relationship between Knowledge Acquisition with operational performance and quality performance mate its objective and the hypothesis H22&H23 are accepted with significantly positive result. But the relationship between Knowledge Acquisition and innovation do not meet the researchers' objective to show impact of knowledge Acquisition on employee innovation performance. This means knowledge acquisition is not significant factors affecting innovational performance rejecting the stated hypothesis H21.These results might reflect the nature of knowledge management strategy implemented by ethio telecom, which does not require knowledge acquisition particularly from sources outside the organization.

The study found that the relationship between Knowledge management system application with employee innovation and quality performance had meet up the proposed objective to show impact of knowledge management application on quality performance with significantly and positively accepted hypotheses. But the relationship between Knowledge management system applications with operational performance was not supported and is not significant, rejecting the stated hypothesis.

The researcher's third objective to show the impact of Knowledge storage on innovation had met the result with supported and significant hypothesis. But the relationship between Knowledge storage with operational performance and quality performance had not met the objective and the hypotheses are not supported and are not significant.

The relationship between Knowledge sharing and quality performance had met the research's objective and the hypothesis was supported and significant. But the relationship between Knowledge sharing with operational performance and innovation didn't meet the proposed objective and the hypotheses were not supported and are insignificant.

5.2. Conclusion

Although the impact of KMS tasks on employee performance was found to vary, i.e. KMS, was found to have the strongest impact on quality performance, followed by innovation performance and operational performance, the results in general are promising as three of the individual KMS tasks (knowledge acquisition , knowledge sharing and knowledge

management system application) were found to impact positively on quality performance, two of KMS tasks (knowledge storage and knowledge management system application) had positive and significant impact on employees' Innovational performance and one of KMS tasks (knowledge acquisition) conformed a significant and positive impact on employees' operational performance. And this shows that across all three performance dimensions there is at least one a positive impact on KMS tasks hence this study provides KMS as background of employee performance; the major findings are that the existence of KMS tasks in an organization is positively related to high employee performance. Consequently, this study shows a unique benefit of KMS for organizations, increasing value for the organization, and promotes the knowledge ecosystem. Thus, KMS should be considered as organizational development tools to improve employees' work performance.

5.3. Recommendations

Based on the results of the analysis and conclusion made, the following recommendations are forwarded:

- ✓ The study finding reveals that there is a positive and direct relationship between knwoledge acquisition and opeartional performance of ethiotelecom call ceneters. Therefore, inorder to maximize productivity/performance, the management staff of the organization should give serious attention to knowledge aquistion related activities.
- ✓ The finding also depcits that knowledge acquisition also has a posititve and direct relationship with quality performance ethiotelecom call center employees. This implies that, the the organization gives due attention for knowledge aquision, it will improve the quality of the performance that each and every employees has in the business. Therfore, concerned individuals/groups in the organization should give focus for knowledge aquision in order to maximize the quality of the performance.
- ✓ On the other dimention, the study findings also showed that, knowledge management system application has a positive and direct relatonship with innovation performance of ethiotelecom call center employees. That means, if the organization gives attention for knowledge management system, it simply will innovate the overall system of the business. Therefore, it will be better if concerned individuals/groups gives unreserved effort for systematically boosting the knowledge management system of the organization to have innovative results and culture of it.
- ✓ On the same part, the study result also indicated that, knowledge management system application has a posititve and direct relationship with quality performance of

ethiotelecom call center employees . With this regard, giving a little focus and attention for knowledge management system can have a significant effect on quality of the organizational perfromance. Therfore, the management staffs should give care for knowledge management system, in order to have qualitative performance.

- ✓ The result of the stusy also indicated that knowledge storage has a positive and significant effect on innovation performance of ethiotelecom call center employees. This implies that, when the organization management staffs give care to the process and acheivements related with knowledge storage, it have a significant and positive effect on the innovative acheivements of the organization. Therefore, it is advisable to focus more on knowledge storage related activities in the business.
- ✓ The study also reveals that knowledge sharing has a positive and direct relatioship with quality performance of ethio telecom call center employees and this implies that if the organization's responsible body did a few on knowledge sharing, it will have a siginificant and positive contribution on the innovative culture of the organization.
- ✓ Top managers should implement knowledge management system activities in their organizational strategy to improve employee performance. The study, therefore, provides valuable guidelines to implement KMS in organizations. Likewise, the KMS helps managers to arrange their KMS based knowledge as much as possible to be open across the whole organization, which allows employees to share their knowledge and keeps the knowledge in an easily understandable format for future utilization.

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Appendix I:Questionnaire

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

SCHOOL OF INFORMATION SCIENCE

A questionnaire to be filled by employees` of Ethio telecom call center service.

Dear Respondent,

This questionnaire is designed to collect data for academic research purposeas part of the requirement for the award of MSc degree in Information Science and systems. The aim of the research is identifying the impact of knowledge management system(KMS) on employees` performance.Your responses will be strictly treated as confidential and used only for the research purpose.

Thank you in advance for your cooperation and assistance.

General Survey instructions:

- ✓ You are not required to write your name in this questionnaire.
- ✓ Please tick (√) or circle or make a brief writing where necessary.

Part one: Demographic information

1. Gender: ☐ Male ☐ Female

2. Age: ☐ below 25 years ☐ 25-30 years ☐ 31-35 years

   ☐ 36-40 years ☐ 41-45 years ☐ above 45

3. Educational Qualification:

   ☐ Certificate ☐ Diploma ☐ FirstDegree

   ☐ Master ☐ Doctorate (PHD) ☐ others _____

4. Work experience:

☐ Less than 3 years ☐ 3-5 years ☐ 6-8 years

☐ 9-11 years ☐ 12-15 years ☐ above 15 years

Part two Illustration: Please rate on a scale of 1 to 5, where 1=strongly disagreed and 5= strongly agreed.

Please tick (√) to indicate your opinion the extent to which you agree with each of the following attributes						
No	Statements	Strongly disagreed	disagreed	neutral	agreed	Strongly agreed
		1	2	3	4	5
Knowledge ManagementSystem Application(KMSA)						
KMSA1	I understand the use of Knowledge Management system.					
KMSA2	I can easily share the knowledge by using Knowledge Management system.					
KMSA3	I can easily get the knowledge by using Knowledge Management system.					
KMSA4	I have enough ability to use KnowledgeManagement system.					
KMSA5	I can store knowledge using Knowledge Management system.					
KMSA6	I can improve my knowledge by using knowledge management technology.					

Knowledge acquisition						
KA1	My organization facilitates trainings for employee`s to acquire knowledge.					
KA2	My organization has mechanism for acquiring knowledge from different sources.					
KA3	My organization encourages to exchange of ideas between individual and group.					
KA4	My organization rewards employee`s for new ideas.					
KA5	My organization facilitate for creating new knowledge from existing knowledge.					
KA6	I continually gather information that is relevant to my operation.					
KA7	I obtain important information from teamwork.					
KA8	My organization ensures that there is on the job training to make the service rendered to customers are efficient and reliable.					
Knowledge sharing						
KSH1	My organization send out timely report and news to employee`s.					
KSH2	Communication with other members of my work group					

	is efficient and beneficial					
KSH3	My organization encouraged employee`s to freely share knowledge to enhance efficiency.					
KSH4	My organization Conducts regular conference training session to share knowledge.					
KSH5	I share information with Others.					
KSH6	Employee`s use latest file sharing system to share knowledge efficiently.					
KSH7	My colleagues are interactive to exchange idea widely across the organization.					
KSH8	Employees are encouraged to frequently participate in formal discussion to sharing knowledge.					
Knowledge storage						
KS1	I easily find the document needed in my work.					
KS2	My organization responds to employee`s ideas for further development.					
KS3	My organization facilitate in place to capture knowledge from employees					
KS4	Captured knowledge is stored in company knowledge repositories.					
KS5	Stored knowledge is readily					

	accessible for employees who need it.					
KS6	Previous made solutions are readily available to me					
KS7	My organization uses databases to distribute best practices among employees for use to effectively perform their task					
KS8	My organization has mechanisms in place to capture knowledge from employees.					
Employee performance(innovation)						
I1	In my organization there is a high extent of Service innovation (e.g.: introduction of a new service; changes to improve an existing service).					
I2	In my organization there is service delivery innovation (new or altered ways of supplying public services).					
I3	In my organization there is conceptual innovation (developing new views and challenging existing assumptions). .					
Quality Performance						
QP1	In my organization Promise with regards to the service offered is always kept.					

QP2	In my organization The equipment's used are up-to-date					
QP3	In my organization Customers are always provided with individualized attention					
QP4	In my organization Customers always feel safe in their transactions with the employees.					
QP5	In my organization Employees always show willingness to help customers.					
Operational Performance.						
OP1	In my organization Day to day employee`s working time reduced.					
OP2	In my organization Employee productivity has increased.					
OP3	In my organization The service delivery time has reduced.					

Appendix 2:SPSS Output

Correlations

		Knowledge mgtsystem	knowledge storage	innovation	quality performance	operational performance	Knowledgeacquisition	knowledsharing
Knowledgemgt System	Pearson Correlation	1	.802**	.289**	.545**	.488**	.488**	.842
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.00
	N	316	316	316	316	316	316	31
Knowledge storage	Pearson Correlation	.802**	1	.563**	.580**	.529**	.670**	.701
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.00
	N	316	316	316	316	316	316	31
Innovation	Pearson Correlation	.289**	.563**	1	.368**	.301**	.610**	.318
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.00
	N	316	316	316	316	316	316	31
Quality performance	Pearson Correlation	.545**	.580**	.368**	1	.815**	.856**	.505
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.00
	N	316	316	316	316	316	316	31
Operational performance	Pearson Correlation	.488**	.529**	.301**	.815**	1	.726**	.546
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.00
	N	316	316	316	316	316	316	31
Knowledgeacquisition	Pearson Correlation	.488**	.670**	.610**	.856**	.726**	1	.500
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.00
	N	316	316	316	316	316	316	31
Knowledge sharing	Pearson Correlation	.842**	.701**	.318**	.505**	.546**	.500**	
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	316	316	316	316	316	316	31

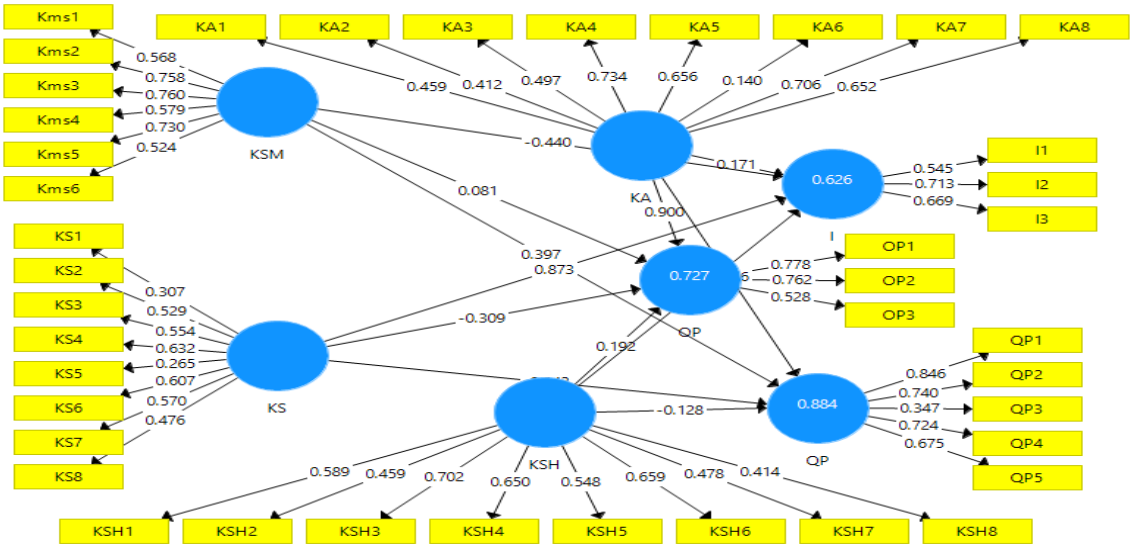
**. Correlation is significant at the 0.01 level (2-tailed).

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Knowledgemgtsystem	316	8.00	28.00	19.5380	4.16659
Knowledgestorage	316	17.00	37.00	28.2405	3.89779
Innovation	316	7.00	14.00	10.5854	1.78414
Quality performance	316	6.00	25.00	16.6741	3.43069
Operational performance	316	5.00	15.00	10.1361	2.11806
Knowledgeacquisition	316	14.00	39.00	28.7278	4.13372
Knowledgesharing	316	11.00	36.00	26.2405	4.73210
Valid N (listwise)	316				

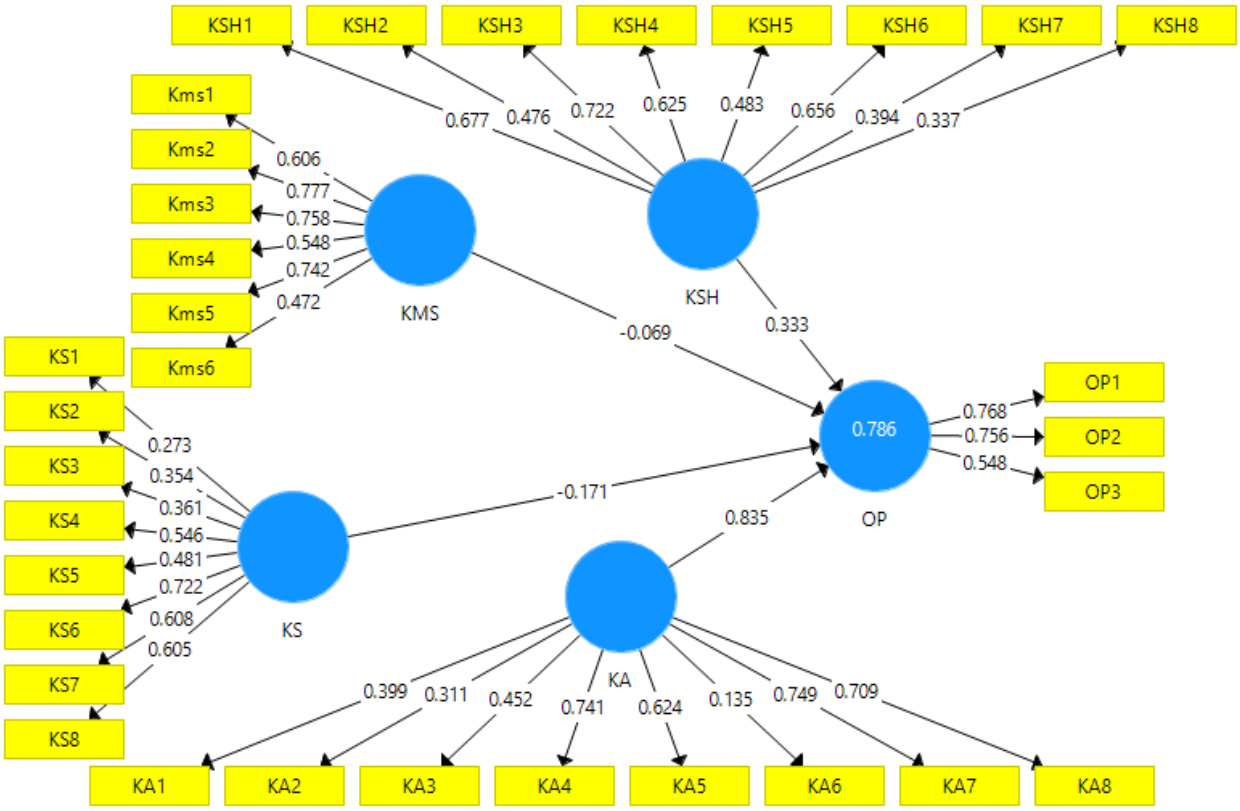
Appendix II:SmartPLS Model Result

The 1st (Initial) Path model for all variables

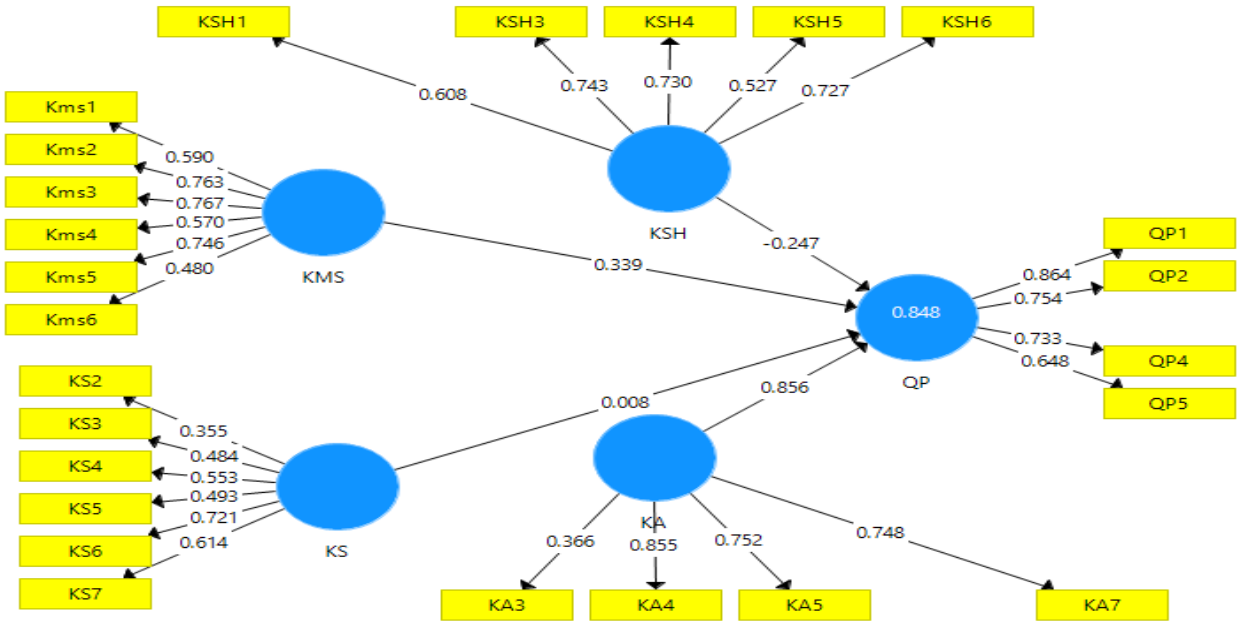


Initial Path for Each dependent Variable

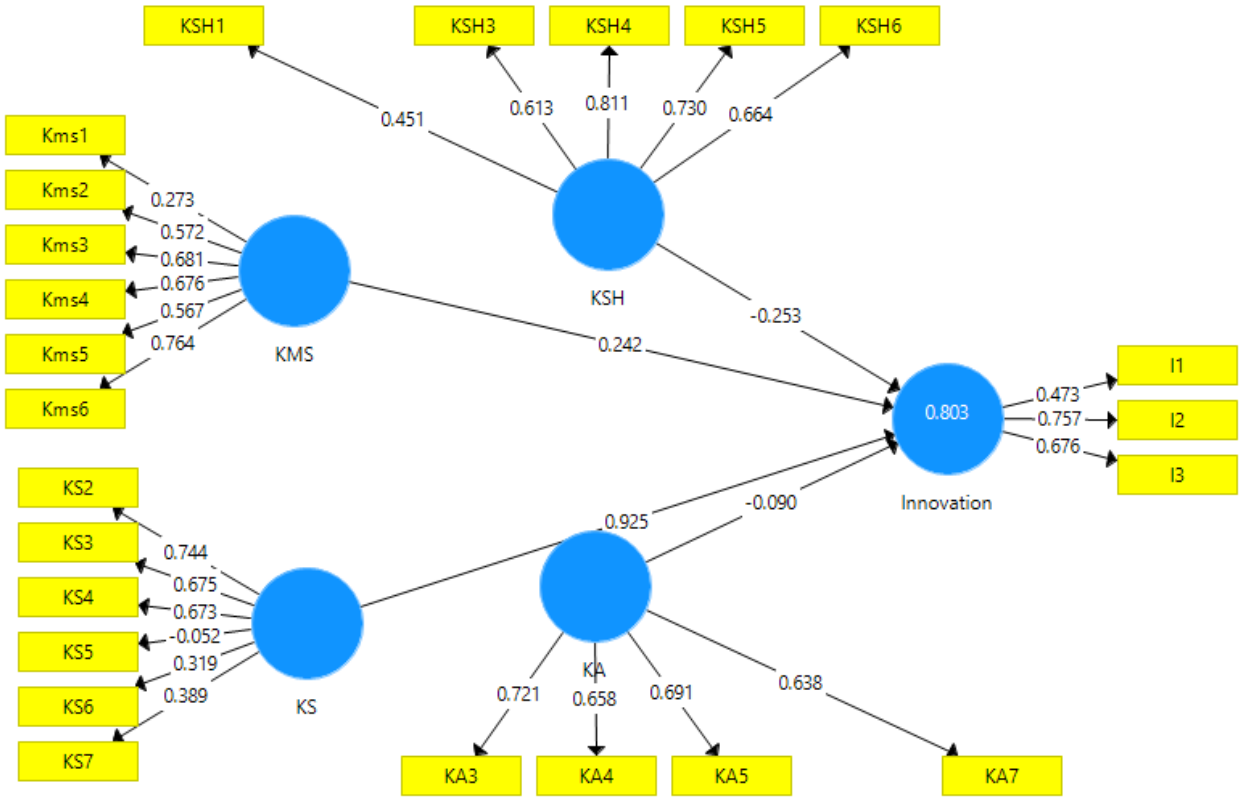
Path model for Operational Performance



Path model for Quality Performance



Path model for QP



Collinearity Statistics (VIF)

	VIF
I1	1.023
I2	1.059
I3	1.036
KA3	1.083
KA4	1.776
KA5	1.456
KA7	1.413
KS2	1.316
KS3	1.148
KS4	1.344
KS5	1.122
KS6	1.274
KS7	1.241

KSH1	**1.203**
KSH3	**1.355**
KSH4	**1.432**
KSH5	**1.459**
KSH6	**1.562**
Kms1	**1.286**
Kms2	**1.559**
Kms3	**1.555**
Kms4	**1.424**
Kms5	**1.752**
Kms6	**1.153**
OP1	**1.210**
OP2	**1.202**
OP3	**1.023**
QP1	**1.865**
QP2	**1.488**
QP4	**1.499**
QP5	**1.300**