

Effect of Knowledge Management System on Employees' Performance Customer Service Department of Ethio-telecom

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Abstract

The purpose of this research is to explore the effect of knowledge management system (KMS) on employees' performance in customer service department of Ethio Telecom. In doing this the study used quantitative research design among the various quantitative methods where emphasis is given on studying a situation or problem in order to explain the relationship between variables. Based on the usability of knowledge management system ethio telecom call center employees working on 994 contact centers are selected and questionnaire were administered. Structural equation model (SEM) and confirmatory factor analysis (CFA) were conducted to analyze the relationship and impact of KMS on employees' performance of ethio telecom. The findings of the analysis indicate that the relationship between Knowledge Acquisition and operational performance and quality performance was supported and significant but the relationship between Knowledge Acquisition and innovation was not supported and not significant. in order to maximize productivity/performance, the management staff of the organization should give serious attention to knowledge aquisition related activities. 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. The study also reveals that knowledge sharing has a positive and direct relationship with innovation 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 significant and positive contribution on the innovative culture of the organization.

Key Words: *Knowledge, Management system, Operational Performance, Sharing, Storang*

Introduction

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-growing knowledge-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.

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 be shared in order for 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 employees' 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 to Benbya 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 social development of a given country. It is important in a day-to-day life of the society. The remarkable 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 (Shewanawel, 2015).

It should be understood that 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 KMS process 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, et al., (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 office. (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 also positive work place relationship would motivate employees to work hard and improve their performance. Therefore, this research investigates the impact of KMS on the customer service employees' performance at ethio telecom. The knowledge management system has knowledge acquisition, sharing, and storage 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. Does knowledge acquisition have impact on employees' performance in ethio telecom?
- ii. Does knowledge sharing have impact on employees' performance in ethio telecom?
- iii. Does knowledge storage has impact on employees' performance in ethio telecom?

Objectives of the study

The general objective of the study is to investigate impact of knowledge management system on ethio telecom customer service employees' performance. 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 acquisition on employees' performance.
- ✓ To identify the impact of knowledge sharing on employees' performance.
- ✓ To identify the impact of knowledge storage on employees' performance

Research Hypotheses

H1.1: There is a significant relationship between knowledge management system and innovation performance.

H1.2: There is a significant relationship between knowledge management system and operational performance.

H1.3: There is a significant relationship between knowledge management system and quality performance.

H2.1: There is a significant relationship between knowledge acquisition and innovational performance.

H2.2: There is a significant relationship between knowledge acquisition and operational performance.

H2.3: There is a significant relationship between knowledge acquisition and quality performance.

H3.1: There is a significant relationship between knowledge sharing and innovational performance.

H3.2: There is a significant relationship between knowledge sharing and operational performance.

H3.3: There is a significant relationship between knowledge sharing and quality performance.

H4.1: There is a significant relationship between knowledge storage and innovational performance.

H4.2: There is a significant relationship between knowledge storage and operational performance.

H4.3: There is a significant relationship between knowledge storage and quality performance.

Review of Related Literature

Organizations are able to 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 are able to 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.

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 similar to 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).

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 rather than. 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.

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.

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. Erika T. Rodell (2020) pointed out; expanding knowledge management in organization has the high-level business benefits include:

- ✓ **Increased operational efficiency and reduced operational costs:** because support staff and employees can get to the required solutions more quickly and with less lost productivity.
- ✓ **A superior employee experience:** thanks to not only speedier resolutions but also better-informed decisions that result in higher quality outcomes.

- ✓ **Better use of scarce support resources and the productivity of the employees they serve:** through support staff augmentation and employee empowerment via self-help, which the organization will expand upon in the next sections, and self-care.
- ✓ **Reduced duplication of effort:** thanks to having known solutions readily available to people rather than them having to rediscover what needs to be done.
- ✓ **Less risk with staff turnover:** because knowledge management minimizes the impact of leavers and makes the on boarding of new staff both easier and swifter.
- ✓ **Speeding up and improving the quality of the delivery service.**

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 positiveness 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 employee's 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.

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, (Ali, selvam, Paris, & Gunasekaran, 2019).

the value of KMS as a pathway to conduct E-training, which is the most efficient online intervention program that enhances the knowledge and skills of employees without tiding them to fix physical place or ignoring their busy schedule.

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.

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).

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 Goel et 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.

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 friendless 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 employees’ performance.

The study aimed to investigate the effect of working environment on employee performance in the Ethio-Telecom in Ambo branch. The target population was all the employees at Ambo Ethio-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 zonale 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.

2.2. Conceptual framework

Independent variable

Dependent variable

Knowledge management system

Employees' performance

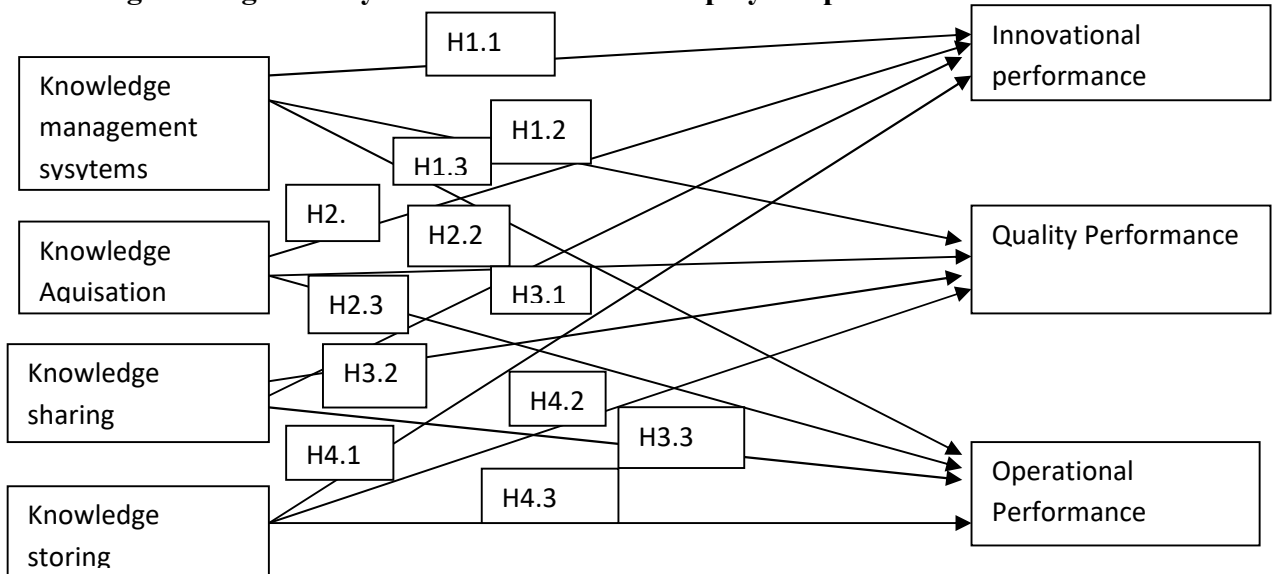


Figure 0-1: Conceptual framework designed by the researcher

Research design and methodology

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 employees' 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.

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 necessary. Therefore, Yamane's simplified formula (Israel, 2012) provides a way to calculate the sample size of the population as follows.

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

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

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

$$n = \frac{1500}{4.75} = 315.78 \approx 316$$

Therefore, the sample size for this study is 316 and by using simple random sampling method questionnaire were 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 Adiss Ababa, these call center are: Jemo site and Welo Sefer 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 were selected. 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.

$r = n/N$, Where n = corrected sample size, N = population size under study. $r = 316/1500 = 0.21$, then Jemo site sample size will be $(900 * 0.21) = 189$ and welo sefer site sample size will be $(600 * 0.21) = 127$.

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). After finalizing the survey instrument, the questionnaire was distributed among the two ethio telecom call center site.

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 also used Cronbach's alpha and confirmatory factor analysis are

DATA PRESENTATION, ANALYSIS AND DISCUSSION

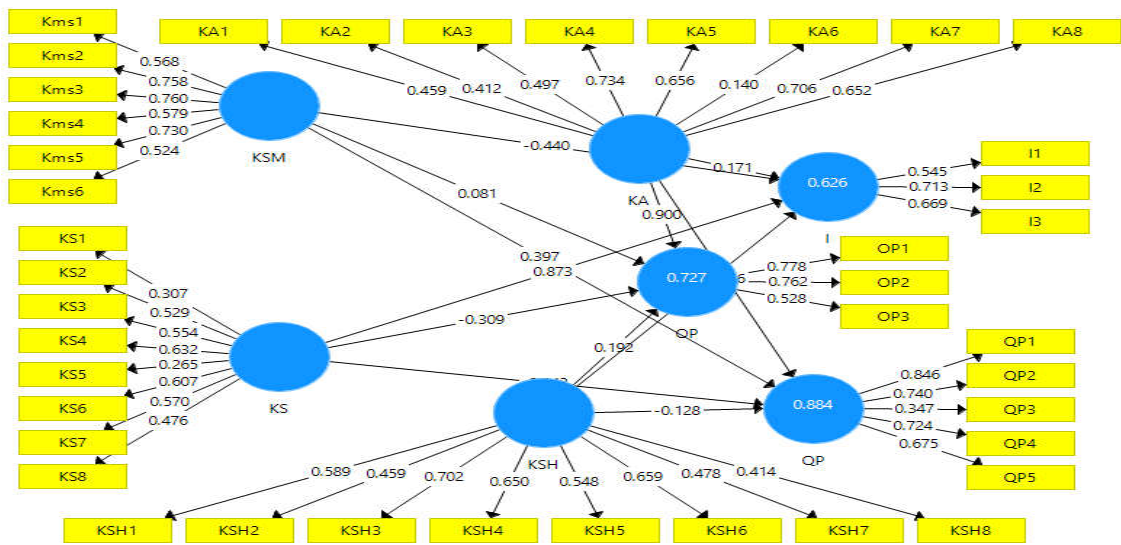
Structural Equation Modeling (SEM)

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 module 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).

Measurement Model

The study 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, and the structural regression equation is utilized on the third level independently in the structural model. The convergent and discriminant validity of construction 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 (Henderson, Sheetz, &Trinkle, 2012). The Smart PLS method proved practical, and the resulting associations, coefficients, and loading values are given in Initial path model which is presented in Figure 4.1. Figure 4-1 Initial Path Model

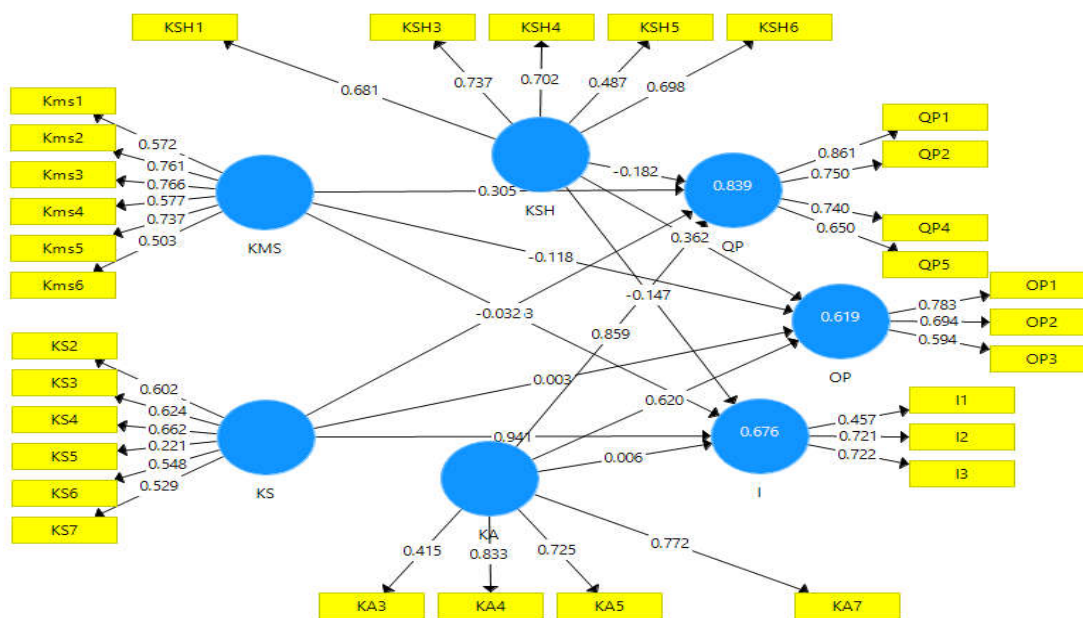


Source: Survey Data, (2021).

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 each independent variables (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 has to be redeveloped based on the significant level of the results. Results below 0.5 has to be deducted from the initial path model and the researcher has developed the final path model as stated below.

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 minimal factor loading for sub-factors was set to 0.45, as recommended by (Comrey, 1973). The sub-factors loading measures of greater than 0.50, as indicated by (Hulland, 1999), were acceptable in this investigation. The dimension sub-factors that funded the latent constructs the least were subsequently removed from the dimension model to enhance model fit. For further study, the resultant final route model in Figure 4.2.

Figure 4-2 Final Path Model



Source: Primary Data, (2021).

The figure above (figure 4-2) has tried to show the final 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 final path model is developed based on the appropriate results. Based on the principles of structural equation modeling, results below 0.5 in the initial path model has no significant value to make decision on the impact of the different independent variables on the dependent 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 above.

Confirmatory factor analysis

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 indicator 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 represent the underlying component model that those questions are meant to measure (Hair et al., 2010). Construct validity is divided into discriminating and convergent validity.

Reliability and Validity

Reliability

The degree to which data collecting techniques or analysis procedures produce consistent results is referred to 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 (Zikmund et al., 2010). The first indication, the test-retest, is evaluated by delivering the same scale of measure to the same respondent again and determining the correlation between the two scores obtained (Zikmund et al., 2010). The second indication, internal consistency, measures the degree to which the scale's

items all measure the same underlying property (Zikmund et al., 2010). The coefficient alpha is the most widely used indication for calculating internal consistency.

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. The validity of the data is assessed using composite reliability and Cronbach's alpha, and the findings are shown in table 4-6. Except one quality operational performance element, all independent variables have a composite reliability of 0.8 or higher and a Cronbach's alpha of 0.7 or higher. This demonstrated the data's high validity and dependability.

Convergent validity

Convergent validity measures how closely items in a particular construct converge or share a high proportion of variation in common (Hair et al, 2010). The convergent validity was calculated using average variance extracted. According to (Hair, 1992), all average variance extracted should be greater than 0.5, and all in this study are greater than the expected values. As a result, all variables exceed the minimal criterion, indicating extremely strong convergent validity.

Table 4-6. *Convergent Validity*

Independent Variable		Std. Factor Load	Cronbach's α	CR	AVE
Knowledge Storage	(I easily find the document and files needed in my work)KS1	0.772	0.85	0.90	0.75
	(My organization responds to employee's ideas and documented them for further development)KS2	0.820			
	(My organization facilitate in place to capture knowledge from employees and customer)KS3	0.792			
	(Captured knowledge is codified and stored in company knowledge repositories)KS4	0.871			
	(Stored knowledge is readily accessible for employees who need it)KS5	0.842			
	(Previous made solutions and document are readily available to me)KS6	0.835			
	(My organization uses databases to store and distribute 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 and news to employee's)KSH1	0.860	0.82	0.89	0.67
	(Communication with other members of my work group is efficient and beneficial) KSH2	0.783			
	(My organization encouraged employee's to freely share information and knowledge to enhance efficiency)KSH3	0.861			
	(My organization Conducts regular conference and training session to share knowledge) KSH4	0.835			

	(I share information and Learn from others)KSH5	0.847			
	(Employee`s use latest file sharing system to share knowledge efficiently)KSH6	0.847			
	(My colleagues are interactive and exchange idea widely across the organization)KSH7	0.864			
	(Employees are encouraged to frequently participate in formal and informal 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 creating and acquiring knowledge from different sources) KA2	0.769			
	(My organization encourages and has processes for the exchange of ideas and knowledge between individual and 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	(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)

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 comparison of the average variance extracted estimates for each component with the squared inter-factor correlation estimates associated with that factor provides evidence of discriminate validity in this study. The Composite Reliability (CR) must be greater than 0.7 (Hair et al., 2010). The average variance extracted square root and correlations of the dependent variables are examined to determine discriminate validity. If the average variance extracted square root of a dependent variable is greater than its correlation with 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	0.784	0.570	0.554	0.551			
KSH	0.169	0.514	0.832	0.476	0.667		
OP	0.298	0.749	0.497	0.464	0.584	0.695	
QP	0.378	0.901	0.567	0.540	0.498	0.833	0.754

Source: Survey data (2021)

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

From the table above (Table 4-7), it is possible to conclude that there is no any problem for the study related with discriminate validity. Because, as we can understand from the result, there is no diagonal result which is less than 0.5 in both the independent and dependent variables.

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 model includes path coefficient assessment, which indicates the strength of the relationships between the R-square value of the independent variables and dependent variables. A boot strapping 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, a 5% significance threshold ($p < 0.05$) is utilized. The resulting t-value indicates the level of significance considering the extent of the similar factor estimations between the construct.

Hypothesis Testing

Researchers usually employ P values for hypothesis testing in PLS-SEM, where each hypothesis refers to a 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 (a path regression coefficient is unstandardized). 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 boot strap 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
KMS -> I	0.276	0.267	0.073	3.770	0.000	Yes
KMS -> OP	-0.144	-0.139	0.188	0.764	0.445	No
KMS -> 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 exogenous (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) variables. 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 +1.96 t-value rule with a significance level or P value of 0.05, that is, the critical ratio should be greater than 1.96 at a significance level of $\alpha = 0.05$ (Byrne, 2010; Hair et al., 2010).

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 $\beta=0.017$, 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.

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.

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.

Knowledge Management system 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 any meaningful relationship with operational performance. Therefore, the hypothesis is not accepted.

Knowledge Management system 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.

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.

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 any meaningful relationship with operational performance. Therefore, the hypothesis is not accepted.

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 any meaningful relationship with quality performance. Therefore, the hypothesis is not accepted.

Knowledge Sharing and Innovation

As the table above indicated (Table 4-9), the relationship between Knowledge sharing and innovation was supported and significant with the original sample β =-0.080, statistics (t)=1.516, and significant value (p) is greater than 0.01 indicating that knowledge sharing and innovation has no direct and positive relationship. Therefore, the hypothesis is not accepted.

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 any meaningful relationship with operational performance. Therefore, the hypothesis is not accepted.

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.

Knowledge Management System 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.

Recommendations

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

- i. The study finding reveals that there is a positive and direct relationship between knowledge acquisition and operational performance of ethio telecom call center employees. Therefore, in order to maximize productivity/performance, the management staff of the organization should give serious attention to knowledge acquisition related activities. The finding also depicts that knowledge acquisition has a positive and direct relationship with quality performance ethio telecom call center employees. This implies that, the organization give due attention for knowledge acquisition, it will improve the quality of the performance that each and call center employees has in the business. Therefore, concerned individuals/groups in the organization should give focus for knowledge acquisition in order to maximize the quality of the performance.
- ii. On the other dimension, the study findings also showed that, knowledge management system has a positive and direct relationship with innovation performance of ethio telecom 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 has a positive 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 performance. Therefore, the management staffs should give care for knowledge management system, in order to have qualitative performance.

- iii. The result of the study also indicated that knowledge storage has a positive and significant effect on innovation performance of ethio telecom call center employees. This implies that, when the organization management staffs give care to the process and achievements related with knowledge storage, it has a significant and positive effect on the innovative achievements of the organization. Therefore, it is advisable to focus more on knowledge storage related activities in the business.
- iv. Last but not the least, the study also reveals that knowledge sharing has a positive and direct relationship with innovation 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 significant and positive contribution on the innovative culture of the organization.

References

- Abell, Angela, and Nigel Oxbrow (2014). *Competing with Knowledge*. London: Library Association.
- Aboelmaged, M.G. (2012), "Harvesting organizational knowledge and innovation practices: an empirical examination of their effects on operations strategy", *Business Process Management Journal*, Vol. 18 No. 5, pp. 712-734.
- Ahearne, M., Jones, E., Rapp, A., & Mathieu, J. (2008). *High touch through high tech: The impact of salesperson technology usage on sales performance via mediating mechanisms*. *Management Science*, 54(4), 671-685.
- Akehurst, G., Rueda-Armengot, C., Vivas Lopez, S. and Palacios Marque's, D. (2011), "Ontological Supports of knowledge: knowledge creation and analytical knowledge", *Management Decision*, Vol. 49 No. 2, pp. 183-194.
- Akdere, M. (2009), "The role of knowledge management in quality management practices: achieving Performance excellence in organizations", *Advances in Developing Human Resources*, Vol. 11No. 3.
- Al-Khouri. (2014). *Critical factors for knowledge sharing in technology-intensive organizations: evidence from UAE service sector*. *Journal of Knowledge Management* Vol. IV, Issue 3
- Alavi_and_Leidner. (2001). *Knowledge Management and Knowledge Management Systems: Conceptual Foundations*. *MIS Quarterly* Vol. 25 No. 1, 107-136.
- Al-Mabrouk, K. (2006). *Critical Success Factors Affecting Knowledge Management Adoption: A Review of the Literature*. *Innovations in Information Technology*, 11-23.
- Alrawi_and_Elkhatib. (2009). *Knowledge Management Practices In The Banking Industry: Present And Future State - Case Study*. *Journal of Knowledge Management Practice*, Vol. 10, No. 4.
- Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). *Assessing the work environment for creativity*. *Academy of Management Journal*, 39(5), 1154-1184.
- Argote_et_al. (2003). *Managing Knowledge in Organizations: An Integrative Framework and Review of Emerging Themes*. *Management Science*, 571-582.
- Baloh_et-al. (2011). *Contextualizing organizational interventions of knowledge management systems: A design science perspective*. *Journal of the American Society for Information Science and Technology*, 948-966.
- Bekan. S. (2019) *Boosting Employees' Performance; Impact of Working Environments on Employees' Performance: case study on Ethio telecom at Ambo Branch*: Addis Ababa University.

- Benbya, H. , Passiante, G., & Aissa Belbaly, N. (2004). *Corporate portal: a tool for knowledge*.
- Bekkers, V., Edelenbos, J. and Steijn, B. (2011), “*An innovative public sector? Embarking on the innovation journey*”, in *Innovation in the Public Sector*, Palgrave Macmillan, UK, pp. 197-221.
- Bond, T.C. (1999), “*The role of performance measurement in continuous improvement*”, *International Journal of Operations & Production Management*, Vol. 19 No. 12, pp. 1318-1334.
- Bontis, N. (2002). *Voluntary turnover: knowledge management – friend or foe?* *Journal of Intellectual Capital*, 303-322.
- Boyne, G. A. (2004). *Public and Private Management*. *Journal of Management studies*, 97-122.
- Bozbura. (2007). *Knowledge Management and Business Performance: Mediating Effect of Innovation*. *Journal of Enterprise Information Management*, 209-221.
- Brassard, B. a. (2004). *Leadership and organizational outcomes: Meta-analysis of empirical studies*. Turkey: Springer.
- Cantner, U., Joel, K. and Schmidt, T. (2011), “*The effects of knowledge management on innovative success – An empirical analysis of German firms*”, *Research Policy*, Vol. 40 No. 10, pp. 1453-1462.
- Carneiro, A. (2000). *How does knowledge management influence innovation and competitiveness?* *Journal of Knowledge Management*, 4(2), 87-98.
- Castrogiovanni, G., Ribeiro-Soriano, D., Mas-Tur, A. and Roig-Tierno, N. (2016), “*Where to acquire knowledge: adapting knowledge management to financial institutions* ”, *Journal of Business Research*, Vol. 69 No. 5, pp. 1812-1816.
- Cates, S. C. (2006). *Teachers’ Content Knowledge and Pedagogical Content Knowledge: The Role of Structural Differences in Teacher Education*. *Journal of Teacher Education*, 90-106.
- Chang-Lee-et-al. (2005). *Erratum to “KMPI: Measuring knowledge management performance”*. *Journal of Information and Management*.
- Chang, S.C. and Lee, M.S. (2007), “*A study on relationship among leadership, organizational culture, the operation of learning organization and employees’ job satisfaction*”, *The Learning Organization*, Vol. 14 No. 2, pp. 155-185.
- Chen-and_Huang. (2009). *Human Resources Strategic Practices, Innovation Performance & Knowledge Management: Proposal For Brazilian Organizations*. *Journal of Business Research*, 104-114.
- Cho, T., & Korte, R. (2014). *Managing knowledge performance: Testing the components of a Knowledge management system on organizational industry*. *Journal of Enterprise Information Management*, 28(2), 167-85.
- Cong, X. and Pandya, K.V. (2003), “*Issues of knowledge management in the public sector*”, *Electronic Journal of Knowledge Management*, Vol. 1 No. 2, pp. 25-33.
- Cummings. (2004). *The Effects of Personal and Contextual Characteristics on Creativity*. *Journal of Management*, 20-30.
- Curristine, T., Lonti, Z. and Joumard, I. (2007), “*Improving public sector efficiency: challenges and opportunities*”, *OECD Journal on Budgeting*, Vol. 7No. 1.
- Denford_and_Chan. (2011). *Knowledge strategy typologies: Defining dimensions and relationships*. *Knowledge Management Research and Practice* , 102-119.
- Desouza, K. C. (2011). *Managing Ideas Within Your Organization*. New York: Neal-Schuman.
- Davenport, T. a. (2001). “*The rise of knowledge towards attention management*”. *Journal of Knowledge Management*, 212-21.
- De Vries, H., Bekkers, V. and Tummers, L. (2015), “*Innovation in the public sector: a systematic review and future research agenda*”, *Public Administration*, Vol. 94No. 1, pp. 146-166.
- Dyan, R. and Evans, S. (2006), “*KM your way to CMMI*”, *Journal of Knowledge Management*, Vol. 10 No. 1, pp. 69-80.
- Drucker. (1999). *Management Challenges for the 21st Century*. United States: HarperCollins.

- Dunk, N. &. (2013). *Knowledge Management Enablers and Knowledge Creation in ERP System Success*. International Journal of Electronic Business Management, 11(1), 49-59.
- Erika-T.Rodell. (2020, January 30). *Easy VISTA*. Retrieved from *What is Knowledge Management?:* <https://www.easyvista.com/blog/what-is-knowledge-management>.
- Feng, K., Chen, E. T., & Liou, W. (2005). *Implementation of knowledge management systems and firm performance: an empirical investigation*. Journal of Computer Information Systems, 45(2), 92-104.
- Feyori .B. (2010). *Factors Affecting Employees` performance*: Addis Ababa University
- Firestone, M. a. (2003). *Key Issues in the New Knowledge Management*. Butterworth-Heinemann.
- Flynn, B.B., Schroeder, R.G. and Sakakibara, S. (1994), “*A framework for quality management research and an associated measurement instrument*”, Journal of Operations Management, Vol. 11 No. 4, pp. 339-366.
- Gamble_and_Blackwell. (2001). *Knowledge Management: A State of the Art Guide*. US: Kogan Page Business Books.
- Garvin, D. A. (1993). *Building a Learning Organization*. Open Journal of Business and Management, Vol.3 No.2, 78-91.
- Ghauri, P. and Gronhaug, K. (2002), *Research Methods in Business Studies*, Pearson Education, Harlow.
- Gholami_Asli, N.-S. (2013). *Investigating the Influence of Knowledge Management Practices on Organizational Performance: An Empirical Study*. Acta Polytechnica Hungarica, 205-216.
- Goel, A.K., Rana Sharma, G. and Rastogi, R. (2010), “*Knowledge management implementation in NTPC: an Indian PSU*”, Management Decision, Vol. 48No. 3, pp. 383-395.
- Gold_et_al. (2001). *Knowledge Management: An Organizational Capabilities Perspective*. Journal of Management Information Systems, 185-214.
- Goldsmith. (2004). *Communicating Social Support*. US: Cambridge University Press.
- Gunasekaran, A., Patel, C. and McGaughey, R.E. (2004), “*A framework for supply chain performance measurement*”, International Journal of Production Economics, Vol. 87No. 3, pp. 333-347.
- Handzic, M. (2004). *Knowledge Management in SMEs Practical guidelines*. CACCI Journal, Vol. 1, 21-34
- Hasanali. (2002). *Critical success factors of knowledge management*. Journal of Knowledge Management Practice, Vol. 11, No. 1, 235-261.
- Hassan, D. (2014). *Knowledge management practices in Pakistan’s Telecom Services Sector*, The Lahore Journal of Business, 3(1), 55-74.
- Hair JF, Black WC, Rabin BJ, Anderson RE. *Multivariate data analysis*. 7th ed. Englewood Cliffs, NJ: Prentice Hall; 2010.
- IMF (2008), *Fiscal Policy for the Crisis, International Monetary Fund*, Washington, DC.
- Imran, M., Maqbool, N., & Shafique, H. (2014). *Impact of technological advancement on employee performance in banking sector*. International Journal of Human Resource Studies, 4(1), 57-70.
- Ipe, M. (2003). *Knowledge Sharing in Organizations: A Conceptual Framework*. Human Resource Development Review, 337-359.
- Juran, J.M. (2004), *Architect of Quality: The Autobiography of Dr Joseph M. Juran*, McGraw Hill Professional, New York, NY.
- Kianto, A., Vanhala, M., & Heilmann, P. (2016). *The impact of knowledge management on job satisfaction*. Journal of Knowledge Management, 20(4), 621-636.
- Kluge. (2001). *Human Resource Management Models: Aspects of Knowledge Management and Corporate Social Responsibility*. Social and Behavioral Sciences, 577-586.
- Li_and_Zhang. (2010). *The Influence of the University Teachers’ Psychological Contract on Knowledge Sharing*. Wuhan, The People's Republic of China.

- Lopez. (2004). *Managing Knowledge: The Link between Culture and Organizational Learning*. Journal of Knowledge Management, 93-104.
- Mallet. (2006). *The Effect of Knowledge Management Context on Knowledge*. Electronic Journal of Knowledge Management Volume 4 Issue 2, 117-128
- Marques, P. D., & Simon, F. (2006). *The effect of knowledge management practices on firm performance*. Journal of Knowledge Management, 10(3), 143-156.
- Menon, T. &. (2003). *Valuing Internal vs. External Knowledge: Explaining the Preference for Outsiders*. Management Science, 49(4), , 497-513.
- McElroy. (2000). *Doing Knowledge Management* . The Learning Organization Journal, Vol. 12, No.2 (2005), 1-29.
- Mulate . M. (2014). *Determinant Factors Affecting Employees` Performance in Ethio telecom zonal offices*: Addis Ababa University.
- Muthuveloo, R., Shanmugam, N., & Teoh, A. P. (2017). *The impact of tacit knowledge management on organizational performance: Evidence from Malaysia*. Asia Pacific Management Review, 22(4), 192-201.
- Nejatian, M. N. (2013). *Critical Enablers for Knowledge Creation Process: Synthesizing the Literature*. Global Business and Management Research: An International Journal, 5(2 & 3), 105-119.
- Noe, W. a. (2010). *Knowledge Sharing: A Review and Directions for Future Research*. Human Resource Management Review, 117-131.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge creation company: how Japanese companies create the dynamics of innovation*. New York.
- Ortenblad, A. (2002). *A Typology of the Idea of Learning Organization*, Volume: 33 issue: 2. SAGE Journals, 213-230.
- Panday. (2003). *Culture as an issue in knowledge sharing: a means of competitive advantage*.
- Paquette, D. a. (2011). *Knowledge Management: an Introduction*. London: Facet Publications.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1988), “*SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality*”, Journal of Retailing, Vol. 64 No. 1, pp. 12-40.
- Purcarea, I., del Mar Benavides Espinosa, M. and Apetrei, A. (2013), “*Innovation and knowledge creation: perspectives on the SMEs sector*”, Management Decision, Vol. 51 No. 5, pp. 1096-1107.
- Robbins, T. (2000). *What’s your organizational culture? Retrieved from What’s your organizational culture?: <https://www.tonyrobbins.com/business/whats-your-organizational-culture/>*
- Rosenberg, J. (2004). *The Barriers To Organizational Change*. Denmark.
- Saunders, M.L., Thornhill, A. and Lewis, P. (2016), *Research Methods for Business Students*, 7th Edition. Pearson, Italy.
- Scekic, O. T. (2013). *Incentives and Rewarding in Social Computing*. Communications of the ACM, 72-82.
- Shewanawel .S. (2015). *Usability of Knowledge Management Portals at Ethio telecom*: Addis Ababa University.
- Storey, J. a. (2000). “*Knowledge management initiatives: learning from failure*”. Journal of Knowledge Management, 145-56.
- Strouse. (2001, January 1). *Strategies for Success in the New Telecommunications Marketplace*. Retrieved from Amazon:https://www.academia.edu/34161383/Strategies_for_Success_in_the_New_Telecommunications_Marketplace.
- Sunil-Kumer. (2013). *Knowledge Management*. International Journal of Advance Research in, 451-456.
- Syed-Ikhsan, S.O.S. and Rowland, F. (2004), “*Knowledge management in a public organization: a study on the relationship between organizational elements and the performance of knowledge transfer*”, Journal of Knowledge Management, Vol. 8 No. 2, pp. 95-111.

- Tajali, M., Farahani, A., & Baharvand, M. (2014). *Relationship between Knowledge Management with employees' Performance and Innovation*. Kuwait Chapter of Arabian Journal of Business and Management Review, 33(2544), 1-5.
- Torabi, M. H. R., Kyani, A., and Falakinia, H. (2017). *An investigation of the impact of knowledge management on human resource performance in management of Keshavarzi bank branches in Tehran*. Procedia-Social and Behavioral Sciences, 230, 471-481.
- Tseng, K.H., Chang, C.C., Lou, S.J., Tan, Y. and Chiu, C.J. (2012), "How concept-mapping perception navigates student knowledge transfer performance[J]", Educational Technology & Society, Vol. 15 No. 1, pp. 102-115.
- Tseng, C.Y., Chang Pai, D. and Hung, C.H. (2011), "Knowledge absorptive capacity and innovation performance in KIBS", Journal of Knowledge Management, Vol. 15 No. 6, pp. 971-983
- Walsh_ and-Ungson. (1991). *Understanding Organizational Memory*. In W. a. Ungson, structure of organizational memory (p. 61).
- Wang, S. &. (2010). *Knowledge Sharing: A review and Directions for Future Research*. Human Resource Management Review, 115-131.
- West, M.A. (2002), "Sparkling fountains or stagnant ponds: an integrative model of creativity and innovation implementation in work groups", Applied Psychology, Vol. 51 No. 3, pp. 355-387.
- Windrum, P. (2008), "Innovation and entrepreneurship in public services", In Koch, P. and Windrum, P. (Eds.), *Innovation in Public Services: Management, Creativity, and Entrepreneurship*, Edward Elgar Publishing Limited, Cheltenham, pp. 3-20.
- Wu, W.-W. (2008). "Choosing knowledge management strategies by using a combined ANP and DEMATEL approach". Expert Systems with Applications, 828-835.
- Xue, Y., Bradley, J. and Liang, H. (2011), "Team climate, empowering leadership, and knowledge sharing", Journal of Knowledge Management, Vol. 15 No. 2, pp. 299-312
- Yi_ and_Li. (2012). *Knowledge Management, Sharing and Creation in Developing Countries'*. Advanced in Network and Communications, 1.
- Yukl. (2005). *Leadership in Organizations*, 6th Edition. New York.
- Zack. (1999). *Developing a Knowledge Strategy*. SAGE Journals.