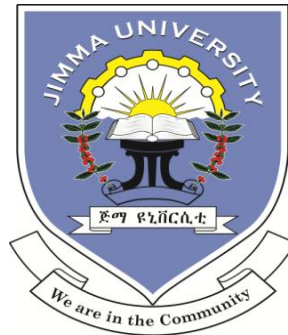


**JIMMA UNIVERSITY**  
**COLLEGE OF NATURAL SCIENCES**  
**DEPARTMENT OF INFORMATION SCIENCE**



**INVESTIGATION OF THE STATUS AND BARIERS OF  
KNOWLEDGE MANAGEMENT SYSTEMS AND ITS EFFECT  
ON ORGANIZATIONAL PERFORMANCE: THE CASE  
OF MESFIN INDUSTRIAL ENGINEERING.**

**By:**  
**Zelege Kiros**

**Jimma, Ethiopia**  
**October 2017**

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**By  
Zelege Kiros**

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**Co-advisor: Workineh Tesema (MSc.)**

**A THESIS SUBMITTED TO THE DEPARTMENT OF INFORMATION SCIENCE,  
COLLEGE OF NATURAL SCIENCES, JIMMA UNIVERSITY, IN MEETING THE  
PARTIAL FULFILLMENT FOR THE AWARD OF DEGREE OF MASTER OF  
SCIENCE IN INFORMATION AND KNOWLEDGE MANAGEMENT**

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**October, 2017**

## Approval sheet

As members of the board of examining of MSc. Research open defense of the title, ” investigation of the status and barriers of knowledge management system and its effect on organizational performance: the case of Mesfin industrial engineering.” we members of the department read and evaluated the document and examined the student’s thesis for approval.

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Finally, my sincere thank goes to my parents for their unreserved support in my all academic journeys starting from school to the university years.

## **Dedication**

I dedicate this thesis work to my dearest father and mother who delivered me to this world of academic environment until the accomplishment of my first degree but are not fortunate to see this master's ending.

## Declaration

I hereby declare that this thesis entitled “Investigation of the status and barriers of knowledge management system and its effect on organizational performance: the case of Mesfin industrial engineering.” has been carried out by me under the guidance and supervision of Wondimeneh Mammo and Workineh Tesema.

The thesis is original and has not been submitted for the award of any degree or diploma to any universities or institutions.

Signature

Date

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Zelege Kiros

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## List of acronyms

<b>Cop</b>	Communities Of Practice
<b>EFFORT</b>	Endowment Fund for the Rehabilitation of Tigray
<b>IT</b>	Information Technology
<b>KM</b>	Knowledge Management
<b>KMS</b>	Knowledge Management Systems
<b>MiE</b>	Mesfin Industrial Engineering
<b>OC</b>	Organizational Culture
<b>PLC</b>	Private Limited Company
<b>SPSS</b>	Statistical Package For The Social Sciences

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## Abstract

*Knowledge Management System is a practice that creates a synergy of the information processing ability given by information technology with the inventive and imaginative competency of human and social elements in organizations. This study presents the status of knowledge management systems for organizational performance in Mesfin Industrial Engineering (MiE). The main purpose of this study was to investigate Knowledge Management System (KMS) in manufacturing industry which focuses on organizational performance. In the rising global economy managing knowledge successfully has become a basic activity for any competitive advantage of organizations. As far as competition in market place increases, organizations tend to strive in order to remain competitive, productive and profitable. It is vital for companies to ensure they utilize their organizational assets human and technical, in order to achieve maximum performance and efficiencies. Although knowledge management system serves as critical enablers of industrial processes in organizations, their co-existence with organizational performance is not clear yet. In general KMS is necessary part every organizations day today operation. In order to go aligned with this study, the researcher used cross sectional survey research method by using questionnaire, interview and observation as data collection instruments. To find respondents for the data collection instruments the researcher used both purposive and random sampling technique for interview and questionnaires respectively. The study was therefore more quantitative which uses descriptive statistics. After all this, the finding shows that MiE was using knowledge management systems even though the status of their utilization was at low level with limiting factors such as inadequate knowledge of the benefits of Knowledge Management Systems in the organization, Lack of organized training in Knowledge Management System and Personal motivation to use Knowledge Management System. Finally the researcher recommends the organization to have the habit of frequent training to the employees either annually or biannually to advance the attitude of the employees in KMS. In the meantime this research was done giving special emphasis for single organizations employees, in order to encompass multiple organizations employees' future researchers can use to incorporate more than one organization to study the same work.*

**Keywords:-** *knowledge, knowledge management, knowledge management system, organizational performance and MiE*







# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

In the current rising global economy a successful knowledge management has become basic activity for any competitive advantage of organizations. As far as competition in market place increases, organizations tend to strive in order to remain competitive, productive and profitable. It is vital for companies to ensure they utilize their organizational assets such as human and technical, in order to achieve maximum performance and efficiencies (Bhorjaraju, 2010).

It is obvious that knowledge is deep-seated strategic resource for a firm to retain sustainable competitive advantage. Knowledge is defined as familiarity, awareness or understanding of someone or something, such as facts, information, descriptions, or skills, which is acquired through experience or education by perceiving, discovering, or learning. It is both authorized by and executed from people's practices and exists in a specific work context (Lopez, 2007).

Knowledge management is also a concept, in which an enterprise gathers, organizes, shares, and analyzes the knowledge of individuals and groups across the organization in a ways that directly or indirectly affects organizational performance (Cavell, 2002).

According to Cavell, ( 2002), Knowledge Management is the practice of selectively applying knowledge from previous experiences of decision making to current and future decision making activities with the express purpose of improving the organization's effectiveness. Knowledge management is a multi-faceted discipline that aims at managing the knowledge assets of the organization, holistically combining behavioral and organizational theories. As knowledge is produced and defused throughout an organization, it has the potential to contribute to the firm's value by enhancing its capability to respond to new and unusual situations when it is properly managed and supported by knowledge management systems.

Knowledge Management System is one of the strongest knowledge management technologies that are designed to capture all the information within an organization and

make it easily available to an employee, anywhere, anytime. It is defined as distinctive sets of information systems that are created to facilitate the capture, storage, retrieval, share and reuse of knowledge (Jennex, 2005). In general, KMS is a practice that creates a synergy of the information processing ability given by information technology with the inventive and imaginative competency of human and social elements in organizations (Malhotra, 2000).

The concept of knowledge and knowledge managements are not new phenomena's. Researchers knew the practice of knowledge management as early as research activities have began (Quaddus, 2004). Conversely, knowledge management systems which involve the application of IT systems and other organizational resources to manage knowledge strategically, are a relatively recent phenomenon that are worthy of researching on today in the context of Ethiopian companies.

While many research studies on the field of knowledge management discuss numerous issues inside the theme, it lacks inclusive studies of Knowledge Management Systems and their corresponding organizational performance. Therefore this research is going to be an asset for any organizational knowledge by analyzing which and how knowledge management systems fit with the organization's overall objective. The aim of this study was to investigate the effects of knowledge management systems on organizational performance in the selected Study area, which is MiE.

This research focuses on knowledge management systems (KMS) specifically on the level of existence knowledge management systems that support and enhance knowledge management processes, and examines the organizational performance by assessing the existing knowledge management systems and the level they support the organization (Mesfin industrial engineering). The knowledge management systems for this case incorporates Knowledge discovery systems which support the process of developing new tacit or explicit knowledge from data and information or from the synthesis of prior knowledge, Knowledge capture systems which support the process of retrieving either explicit or tacit knowledge that resides within people, artifacts, or organizational entities, Knowledge sharing systems which support the process through which explicit or tacit knowledge is communicated to other individuals and Knowledge application systems which support the process through which some individuals utilize knowledge possessed by other individuals without actually acquiring, or learning, that knowledge.

Mesfin Industrial Engineering (MiE) was established in 1993 as an engineering wing of The Endowment Fund for the Rehabilitation of Tigray (EFFORT) with a capital base of 7 million Ethiopian Birr. Currently it is mostly incorporated in manufacturing of liquid and dry cargo bodies, trailers, semi-trailers, low beds and in the fabrication of fuel, storage tanker and various equipments for the constructions and energy sectors such as cement components, and hydropower elements. It is also engaged in electromechanical and installation work, and includes erection of machinery and equipment of various industrial projects, civic buildings and fuel depots. In its current state MiE is showing remarkable progress and development. It now has owned net worth of 300 million ET.Birr. Mesfin Industrial Engineering is preferred for the study because it is one of the largest organizations that have sufficient understanding of knowledge management in Ethiopia, although the implementation is poor (Hareya, 2013). Since it is an engineering organization it has better chance to run with new innovation and accept any technological enhancements easily.

According to Hareya, (2013), knowledge sharing is the act of employees or individual's knowledge exchange behavior for the purpose of achieving a common goal. Hareya aimed at the identification of knowledge sharing behavior among Mesfin industrial engineering employees in her study and found out that the knowledge sharing behavior of the employees is at low status.

More generally this research concentrates on investigation of the status and barriers in KMS and organizational performance. According to Chai, (2015) in *Measuring organizational performance: towards methodological best practice* anticipates that the four knowledge management process capabilities are important antecedents of organizational performance, which have in turn a positive relationship with both non-financial performance and financial performance of SMEs. However, knowledge management systems serve as critical enablers of business processes in organizations; there is no clear relationship between knowledge management system and organizational performance. That is why the main objective of this research aims at investigating KMS and the corresponding organizational performance. Achieving this objective enables the organization to search for preferred opportunity and shift towards better strategies to become more successful in overall organizational work.

## 1.2 Statement of the problem

The twenty first century is the era of knowledge economy, in which most organizations possess knowledge that enables them to improve their performance. Many organizations are shifting towards knowledge driven systems and are utilizing the Knowledge Management systems, processes and practices to enhance their competitiveness and effectiveness (Reman *et al.*, 2015). Every organization employs manual database management methods and in some cases word processing and spreadsheets to capture and share information or knowledge throughout its organizational members and, on the other hand as organizations become more complicated and increase both in service quality and quantity the amount of knowledge and information generated can cause management issues with regard to storage, sharing, availability and accuracy. This has raised Knowledge Management system challenges over a few years. Just finding solution to this problem in this research is to mean leading an organization to become competitive and productive.

Although knowledge management systems serve as critical enablers of business processes in organizations, there is no a clear relationship between knowledge management system and organizational performance (Zviran, 2015). This research highlights what their relations look like later in its result.

Turnover rate is a problem in many organizations including MiE due to the accidental outgoing of highly experienced staffs unexpectedly, but with the use of functional knowledge management system the negative impacts that arises from high turnover rate can be minimized. Since knowledge management systems are specific types of technologies intended to preserve, share, capture, and apply knowledge, turnover rate cannot harm the organization to a great extent with the existence of good awareness in knowledge management systems.

Similarly even though it is possible to understand that there is knowledge management system in Mesfin industrial engineering by analyzing previously done research works, the extent to which it is functional, what type of sub systems of KMS are available and what factors are affecting to the functionality and progress of those KMS are not clearly presented. That is why the current research entitled as investigation of the status and barriers of KMS and its effect on organizational performance is motivated to dig out these problems.

## **1.3 Research questions**

In order to achieve the desired objectives that belong to this research study the following research questions were required to have a clear answer within the scope of this study.

1. What are the Knowledge Management Systems available in MiE?
2. What is the status of those KMSs in the organization
3. What are the factors affecting the use of Knowledge Management System in MiE?
4. Which knowledge management system mainly affects performance of the organization?

## **1.4 Objectives of the study**

### **1.4.1 General objective**

The main objective of this research study was to investigate the status and barriers of KMS and its effect on organizational performance in Mesfin industrial engineering so as to identify and understand knowledge management system and its barriers.

### **1.4.2 Specific objectives**

- ❖ To explore Knowledge Management System in Mesfin industrial engineering
- ❖ To identify the status of those Knowledge Management Systems in MiE
- ❖ To identify factors affecting implementation of KMS in MiE
- ❖ To identify the KMS which mainly affects the performance of organization

## **1.5 Significance of the study**

The finding of the study helps to integrate Knowledge Management System and organizational learning, as they are commonly inclusive to enhance organizational productivity. It offers an improved understanding of knowledge management systems in the industry; specifically, the links between knowledge creation systems, knowledge sharing systems, knowledge discovery systems and knowledge application systems, and

their relations to organizational performance. In the mean time it assists to examine the firm to internally enhance decision making capability and to externally satisfy the business customers with business intelligence.

In general the output of the study can be very significant and a great contribution for the organization itself and other organizations of the same type to visualize the task of knowledge management clearly, understanding which technique of knowledge management system accurately increases the organizations profitability, exactly identifying factors of knowledge management system and identifying the source of progression of the organization in terms of knowledge utilization.

## 1.6 Scope and limitation of the study

The scope of this study was restricted to the investigation of knowledge management systems and the corresponding likelihood of an organizations performance particularly at Mesfin Industrial Engineering in Mekelle as corporate level. The study was conducted from March - September 2017. The study mainly concentrate on how are the four knowledge management systems (knowledge sharing system, knowledge discovery system, knowledge capture systems and knowledge application systems) related to organizational performance. The study covers only the following knowledge management practices at Mesfin industrial engineering; knowledge capture, knowledge sharing, knowledge application and discovery from ICT perspective as they are the base and foundation for all the remaining knowledge management processes and practices. The data coverage was also disclosed only to selected employees of Mesfin industrial engineering and was not able to assess other organizations of the same or different type as it cannot assure the accuracy of the data collected and is taken as a main limitation of this research.

## 1.7 Definition of Terms

**Knowledge:** Knowledge is a familiarity, awareness or understanding of someone or something, such as facts, information, descriptions, or skills, which is acquired through experience or education by perceiving, discovering, or learning. Knowledge can refer to a theoretical or practical understanding of a subject ( Asli, 2013).

**Knowledge management:** Knowledge management is the systematic management of an organization's knowledge assets for the purpose of creating value and meeting tactical & strategic requirements; it consists of the initiatives, processes, strategies, and systems that sustain and enhance the storage, assessment, sharing, refinement, and creation of knowledge ( Asli, 2013).

**Knowledge management system:** A knowledge management system (KMS) is a system for applying and using knowledge management principles. These include data-driven objectives around business productivity, a competitive business model, business intelligence analysis and more ( Asli, 2013).

**Organizational performance:** An analysis of a company's performance as compared to goals and objectives. Within corporate organizations, there are three primary outcomes analyzed: financial performance, market performance and shareholder value performance in some cases, production capacity performance may be analyzed (Creswell, 2003).

## **1.8 Organization of the Study**

The researcher organized this research in five chapters. Chapter one is introduction which presents background of the study, statement of the problem, research questions, objective of the study, significance of the study, scope of the study, definition of terms and organization of the study. Chapter two is literature review, in order to enable readers comprehensively understand in theoretically about the use of knowledge management systems and knowledge management practice, for the productivity of industrial organizations this literature review is being presented with some related works of the theme Chapter three is research methodology which presents research design, research approach, data sources, sample size, data collection tools, validity and reliability , data analysis techniques and ethical consideration. Chapter four is data presentation, analysis and interpretation. Finally, chapter five consists of summary, conclusions and recommendations

## CHAPTER TWO

### LITERATURE REVIEW

In this chapter, related literature review in Knowledge Management System (KMS) is presented. This part of study enlightens briefly on some of the work done by researchers and presentation of basic points related with the study theme is also incorporated.

2.1 overview of knowledge Spuzic (2008) defined knowledge as a construct formed by interlinking a spectrum of intellectual components, the simplest being information, information is composed of yet simpler form, termed data which are tentatively positioned at the boundary of knowledge strata. According to Reichman and Franklin knowledge refers to all types of understanding gained through experience or study whether indigenous, scientific, scholarly, or otherwise nonacademic. It also includes creative works; some view knowledge as polemical, in that it has dual functions as a commodity and as a constitutive force of society (Reichman and Franklin 1999; Braman 1989). On the other hand, knowledge is an established system of relations, which survives by being shared with more than one person, usually a significant number of humans. Knowledge can continue to exist over a significant time span with considerable reliability, in a higher level, knowledge is stored systematically as an asset within the scientific disciplines and it is accessed and used for multiple purposes by an individual or by the organization and it is composed of theories and hypotheses. Motivation for grouping theories and hypotheses into scientific or academic disciplines is to facilitate storing, growth, communication and application in specific category of knowledge (Abhary, 2008). In organizational terms, knowledge is generally thought of as being know how, or applied action. Knowledge is a vital resource for effective product management, the use of effective managed knowledge is to reduce new product and introducing project time, improve quality and increase customer satisfaction (Sixotte & Langley, 2000). The ability to manage knowledge is crucial in today's knowledge economy. The creation and diffusion of knowledge have become increasingly important factors in competitiveness. More and more, knowledge is being thought valuable commodity that is embedded in products (especially high-technology products) and implanted tacit knowledge for highly mobile employees. While knowledge is increasingly being viewed as a commodity or intellectual asset, there are some paradoxical



characteristics of knowledge that are radically different from other valuable commodities (Bill Wolf, 2001). KM is the name given to the set of systematic and regimented actions that an organization can take to attain the maximum value from the knowledge available to it. Effective KM normally requires a proper amalgamation of organizational, social, and managerial initiatives along with exploitation of apposite technology.

## **2.2 Basic concepts on KMS**

Nowadays the role of KM in industries is supposed to be a great in that it is wide and diverse; however its application can be broken down into three distinct areas capture, code and share.

KM involves people, processes and technology with the ultimate goal of sharing information and knowledge throughout organizations, communities-of-practice, Social Networks and group interactions in genera (Paul, 2013). KM has gained increasing attention from diverse research disciplines (Maier, 2007). This fact was seen in number of research and their corresponding result and findings to focus on KM supporting mechanisms and technologies. The borderless global economy has emphasized the importance of knowledge as the most critical source of competitive advantage. Thus, knowledge management (KM) has become a strategic mandate for most world-class organizations. A key enabler for implementing an effective KM system is advanced information technology (IT). Therefore in this research the different knowledge management systems have been discussed broadly. This all movements are for the use of accurate knowledge in a right time for the right purpose (Maier, 2007).

### **2.2.1 Organizational Performance**

The role of industry in organizational performance was great as technology was improved from day-to-day. So, Knowledge Management (KM) is one of the driving forces that were forward the mission of the organization. The field of KM is a growing interest in today's business and academic world. Nowadays organizations are living in a world of expanding knowledge with more and more people being described as knowledge workers, and knowledge being widely accepted as the only true business asset. Global organizations

have started using KM technologies to amplify their competitiveness in ways that were impossible a few years ago (Krstić, 2007). For a successful start to KM, an organization should engage in a clear understanding of how, and where, knowledge resides, and is developed, in the company. According to Serrat (2008) organizational knowledge can exist on several different levels out of this the first thing where knowledge resides is in Individual: Personal, often tacit knowledge/know-how of some sort. It can also be explicit, but it must be individual in nature, such as a private notebook of some individual. Beside to this it can also exist in Groups/community: Knowledge held in groups but not shared with the rest of the organization. Companies usually consist of communities (most often informally created) which are linked together by common practice. These communities of practice may share common values, language, procedures, know-how, etc. They are a source of learning and a repository for tacit, explicit, and embedded knowledge (Tabibi, 2012). In addition to this it can also reside in Structural: Embedded knowledge found in processes, culture, etc. This may be understood by many or very few members of the organization. E.g. the knowledge embedded in the routines used by experts may not be known by all the employees who follow these routines. At times, structural knowledge may be the remnant of past, otherwise long forgotten lessons, where the knowledge of this lesson exists exclusively in the process itself. It is also expected exist in Organizational level: The definition of organizational knowledge is yet another concept that has very little consensus within literatures. Variations include the extent to which the knowledge is spread within the organization, as well as the actual make-up of this knowledge. Hatch (2010) defines it as: "When group knowledge from several subunits or groups is combined and used to create new knowledge, the resulting tacit and explicit knowledge can be called organizational knowledge." Others present a broader perspective: "individual knowledge, shared knowledge, and objectified knowledge are different aspects or views of organizational knowledge (Ekinge & Lennartsson, 2000). As always, texts emphasizing an IT based outlook once again offer shallower, information-based definitions. For the purpose of this research the investigator was adopted a broad and knowledge based perspective. Organizational knowledge is therefore defined as all the knowledge resources within an organization that can be realistically tapped by that organization. It can therefore reside in individuals and groups, or exist at the organizational level. It is also typical to find

knowledge in Extra-organizational level: Knowledge resources existing outside the organization which could be used to enhance the performance of the organization. They include explicit elements like publications, as well as tacit elements found in communities of practice that span beyond the organization's borders.

### **2.2.2 Knowledge management**

Knowledge management (KM) engrosses the identification and analysis of available and required knowledge Assets and processes so as to achieve organizational objectives (Sveiby, 2006). Knowledge may be available in individual mode bound basically to a person, KM involves systematic designs to find, understand and utilize knowledge to achieve organizational objectives, but sometimes KM creates value by reducing the expense time trial and error processes. Alavi and Leidner (2001) also had a comprehensive observation regarding to the different views in defining knowledge from information technology, strategic management, and organizational theory. The dominant hierarchical view of data, information, and knowledge which is particularly in IT literature, they also described several perspectives of knowledge including knowledge as; state of mind, an object, process, condition of having access to information, or capability. They show this different result views in different organizational KM processes. KM broadly defined from many perspectives, Prusak (2007) viewed as a set of activities that lead an organization in acquiring knowledge both internally and externally.

According to Salisbury (2003), KM is defined as the deployment of a comprehensive system that enhances the growth of an organizations knowledge that is an effort to expand KM discipline, it can be defined as the management functions that encompass the creation of knowledge, managing the flow of knowledge within the organization, and using knowledge in an effective and efficient manner for the long-term benefit of the organization (Darroch& McNaughton, 2002). KM effectiveness is regarded as a management discipline which focused on the development and usage of knowledge to support the achievement of strategic business objectives. In similar way, KM is not only associated with managing knowledge as a resource, but also to manage business processes that take place using that resource.

It should involve the analysis of existing knowledge as a resource, as well as defining the objectives regarding the generation, protection and application of new knowledge, then

transfer, exchange and dissemination of knowledge, effective use of knowledge and performance measurement. Knowledge is created internally and externally, from external knowledge is generated by purchasing technology and software, hiring experts, using consultants and strategic partnerships and from internal knowledge is a process of individual learning in a group of individuals as well as the process of organizational learning. In both cases, the key role is on the company's (organizational) development and the charge of education and training of employees (Krstic, 2007).

According to Antezana (2009), also KM defined as the process of systematically capturing, structuring, retaining and reusing information to develop an understanding of how a particular system works and subsequently to convey this information meaningfully to other information systems, i.e. knowledge distribution, nature, ownership, learning and context, these knowledge characteristics affect KM in organizations. Knowledge characteristics are important to determine how to manage this knowledge and its role as a resource for the organization. Barth (2000) also studied about KM enables that the communication of knowledge from one person to another, so that it can be used by the other person. The domains in which knowledge concepts are leveraged in organization through knowledge initiatives are sharing knowledge and best practices, instilling responsibility for sharing knowledge, capturing and reusing best practices, embedding knowledge in products, services and processes. Producing knowledge as a product, driving knowledge generation for innovation, mapping networks of experts, building and mining customer knowledge bases, understanding and measuring the value of knowledge and leveraging intellectual assets. In other way, according to Sivan(2001), KM is the art of performing knowledge actions such as gathering, organizing, blocking, filtering, storing, sharing, disseminating and using knowledge objects such as data, information, experiences, evaluations, insights, wisdom and initiatives. This should be the performance of knowledge actions on knowledge objects. KM is a process that helps organizations identify, select, organize, disseminate and transfer important information and expertise that is a part of the organizational memory that typically resides within an organization in an unstructured manner. KM allows effective and efficient problem solving, dynamic learning, strategic planning and decision making. The other focuses of KM is identifying knowledge, explicating it in ways so that it can be shared in a formal manner and thus people reusing it

(Gupta, 2002). There is widespread agreement as to the goals of an organization that undertakes KM. According to Nickols (2000) the basic aim of KM is to leverage knowledge to the organization advantage and some of management motives are obvious, the loss of skilled people through turnover, pressure to avoid reinventing the wheel, pressure for organization-wide innovations in processes as well as products, managing risk, and the accelerating rate with which new knowledge is being created.

### **2.2.3 Implications for KM**

In order to enhance organizational knowledge, KM must therefore be involved across the entire knowledge spectrum. It must help knowledge development at all levels and facilitate & promote its diffusion to individuals, groups, and/or across the entire firm, in accordance with the organization's requirements. KM must manage organizational knowledge storage and retrieval capabilities, and create an environment conducive to learning and knowledge sharing. Similarly it must be involved in tapping external sources of knowledge whenever these are necessary for the development of the organizational knowledge resources.

To a large degree, KM is therefore dependent on the understanding and management of organizational learning, organizational memory, knowledge sharing, knowledge creation, and organizational culture (Stephan, 2003).

### **2.2.4 Knowledge Management from Historical Perspective**

Although the term knowledge management formally entered popular usage in the late 1980s (e.g. conferences in KM began appearing, books on KM were published, and the term began to be seen in business journals), philosophers, teachers, and writers have been making use of many of the same techniques for decades.

Some form of narrative repository has been around for a long time, and people have found a variety of ways to share knowledge in order to build on earlier experience, eliminate costly redundancies, and avoid making at least the same mistakes again. For example, knowledge sharing often took the form of town meetings, workshops, seminars, and mentoring sessions. The primary vehicle for knowledge transfer was people themselves.

The following figure1 generally summarizes the historical perspectives of knowledge management by distinguishing in different channels of development.

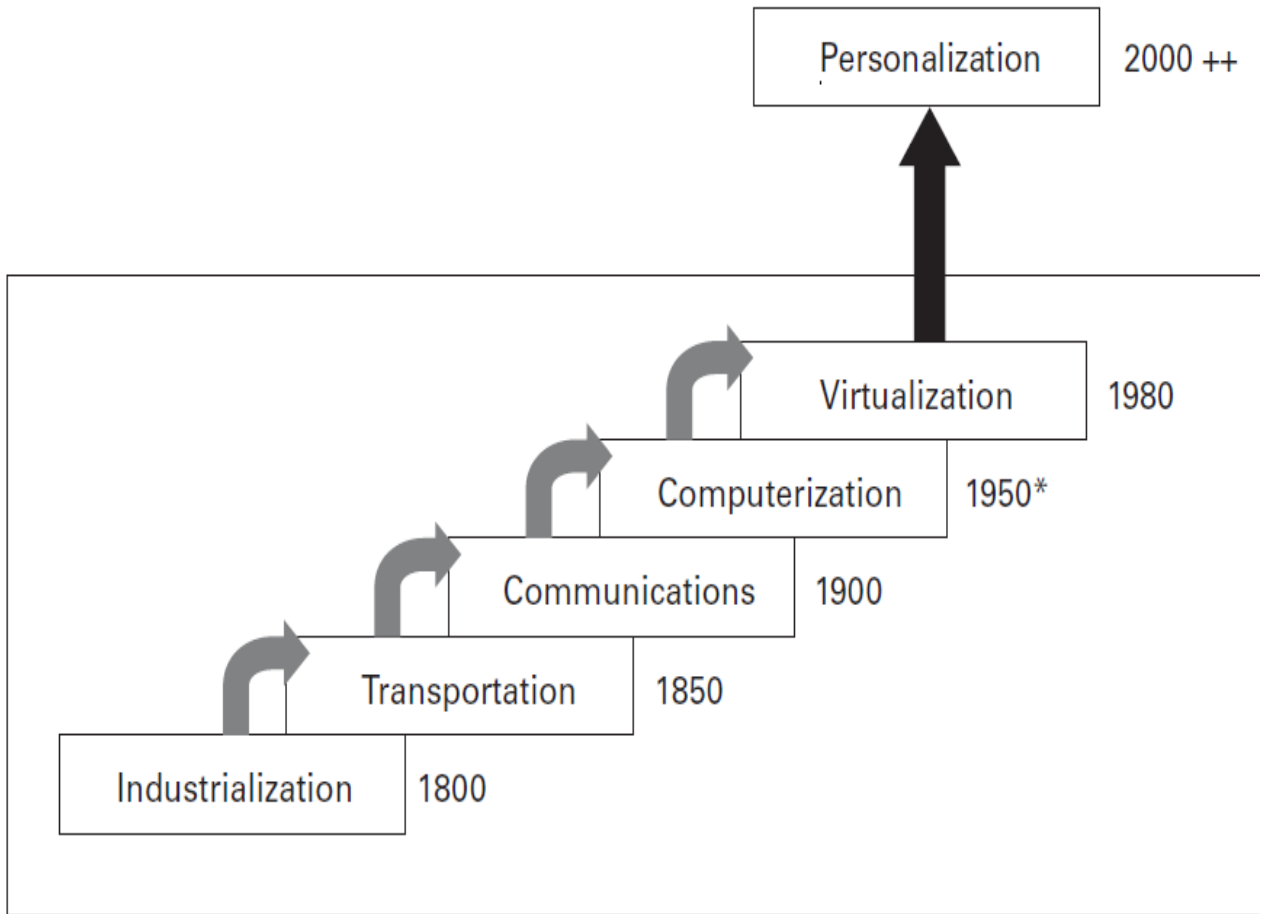


Figure 1: knowledge management perspective (Adish, 2006)

The step by step development in history of knowledge management starts from industrialization at first and transformed to transportation then to communication cases which is followed by computerization and virtualization that leads knowledge every individual to personalize or possess a knowledge of something or someone.

An overarching theory of knowledge management has yet to emerge, perhaps because the practices associated with managing knowledge have their roots in a variety of disciplines and domains. Special thanks to Karl Wiig for supplying us with a pre-publication copy of "Knowledge Management: Where Did It Come From and Where Will It Go?" which will appear in The Journal of Expert Systems with Applications. This section draws heavily on that work but supplies only a small part of that value.

A number of management theorists have contributed to the evolution of knowledge management, among them such notables as Peter Drucker, Paul Strassmann, and Peter Senge in the United States. Drucker and Strassmann have stressed the growing importance of information and explicit knowledge as organizational resources, and Senge has focused on the "learning organization," a cultural dimension of managing knowledge. Chris Argyris, Christopher Bartlett, and Dorothy Leonard-Barton of Harvard Business School have examined various facets of managing knowledge. In fact, Leonard-Barton's well-known case study of Chaparral Steel, a company which has had an effective knowledge management strategy in place since the mid-1970s, inspired the research documented in her *Wellsprings of Knowledge — Building and Sustaining Sources of Innovation* (Harvard Business School Press, 1995).

Everett Rogers' work at Stanford in the diffusion of innovation and Thomas Allen's research at MIT in information and technology transfer, both of which date from the late 1970s, have also contributed to our understanding of how knowledge is produced, used, and diffused within organizations. By the mid-1980s, the importance of knowledge (and its expression in professional competence) as a competitive asset was apparent, even though classical economic theory ignores (the value of) knowledge as an asset and most organizations still lack strategies and methods for managing it.

Recognition of the growing importance of organizational knowledge was accompanied by concern over how to deal with exponential increases in the amount of available knowledge and increasingly complex products and processes. The computer technology that contributed so heavily to superabundance of information started to become part of the solution, in a variety of domains. Doug Engelbart's Augment (for "augmenting human intelligence"), which was introduced in 1978, was an early hypertext/groupware application capable of interfacing with other applications and systems. Rob Acksyn's and Don McCracken's Knowledge Management System (KMS), an open distributed hypermedia tool, is another notable example and one that predate the World Wide Web by a decade.

The 1980s also saw the development of systems for managing knowledge that relied on work done in artificial intelligence and expert systems, giving us such concepts as "knowledge

acquisition," "knowledge engineering," "knowledge-base systems, and computer-based ontologies.

The phrase "knowledge management" entered the lexicon in earnest. To provide a technological base for managing knowledge, a consortium of U.S. companies started the Initiative for Managing Knowledge Assets in 1989. Knowledge management-related articles began appearing in journals like Sloan Management Review, Organizational Science, Harvard Business Review, and others, and the first books on organizational learning and knowledge management were published (for example, Senge's *The Fifth Discipline* and Sakaiya's *The Knowledge Value Revolution*).

By 1990, a number of management consulting firms had begun in-house knowledge management programs, and several well known U.S., European, and Japanese firms had instituted focused knowledge management programs. Knowledge management was introduced in the popular press in 1991. By the mid-1990s, knowledge management initiatives were flourishing, thanks in part to the Internet. The International Knowledge Management Network (IKMN), begun in Europe in 1989, went online in 1994 and was soon joined by the U.S.-based Knowledge Management Forum and other KM-related groups and publications. The number of knowledge management conferences and seminars is growing as organizations focus on managing and leveraging explicit and tacit knowledge resources to achieve competitive advantage. In 1994 the IKMN published the results of a knowledge management survey conducted among European firms, and the European Community began offering funding for KM-related projects.

### **2.2.5. Knowledge Management Techniques**

KM techniques do not depend on Information Technology, although it provides support in some cases. For example knowledge sharing, a sub-process of KM, can take place through face-to-face meetings, recruitment, apprenticeships, mentoring and training. The importance of KM techniques comes from several factors. Firstly, they are affordable to most organizations. This is because no sophisticated infrastructure is required although some techniques require more resources than others (e.g. training requires more resources than face-to-face interactions). Secondly, KM techniques are easy to implement and



maintain due to their simple and straightforward nature. Thirdly, they focus on retaining and increasing the organizational tacit knowledge, a key asset to organizations.

KM techniques are not new, as organizations have been implementing them for a long time, mainly under the umbrella of several management designs, e.g. organizational learning and learning organizations. Using these tools for the management of organizational knowledge requires their use to be enhanced so that their benefits, in terms of knowledge gain/increase, are properly managed ( Sveiby, 2006). In addition to this according to Sveiby, ( 2006 ) Some KM techniques/knowledge sharing is described below:

**A. Brainstorming** is a process where a group of people meet to focus on a problem, or idea, and explore such ideas with a view to coming up with solutions, or further developing the ideas. The participants express or contribute their ideas as they strike them and then build on the ideas raised by others. All the ideas are noted down and are not criticized. Only when the brainstorming session is over are the ideas evaluated. Brainstorming helps in problem solving and in creating new knowledge from existing knowledge (Tsui, 2002).

The following rules are important to brainstorm successfully:

A facilitator (or a leader as appropriate) should take control of the session and keep it on course. Initially the problem to be solved is defined with any criteria that must be met. He or she should encourage an enthusiastic, uncritical attitude among brainstormers and encourage participation by all members of the team. The session should be announced as lasting a fixed length of time, and the leader should ensure that no train of thought is followed for too long. The leader should try to keep the brainstorming on subject, and should try to steer it towards the development of some practical solutions. Participants in the brainstorming process should come from as wide a range of disciplines with as broad a range of experience as possible. This brings many more creative ideas to the session.

- Brainstormers should be encouraged to have fun brainstorming, coming up with as many ideas as possible, from practical ones to wildly impractical ones in an environment where creativity is welcomed.

Ideas must not be criticized or evaluated during the brainstorming session. Criticism introduces an element of risk for a group member in putting forward an idea. This stifles creativity and cripples the free running nature of a good brainstorming session.

Barnstormers should not only come up with new ideas in a brainstorming session, but also should spark off from associations with other people's ideas and develop other people's ideas.

**B. Communities of Practice (CoP)** are also called knowledge communities, knowledge networks, learning communities, communities of interest and thematic groups. These consist of a group of people of different skill sets, development histories and experience backgrounds that work together to achieve commonly shared goals (Ruggles, 1997). These groups are different from teams and task forces. People in a CoP can perform the same job or collaborate on a shared task, e.g. software developers, or work together on a product, e.g. engineers, marketers, and manufacturing specialists. They are peers in the execution of "real work." What holds them together is a common sense of purpose and a real need to know what each other knows. Usually, there are many communities of practice within a single company and most people normally belong to more than one.

**C. Face-to-Face Interaction** is a traditional design for sharing the tacit knowledge (Socialization) owned by an organization's employees. It usually takes an informal design and is very powerful. Face-to-face interactions also help in increasing the organization's memory, developing trust and encouraging effective learning. Lang (2001) considers it to provide strong social ties and tacit shared understandings that give rise to collective sense making. This can also lead to an emergent consensus as to what is valid knowledge and to the serendipitous creation of new knowledge and, therefore, new value. This provides an environment within an organization where participants see the firm as a human community capable of providing diverse meanings to information.

**D. Post-Project Reviews** are debriefing sessions used to highlight lessons learnt during the course of a project. These reviews are important to capture knowledge about causes of failures, how they were addressed, and the best practices identified in a project.

This increases the effectiveness of learning as knowledge can be transferred to subsequent projects. However, if this technique is to be effectively utilized, adequate time should be allocated for those who were involved in a project to participate. It is also crucial for post

project review meetings to take place immediately after a project is completed as project participants may move or be transferred to other projects or organizations.

**Recruitment** is an easy way for knowledge buy-in. This is a “tool” for acquiring external tacit knowledge especially of experts. This design adds new knowledge and expands the organizational knowledge base. Another benefit is that other members within the organization can learn from the recruited member formally and informally so that some Knowledge will be transferred and retained if the individual leaves the organization. Some organizations also try to codify the recruited person’s knowledge that is of critical importance to their business.

**E. Apprenticeship** is a form of training in a particular trade carried out mainly by practical experience or learning by doing (not through formal instruction). Apprentices often work with their masters and learn craftsmanship through observation, imitation, and practice.

They focus on improving the skills of the individuals so that they can later perform tasks on their own. This process of skill building requires continuous practice by the apprentices until they reach the required level.

**F. Mentoring** is a process where a trainee or a junior staff is attached or assigned to a senior member of an organization for advice related to career development. The mentor provides a coaching role to facilitate the development of the trainee by identifying training needs and other development aspirations. This type of training usually consists of career objectives given to the trainee where the mentor checks if the objectives are achieved and provides feedback.

**G. Training** helps in improving staff skills and therefore increasing their knowledge. Its implementation depends on plans and strategies developed by the organization to ensure that employees’ knowledge is continuously updated. Training usually takes a formal format and can be internal where seniors train juniors within the organization or external where employees attend courses managed by professional organizations.

### 2.2.6. Knowledge management Technologies

KM technologies depend heavily on Information Technology. Examples of KM technologies for capturing knowledge are Knowledge Mapping Tools, Knowledge Bases, data mining and Case-Based Reasoning ( Salisbury, 2003). Although there is a debate

about the degree of importance of such technologies, many organizations consider them as very important enablers to support the implementation of a KM strategy (Storey and Barnett, 2000) as they consume one third of the time, effort and money that are required for a KM system. The other two-thirds mainly relate to people and organizational culture (Davenport & Prusak, 2000). From a return on investment (RoI) perspective, there is a need for the organization to capitalize and exploit IT for KM. With the evolution in IT hardware and software, IT tools can act as dynamic capabilities or core competences for organizations, if effectively exploited. KM technologies consist of a combination of hardware and software technologies.

- A. Hardware technologies** and components are very important for a KM system as they form the platform for the software technologies to perform and the medium for the storage and transfer of knowledge. Some of the hardware requirements for a KM system according to (Lucca *et al*, 2000) are: Personal computer or workstation to facilitate access to the required knowledge; Highly powerful servers to allow the organization to be networked; Open architecture to ensure interoperability in distributed environments; Media rich applications requiring Integrated Services Digital Network (ISDN) and fiber optics to provide high speed; asynchronous Transfer Mode (ATM) as a multi-media switching technology for handling the combination of voice, video, and data traffic simultaneously; and Use of the public network (e.g. Internet) and private networks (e.g. Intranet, Extranet) to facilitate access to and sharing of knowledge.
- B. Software technologies** play an important part in facilitating the implementation of KM. Solutions provided by software vendors take many forms and perform different tasks. The large number of vendors that provide KM solutions makes it extremely difficult to identify the most appropriate applications. This has resulted in organizations adopting different models for establishing KM systems.
- C. Customized Off The Shelf (COTS)** – this is the traditional and most popular way of deploying application services. Based on the organizational needs, the applications will be identified and then examined against the functional needs of the organization. A short-period test may follow to identify the most suitable

application. Once an application is acquired, customization of the standard features is usually performed to integrate it into the organization's information system.

- D. In-house Development:** These systems are developed within the organization, usually with external technical help. Examples are Notes, Domino, and Intranet applications. However, there are several reasons that make this option generally less attractive or less preferred by organizations. This includes the difficulty of establishing KM systems' requirements, high cost, risk and the complexity of developing bespoke systems.
- E. Solution Re-engineering:** This involves adapting, with the help of KM consultants and technical architects, an existing generic solution that matches the organization's requirements. Although similar to COTS, the adapted solution is not packaged as a product that can be marketed. Examples are online knowledge communities, and virtual collaboration tools.
- F. Knowledge Service:** These are knowledge applications provided by a third party that hosts the application on the Web. The user accesses the service via a thin-client (e.g. a browser). The main benefits are the waived software licensing fee and the avoidance of in-house maintenance. However, many organizations do not find this option attractive because of the reduced security and privacy.
- G. Knowledge Marketplace:** In a Knowledge Marketplace, a third party vendor hosts a web site grouping together many suppliers of knowledge services. Suppliers may include expert advisors, vendors providing product support services, KM job placement agencies, procedures for the evaluation of KM and portal software, and research companies providing industry benchmarks and best practice case studies. Two types of Knowledge Marketplace exist. One provides common information and services to all industries while the other offers only certain services to a specific industry.

KM software technologies have seen many improvements since the year 2000 due to many alliances, and mergers and acquisitions between KM and Portal tool vendors (Tsui, 2002). However, none of them makes a complete solution to KM. Nickols, (2000) identifies some software technologies for knowledge management.

- I. **Data and text mining** is a technology to extract meaningful knowledge from masses of data or text. Data are single facts (structured) about events while text refers to unstructured data. The process of data/text mining enables meaningful patterns and associations of data (words and phrases) to be identified from one or more large databases or ‘knowledge-bases’.
- II. **Groupware** is a software product that helps groups of people to communicate and share information (Haag and Keen, 1996). This is useful for group decision-making. Groupware supports distributed and virtual project teams where team members are from multiple organizations and in geographically dispersed locations.
- III. **Intranet** is an inter-organizational network that is guarded against outside access by special security tools called firewalls (Haag *et al*, 2008).
- IV. **Extranet** is an Intranet with limited access to outsiders, making it possible for them to collect and deliver certain knowledge. This technology is very useful for making organizational knowledge available to geographically dispersed staff members and is therefore used by many organizations.
- V. **Knowledge bases** are repositories that store knowledge about a topic in a concise and organized manner. They present facts that can be found in a book, a collection of books, web sites or even human knowledge. This is different from the knowledge bases of expert systems, which incorporate rules as part of the inference engine that searches the knowledge base to make decisions.

### 2.3. knowledge management systems

Rapid changes in the field of KM have to a great extent resulted from the dramatic Progress we have witnessed in the field of information technology. Information technology facilitates sharing as well as accelerated growth of knowledge. Information Technology allows the movement of information at increasing speeds and efficiencies. For example, computers capture data from measurements of natural phenomena, and then quickly manipulate the data to better understand the phenomena it represents. Increased computer power at lower prices enables the measurement of increasingly complex processes, which we possibly could only imagine before. According to Bradley (Choi And Lee 2002 ) today knowledge is accumulating at an ever-increasing rate. It is estimated that knowledge is

currently doubling every 18 months and, of course, the pace is increasing (Tabibi, 2012). Technology facilitates the speed at which knowledge and ideas propagate. As knowledge is often the basis for the effective use of a firm's resources, a new line of IT-based systems to support organizational knowledge management has emerged called knowledge management systems. KMS have been defined as a line of systems which target professional and managerial activities by focusing on generating, collecting, arranging and disseminating an organization's 'knowledge' as opposed to 'information' or data. The development of KMS demands that knowledge be obtained, produced, shared, regulated and leveraged by a steady conglomeration of individuals, processes and IT but still to be effective KMS should fit the overall organizational culture and structure. The first and early adopters of KMS have been large consulting companies; today, such systems are used in a variety of areas such as medicine, engineering, product design and construction ( Civi, 2000)

Knowledge management systems are the integration of technologies and mechanisms that are developed to support the four KM processes & utilize a variety of KM mechanisms and technologies to support the KM processes. Each KM system utilizes a combination of multiple mechanisms and multiple technologies. Likewise, the same KM mechanism or technology could, under differing circumstances, support multiple KM systems. The following are the most important knowledge management systems to support knowledge management processes (Becerra and Fernandez, 2015).

### **2.3.1 Knowledge Discovery Systems**

Knowledge discovery systems support the process of developing new tacit or explicit knowledge from data and information or from the synthesis of prior knowledge. These systems support two KM sub processes associated with knowledge discovery: combination, enabling the discovery of new explicit knowledge; and socialization, enabling the discovery of new tacit knowledge (Braman and Sandra, 2013).

Thus, mechanisms and technologies can support knowledge discovery systems by facilitating combination and/or socialization. Mechanisms that facilitate combination include collaborative problem solving, joint decision-making, and collaborative creation of documents. For example, at the senior-management level, new explicit knowledge is created by sharing documents and information related to midrange concepts (e.g., product

concepts) augmented with grand concepts (e.g., corporate vision) to produce new knowledge about both areas. This newly created knowledge could be a better understanding of products and a corporate vision (Deng and Dejie, 2006). Mechanisms that facilitate socialization include apprenticeships, employee rotation across areas, conferences, brainstorming retreats, cooperative projects across departments, and initiation process for new employees.

Technologies facilitating combination include knowledge discovery systems databases, and Web-based access to data. According to Deng and Dejie,( 2006) reconfiguration of existing information through sorting, adding, combining, and categorizing of explicit knowledge (as conducted in computer databases) can lead to new knowledge. Repositories of information, best practice databases, and lessons learned systems. Technologies can also facilitate socialization, although to a lesser extent than they can facilitate combination. Some of the technologies for facilitating socialization include videoconferencing and electronic support for communities of practice (Cop) (Becerra and Fernandez, 2015).

### **2.3.2 Knowledge Capture Systems**

Knowledge capture systems support the process of retrieving either explicit or tacit knowledge that resides within people, artifacts, or organizational entities. These systems can help capture knowledge that resides within or outside organizational boundaries including within consultants, competitors, customers, suppliers, and prior employers of the organization's new employees. Knowledge capture systems rely on mechanisms and technologies that support externalization and internalization (Becerra and Fernandez, 2015).

According to Bollinger and Smith (2001), KM mechanisms can enable knowledge capture by facilitating externalization that is, the conversion of tacit knowledge into explicit form; or internalization that is, the conversion of explicit knowledge into tacit form. The development of models or prototypes and the articulation of best practices or lessons learned are some examples of mechanisms that enable externalization.

Learning by doing, on-the-job training, learning by observation and face-to-face meetings are some of the mechanisms that facilitate internalization. For example, at one firm, "the product divisions also frequently send their new-product development people to the



Answer Center to chat with the telephone operators specialists, thereby ‘re-experiencing’ their experiences” (Kiessling and Richey, 2009).

Technologies can also support knowledge capture systems by facilitating externalization and internalization. Externalization through knowledge engineering, which involves integrating knowledge into information systems to solve complex problems that normally require considerable human expertise”, is necessary for the implementation of intelligent technologies such as expert systems, case-based reasoning systems and knowledge capture systems (Dignum, 2002).

### **2.3.3 Knowledge Sharing Systems**

Knowledge sharing systems support the process through which explicit or tacit knowledge is communicated to other individuals. That is why knowledge sharing system supports exchange (i.e., sharing of explicit knowledge) and socialization (which promotes sharing of tacit knowledge). Mechanisms and technologies that can support socialization also play an important role in knowledge sharing systems. Discussion groups or chat groups facilitate knowledge sharing by enabling an individual to explain his/her knowledge to the rest of the group. In addition, knowledge sharing systems also utilize mechanisms and technologies that facilitate exchange. Some of the mechanisms that facilitate exchange are memos, manuals, progress reports, letters, and presentations. Technologies facilitating exchange include groupware and other team-collaboration mechanisms; Web-based access to data and databases; and repositories of information, including best practice databases, lessons learned systems, and expertise locator systems (Becerra and Fernandez, 2015).

Knowledge sharing systems can be described as systems that enable members of an organization to acquire tacit and explicit knowledge from each other. The main purpose of these systems is to promote knowledge sharing for reuse by other members from the same organization and propagation of innovation, technology, and strategic management (Yoo and Ginzberg 2003). Knowledge sharing systems may also support sharing knowledge across organizations and may be viewed as knowledge markets: just as markets require adequate liquidity to guarantee a fair exchange of products, knowledge sharing systems must attract a critical volume of knowledge seekers and knowledge owners in order to be effective (Dignum, 2002). In a knowledge sharing system, knowledge owners will:

1. Want to share their knowledge with a controllable and trusted group,

2. Decide when to share and the conditions for sharing, and
3. Seek a fair exchange, or reward, for sharing their knowledge.

By the same token, knowledge seekers may:

1. Not be aware of all the possibilities for sharing, thus the knowledge repository will typically help them through searching and ranking, and
2. Want to decide on the conditions for knowledge acquisition.

A knowledge sharing system is said to define a learning organization, supporting the sharing and reuse of individual and organizational knowledge. One tool frequently emphasized under the auspices of knowledge sharing systems is document management.

The document management system essentially stores information. This repository can be centralized or it can be distributed. Document management builds upon the repository by adding support to the classification and organization of information, unifying the actions of storage and retrieval of documents over a platform-independent system (Becerra and Fernandez, 2015).

#### **2.3.4 Knowledge Application Systems**

Knowledge application systems support the process through which some individuals utilize knowledge possessed by other individuals without actually acquiring, or learning, that knowledge. Mechanisms and technologies support knowledge application systems by facilitating routines and direction. Mechanisms facilitating direction include traditional hierarchical relationships in organizations, help desks, and support centers. On the other hand, mechanisms supporting routines include organizational policies, work practices, organizational procedures, and standards. In the case of both direction and routines, these mechanisms may be either within an organization (e.g., organizational procedures) or across organizations such as industries best practices (Becerra and Fernandez, 2015).

## **2.4 Related works**

### **2.4.1 Knowledge Management In Manufacturing Industries**

According to Pusaksrikit (2006) in the twenty-first century, industries compete heavily due to the Entrepreneurs attempt to use technology to develop their business. However, using technology generates high costs. So companies need to find a new way to survive by using the existing resources to gain maximum benefit. Knowledge management is one of interesting alternatives as it can deliver competitive advantage such as greater competencies and synergy, more balanced decisions and less errors, more creativity and innovation, broader collaboration and knowledge sharing, and easier links to expertise and deeper understanding. It deals with various aspects of knowledge management particularly concentrating on knowledge sharing in service industry. Issues in the context of different data sources and the research with qualitative methodology create the in-depth knowledge to understand how to do knowledge work for gaining competitive advantage. The emphasis is placed on analysis and evaluation of problems and barriers of both cases as applied from all data collection. The findings show that to improve service and customer satisfaction, the industry has to find out and use knowledge management appropriately. Knowledge management helps reducing time to find information and sharing decision making.

The above literature shows that a knowledge management as strategic event which needs to incorporate technological enhancements so as to come up with a competitive and innovative organizational changes. The researcher is agreed with the assignment of knowledge management toward the assigned responsibilities. But the work done by Pusaksrikit (2006) does not see the knowledge management from the technological perspective therefore, in this research knowledge management from its technical and technological view that is a knowledge management system and how it relates with overall organizational profitability and productivity was accessed.

### **2.4.2 Knowledge Management Systems in industries**

Achmad & Rusman (2010) in Analysis and Design of Knowledge Management System in Product Development stated that; the economic success of a manufacturing company

depends on the success of its products. However to produce successful products evidently is not easy. The Study show that between 30 to 50 percent of the new products launched to the market is failed. One of the reasons is the inability to manage the knowledge and translate it to successful new products. Production plays a role in designing and running the production system to provide and distribute the products. Therefore, they conclude knowledge management system is needed to manage knowledge in the product development process. It is used to capture the created knowledge, to save the captured knowledge and to distribute them to all related functions. Information technology then can be used to capture, store and distribute process.

This literature dictates that, the financial profitability of any industry depends on the success of its products. This is an acceptable statement from the view point of the investigator. But, its main objectives are organizational innovativeness and organizational product development unlike the current research which emphasizes on the investigation of knowledge management systems and the likely hood of the industries performance in terms of financial increment, customer satisfaction and products type and quality enhancement and in general overall organizational performance assessment was taken place to compare with use of KMS.

#### **2.4.3 Factors Affecting Implementation of KM In Organizations**

According Rosmaini and Woods (2007), organizational culture constitutes of the accumulation and combination of common expectation, tacit rules, shares experiences and social norms that shape our attitudes and behaviors. Successful organizations empower employees to want to share and contribute intellectual information, by rewarding them for such actions (Mathi, 2004).

Information technology

Ruggles and Leug (2003), argued that knowledge building is dependent upon IT. In order to build knowledge sharing capabilities, the organization must develop a comprehensive infrastructure that facilitates the various types of knowledge and communication (Kim and Lee, 2004).

Gan (2006) articulated that the structure of the organization impacts the ways in which organizations conduct their operations and in doing so, affects how knowledge is created and shared amongst employees. The hierarchical structure of an organization affects the

people with whom individuals frequently interact, and to or from whom they are consequently likely to transfer knowledge (Wei et al., 2006).

Goh (2006) articulated that people are the heart of creating organizational knowledge as it is people who create and shared knowledge. People are said to be true agents in business where all tangible and intangible assets are result of human action and depend ultimately on people for their continued existence (Syed Omar Sarifuddin and Rowland, 2004).

The researchers in this literature found that organizational culture, information technology, organizational structure and people in the organization are the factors that affect implementation of knowledge management. The current investigator supports the idea provided by the earlier researchers; however, the priority setting for each factor and the degree to which the factor can influence the organization was different. At the meantime that is a research done on the case of a developed country. And it simply has assessed the different factors for the implementation of knowledge management; but, the preset research is all about what will be the factors for the implementation of knowledge management systems rather than knowledge management itself.

#### **2.4.4 Knowledge management system models in organizations**

Hashim and Sultan (2009) in Knowledge Management and Usability Model for Knowledge Management System described that Knowledge Management System is becoming a trend nowadays enabling employees of any organization to access the organization's sources of information and solutions. However, the lack of a usability measurement framework for KMS may drive people away from using it. It also impedes a systematic comparison among KMS providing a similar functionality. Nevertheless, this situation can be overcome if appropriate KMS models are in place. These models will assist KMS administrators in determining which provider best fits the organization's needs. Furthermore, it is most important to notice that, usable system is a must to ensure satisfied and returning users. In their paper they have selected ISO Consolidated Usability model as the basis for KMS usability model. In order to ensure a usable KMS one must study design of user interfaces for the system and also the security part that keeps the confidentiality of the system in general.

This paper concentrates on the development of specific knowledge management systems model for organizations broadly in a general way. But, the contemporary research presently

proposes to assess a knowledge management system model with a limited boundary in the specified organization and other similar organizations in a similar developmental stage.

### 2.4.5. Conceptual framework of KMS

Nowadays the importance of knowledge management is coming to be clear to many organizations and the leaders search for the main reasons and factors for being successful in knowledge management system design and implementation through their organizations. According Shang (2005) knowledge management system in an organization is composed of knowledge architecture, knowledge strategy, knowledge sharing, and knowledge storage and knowledge identification. Knowledge architecture has been demonstrated as a system integrator. It also links between the other main factors. Knowledge architecture focuses on KM by a systematic approach and integrates all factors related to KM, and also facilitates a balanced state between different factors so as to prepare a suitable architecture for knowledge in the organization. Inline to this idea Shang provides the following conceptual framework

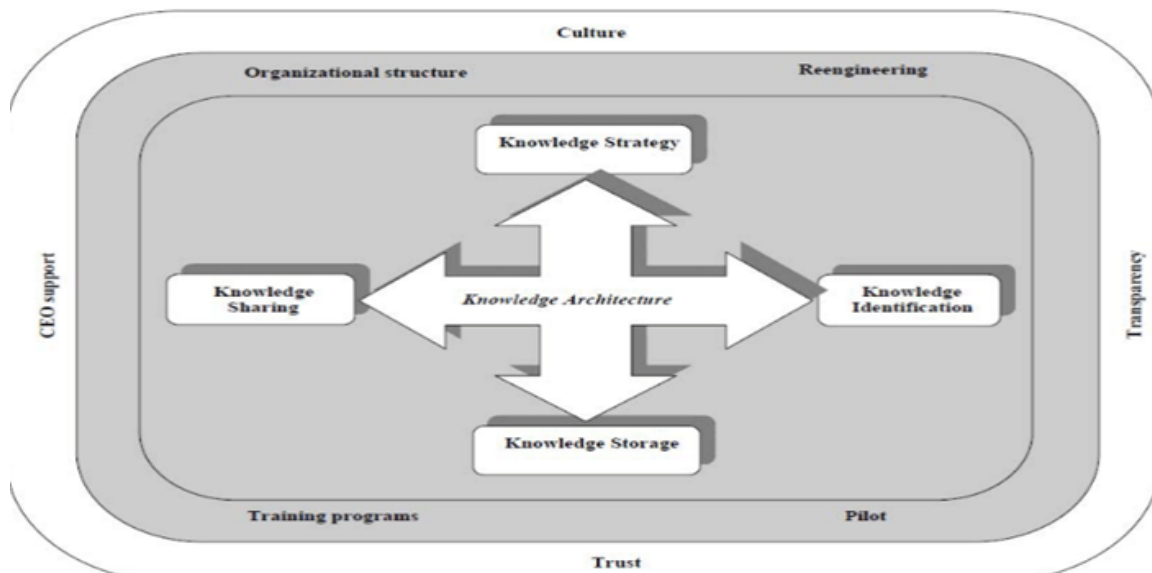


Figure 2: conceptual framework for knowledge management system

(Shang, 2005)

The current research is all identifying the status and barriers for knowledge management system while the research done by Shang as it is presented in form of pictographic above is designing and developing framework for knowledge management system from the scratch and doing on

how to integrate the different knowledge management systems to communicate as one component of knowledge management capability. The current research entitled as investigation of the status and barriers of knowledge management systems and its impact on organizational performance is supposed to contribute for the specified study area in that;

It ideally enables the leaders to advance their level of understanding on knowledge management system and practically enables the employees to gain empirical training on how they could maximize their knowledge management system usage and practice for their day to day operation.

## **CHAPTER THREE**

### **3.0 RESEARCH METHODOLOGY**

#### **3.1. Research design**

The research design selected for this research is cross sectional survey research method which is an essential element of a research design in which a researcher finds a fitting/appropriate research design and method so as to achieve the desired objectives. Because the cross sectional survey analyzes one time distributed data unlike longitudinal survey which depends on series of data's to be collected. For this study both quantitative and qualitative research approaches were used. For the quantitative method self administered questionnaires was used whereas for the qualitative data collection methods such as in depth interview and observation was used. Since the research incorporates questionnaire, interview, observation and document analysis; and focuses on investigation of how knowledge management system in MiE is related with firm performance the finding was a direct input for the organization, therefore the research design is accessing how and presenting the state or level of relationship that is why the research design/method was a cross sectional survey research design consisting of both qualitative and quantitative research methods/approaches.

#### **3.3 Study Area**

Mesfin industrial engineering is a manufacturing industry located at 783 km far from the capital city of Ethiopia to the northern direction in Mekelle town which is the capital city of Tigray region. Mesfin Industrial Engineering P.L.C (MiE) was established in 1993 as an engineering wing of The Endowment Fund for the Rehabilitation of Tigray (EFFORT) with a capital base of 7 million Ethiopian Birr. Currently it is mostly incorporated in manufacturing of liquid and dry cargo bodies, trailers, semi-trailers, low beds and in the fabrication of fuel, storage tanker and various equipments for the constructions and energy sectors such as cement components, and hydropower elements. It is also engaged in electromechanical and installation work, and includes erection of machinery and equipment



of various industrial projects, civic buildings and fuel depots. In its current state MiE is showing remarkable progress and development.

### **3.4. Study Population**

A research population is also known as a well-defined collection of individuals or objects known to have similar characteristics. All individuals or objects within a certain population usually have a common, binding characteristic. In MiE there are a total of 977 employees. Out of this number 618 are permanent employees of the organization whereas the remaining 359 employees are short term and long term contract workers. The population of the study consists of the permanent employees in order to acquire comprehensive and appropriate response about the trends of knowledge management system at the organizational level. In general the study populations are only those working in permanent recruitment in the organization 10 administrative leaders and purposively selected fulltime employees.

### **3.5. Sample Size and Sampling Techniques**

Sampling is a process of choosing a number of subjects from a population to become research respondents (Chua, 2006). According Saunders et al. (2007), sampling technique provides a range of method that enable research to reduce the amount of data needed to collect by considering only data from a subgroup rather than all possible cases or elements in an environment. This research study was intended to include both the purposive and random sampling techniques where necessary. The purposive was used for identifying the sample from the entire population that is full time employee from the entire population and the random sampling was used to identify the last sample from the subpopulation.

The total populations identified in this study as it has mentioned in the study population at the selected study area is 618. Therefore, the sample size was determined using the sample size determination formula prepared by (Kothari, 2004).

Therefore the required sample size was 100 out of the total 618 population. Sampling technique is also a mechanism by which type of sampling procedure the selected sample size was identified; therefore this study had concentrated on purposive sampling technique. Since the study was the investigation of knowledge management systems in the organization purposeful identification of the target population is necessary than any other

sampling ways. Therefore purposively the researcher has used interview for 10 employees in administration and management and purposively questionnaire distribution to selected 90 employees.

The inclusion and exclusion criteria for the selected 90 people was also using a type of purposive sampling called homogeneous purposive sampling that concentrate on a specific group of people in an organization to collect data about an event. Then, after the researcher has decided to use office workers purposively and a random sampling method to get the last 90 employees using their organizational identity.

### **3.6. Source and Types of Data**

The researcher has used both primary and secondary source of data. The primary data was including the data gathered through questionnaire, observation and interview. Whereas the secondary data was include the document and website of the organization itself.

### **3.7. Data collection Instruments**

Questionnaires and interview schedules was used as the instruments to collect quantitative and qualitative data respectively. The questionnaires were developed for the sampled employees while an interview schedule was developed for the chief executive officer and 9 other section heads in the organization. Interview schedule were been developed and used to collect qualitative data pertaining the employees with different authorities in the company's views of KMS in their respective class of the organization. In general order to collect the required data for this research study questionnaire, interview and observation were used mainly. And a statistical tool cold SPSS version 20 was used to analyze the data collected in any of the specified instruments.

#### **3.7.1 Questionnaire**

A questionnaire survey was carried out, which gave excellent insight into the overall, culture within the organization in relation to knowledge creation systems and knowledge sharing systems. The survey/questionnaire was chosen as a qualitative research in order to establish people's views of how they think, believe, value and feel. Hence the questionnaire was distributed to 90 selected employees in the organization.

#### **3.7.2 Interviews**

Following the implementation of questionnaires some interviews were also held with the administrative managers of the organization. The key themes of the interviews were to explore further, the issues discussed in the questionnaires. The interviews also gave the organizational employees the opportunity to comment on the functionality of the KMS on their Organization.

### **3.7.3 Observation**

There was also an observation checklist being prepared that the investigator himself was used to assess on the availability of knowledge management systems.

### **3.8 Data Analysis and instrumentation**

Data processing is an intermediary stage of work between data collection and data analysis. The complete data that were been collected using the interview and questionnaires was expected to contain vast amount of data and could not appear to be meaningfully before the analysis stage. It cannot directly provide answers to the research questions. They are like raw materials that need to be processed. Hence, data processing has been involved for the classification of the question on the basis of their objective and summarization of data in order to make it ready for analysis.

The information collected through questionnaire had been analyzed using appropriate tools like, percentage to analyze quantitative data. Percentages would use to explain the personality characteristics of respondents and the information gathered by the use of interview has been analyzed qualitatively through summary and interpretation.

Data analysis therefore, involves critical thinking capability. The data analysis was done after collecting all the data from the respondents.

Thus, the data analysis of this study had been following the objectives of the research. Moreover, quantitative data was been analyzed using statistical tools, such as graphs and percentages using SPSS software.

Whereas, the data obtained from interviews and observations had been presented qualitatively.

Thereafter the collected data was checked for completeness, missing values and then arranged in both automatically and manually. Then the entire data had been be coded and qualitative data had been be expressed in the form of narrations and explanations whereas

quantitative data were been entered into SPSS version 20 and then recoding, transforming and re-categorization of the adjusted questions had been taken place to fully perform it. Statistical package for social sciences (SPSS) 20th version was employed to analyze the collected data and interpretations were involved to actually do it.

### **3.9 Validity and reliability**

Validity and reliability of this research study was first dependent on the distribution of sample questionnaires to the selected target population. The researcher pre-test on the selected employees to check the validity of the questionnaire and corrections were made based on the feedbacks acquired from the respondents. The content validity was also assured when the questionnaire was prepared based on extensive reading of reviewed literatures.

Reliability, on the other hand, refers to a scientific observation's repeatability or reliability (Howard, 1985). Bernard (2011), in turn says, reliability refers to as being related to the possibility of coming to the same answer if a particular instrument is used to measure a specific theory more than once. In other words, to call data and findings reliable, one must get the same answer every time it is measured or tested. The goal of reliability is to minimize the errors and biases in a study. Since the instrument for this study was mostly optional likert scale close ended questions the reliability test was as successful as of a better one. These items were considered reliable if they yielded a reliability coefficient of 0.70 and above. This figure is considered desirable for consistency levels (Fraenkel & Wallen, 2000). In this study, the reliability coefficient of the items in the questionnaire was 0.73 and above. This reliability test was considered desirable for consistency levels.

In general there are different methods of reliability test, for this study the internal consistency (Cronbach alpha) technique was considered to measure the consistency of respondents' response and it is the most common measure of reliability. The result of the Cronbach's alpha of all variables in this study shows high reliability, so an alpha of 0.70 or above is considered as satisfactory Howitt and Cramer (2008).

Table3.1 reliability statistics of study variables

Variables	Cronbach's Alpha	N of Items
Existence KMS	0.740	14
Status of KMS	0.764	9
Factors affecting KMS	0.781	9
The Effect of KMS on org. Prf.	0.737	4

## CHAPTER FOUR

### RESULTS AND DISCUSSION

#### 4.1 Response rate

This result and discussion chapter focuses on the data analysis and geometric interpretation. It deals with the questionnaire set for this research specifically and to the research questions in general and concentrates on the purpose of the study. Out of the total distributed 90 questionnaires 88 were returned which accounts at about 97.8% of the whole. For this purpose 100% of the returned questionnaires were valid as it was checked by a pretest of the data collection instruments on the specified study area before the actual material was distributed. The response rate incorporates the employee's responses in the study and the demographic information of the respondents that include: gender, age, educational status, working experience job classification and current position in the company. It is used to present the results of the data analysis using SPSS version 20. A total of 90 employees were sampled for the questionnaire from a population of 618 staffs within the company.

In gernal the the folowing table 4.1 below presents analysis the demographic information of the respondents of the questinnaires in a single table.

**Table 4.1 demographic distributions of the respondents**

<b>Sex</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative percent</b>
<b>Male</b>	64	72.7	72.7
<b>Female</b>	24	27.3	27.3
<b>Total</b>	88	100	
<b>Age</b>	Frequency	Percent	Cumulative percent
<b>25-35</b>	72	81.8	81.8
<b>36-45</b>	16	18.2	18.2
<b>Total</b>	88	100	
<b>Educational</b>	Frequency	Percent	Cumulative percent

<b>level</b>			
<b>First degree</b>	75	85.2	85.2
<b>Master</b>	13	14.8	14.8
<b>Total</b>	88	100	
<b>Work experience</b>	Frequency	Percent	Cumulative percent
<b>5-10 years</b>	52	59.1	59.1
<b>11-15 years</b>	24	27.3	27.3
<b>Above 15 years</b>	12	13.3	13.3
<b>Total</b>	88	100	
<b>Job classification</b>	Frequency	Percent	Cumulative percent
<b>Full-time</b>	88	100	100
<b>Total</b>	88	100	

Sources: own survey 2017

Based on the frequency statistics presented in table 4.1, majority of the respondents that is 72.7% of the respondents were males and the rest 27.3% were females. It shows that majority of the respondents were males. Based on the above table 4.1, 81.8% of the respondents found between 25 and 35 years old, 18.2% were between 36 and 45 years old, It shows that majority of the respondents were found on the age range between 25 and 35 years old.

From the point of qualification, majority of 85.2% of respondents had first degree and 14.8% of the respondents had second degree, so this shows majority of respondents have first degree. The above table 4.1 also depicted, most of 59.1% of the respondents were having 5-10 years of work experience in the organization, while 27.3 % of the respondents were having 11-15 years of experience the rest 13.6% of the respondents were having work experiences above 15 years. It shows that majority of the respondents were experienced at about 5-10 years of work experience. And the table also includes job classification of the respondents in the organization and it shows 100% of the respondents are full time employees, in the meantime the respondents were also been asked their position in the company in the form of open ended question as part of a general

information and 100% of them wrote employee. As it is presented in many parts the research is all about investigation of the status and barriers of KMS and its effect on organizational performance, therefore it require knowledgeable respondents that are supposed to be representative to the entire population specifically to get accurate data. And the questionnaires were developed from previously done research works of different articles.

#### 4.1.1 Knowledge Management Systems in Mesfin Industrial Engineering

The first objective of this research was to explore Knowledge Management System in Mesfin industrial engineering; to achieve this very objective of the study the researcher have developed about 14 inter related questions that are expected to extend and broaden the research question generally and provide appropriate answer for the objective specifically. In order to answer the research question and to achieve the objective the respondents were presented with those 14 likert scale type of questions and they have provided their response To start analyzing with the first question let’s take a look at the table 4.2 below

Table 4.2 Knowledge management system in Mesfin industrial Engineering

Statements	Response rates					Ranges
	SA	AG	UC	DA	SDA	
MiE currently supports the use of knowledge management systems	18	53	0	17	0	AG
	20.5%	60.2%	0%	19.3%	0%	
MiE obtains a new knowledge	0	6	6	56	20	



from external sources such as through, subscription journals & expert networks	0%	6.8%	6.8%	63.6%	22.7%	DA
MiE uses content management systems such as websites and portals	16	56	8	8	0	AG
	18.2%	63.6%	9.1%	9.1%	0%	
In MiE I support the exchange of data, information and knowledge within the organizations' units.	19	53	4	12	0	AG
	21.6%	60.3%	4.5%	13.6%	0%	
MiE uses information technology to share knowledge	50	15	0	23	0	SG
	56.8%	17.0%	0%	26.1%	0%	
MiE uses information technology to discover knowledge	0	65	3	20	0	AG
	0%	73.9%	3.4%	22.7%	0%	
MiE uses information technology to apply Knowledge	49	35	3	1	0	SA
	55.7%	39.8%	3.4%	1.1%	0%	
MiE uses information technology to capture knowledge	6	45	35	1	1	AG
	6.8%	51.1%	39.8%	1.1%	1.1%	
MiE uses organizational portal to share ,apply ,acquire and discover knowledge	0	59	26	3	0	UC
	0%	67%	29.5%	3.4%	0%	
MiE uses the internet to share ,apply ,acquire and discover knowledge	0	74		14	0	AG
	0%	84.1%		15.9	0%	
MiE uses intranet to share ,apply ,acquire and discover knowledge	2	49	6	31	0	UC
	2.3%	55.7%	6.8%	35.2%	0%	
MiE uses extranet to share	0	11	46	31	0	UC

,apply ,acquire and discover knowledge	0.0%	12.5%	52.3%	35.2%	0.0%	
MiE uses groupware to share ,apply ,acquire and discover knowledge	5	68	2	10	3	AG
	5.7%	77.3%	2.3%	11.4%	3.4%	
In general, knowledge sharing systems and organizational learning are valued in my company's culture	54	31	0	3	0	SA
	61.4	35.2	0.0%	3.4%	0.0%	

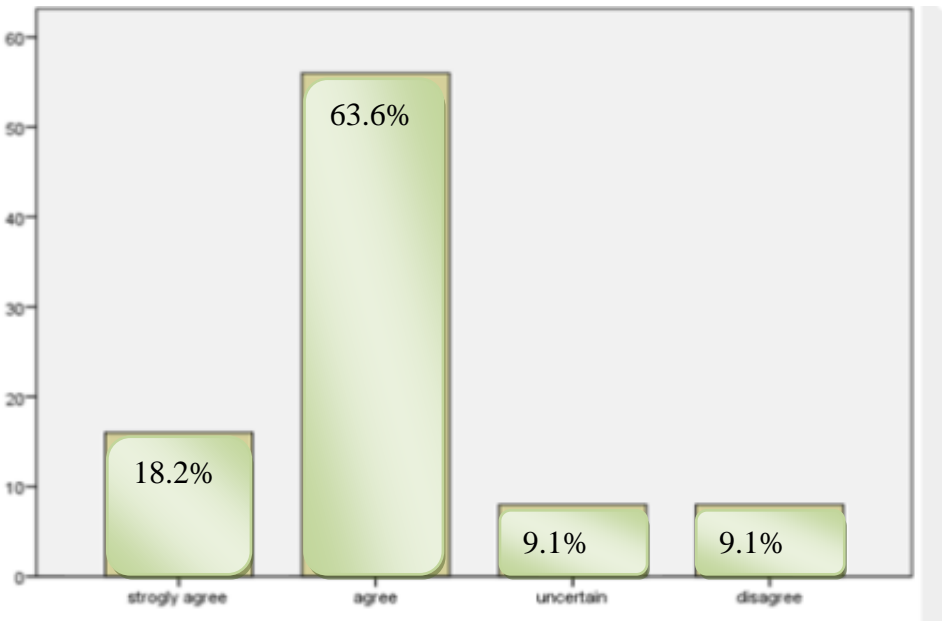
SA=strongly agree, AG= agree, UC=undecided, DA= disagree, SDA=strongly disagree, DN=decision

In the above table 4.2 the percent of respondent's decision listed from questions 5-18 as it have been indicated in the above table the assessment tried to determine the availability of different knowledge management systems in Mesfin industrial engineering. To assess the existence of KMS in the organization the investigator has adjusted some specific questions that are directly related with knowledge management system itself by reviewing related editorial works of the subject.

As it is clearly displayed in the table 4.2 above for the first objective the questionnaire starts by asking if the organization currently supports the use of knowledge management systems in general; therefore out of the returned 88 papers 20.5% of the respondents strongly agreed that the organization supports the use knowledge management system currently, while 60.2% of the respondents agreed and the rest 19.3% of the most respondents disagreed. And the second one is about understanding whether the organization obtains a new knowledge from external sources by a mean of subscription fees and expert networks for this question, the respondents disagreed with a majority number that is 63.6% out of the entire returned papers and 22.7% of the respondents strongly disagreed while the rest 6.8% agreed the same amount this is 6.8% responded uncertain.

Another complementary question in this objective is regarding the existence of content management systems, the result is presented in figure 4.1 accordingly in the company; for this question 18.2% of the respondents strongly agreed that there is a content management

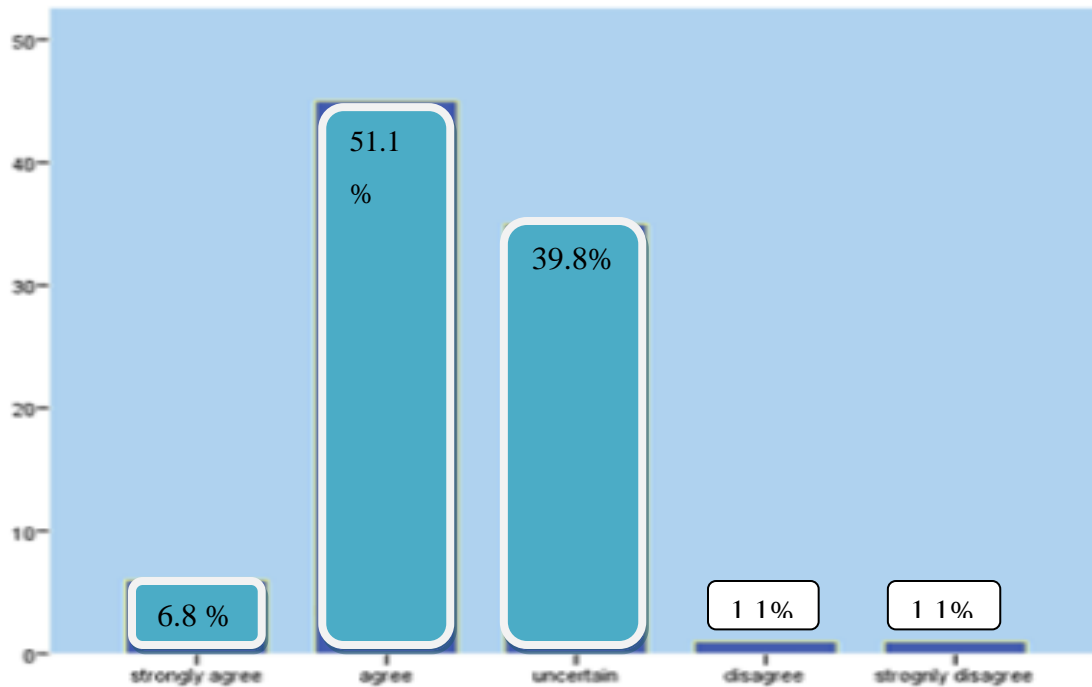
systems in their organization such as the use of organizational website and portals where as 56(63.6%) of the them agreed and 8of them responded uncertain while 8 of them disagreed which accounts 9.1% for each. The next figure 4.1 shows the response of this question in figure



**Figure 4.1 Existence of content management system**

Another question forwarded to the respondents was also a question regarding the type of information and knowledge exchange systems internally inside the organization such as the use of email address to share important ideas with colleagues. Therefore their response is summarized as 21.6% of the respondents strongly agreed with this statement and 60.3% of the total respondents agreed while 4.5% of them responded uncertain where as the rest 13.6% respondents disagreed with the statement. The use of information and communication technology in the organization was also assessed by the specific four types of knowledge management processes; from these questions the first one is whether the organization uses information technology to share knowledge, like the other questions this was also part of the likert scale and the response is 56.8% strongly agreed with the statement while 17% of the respondents agreed where as the rest 26.1% respondents disagreed, and the other question was the use of any of the information and communication technologies to discover a new knowledge in the a organization; in this question also 17%

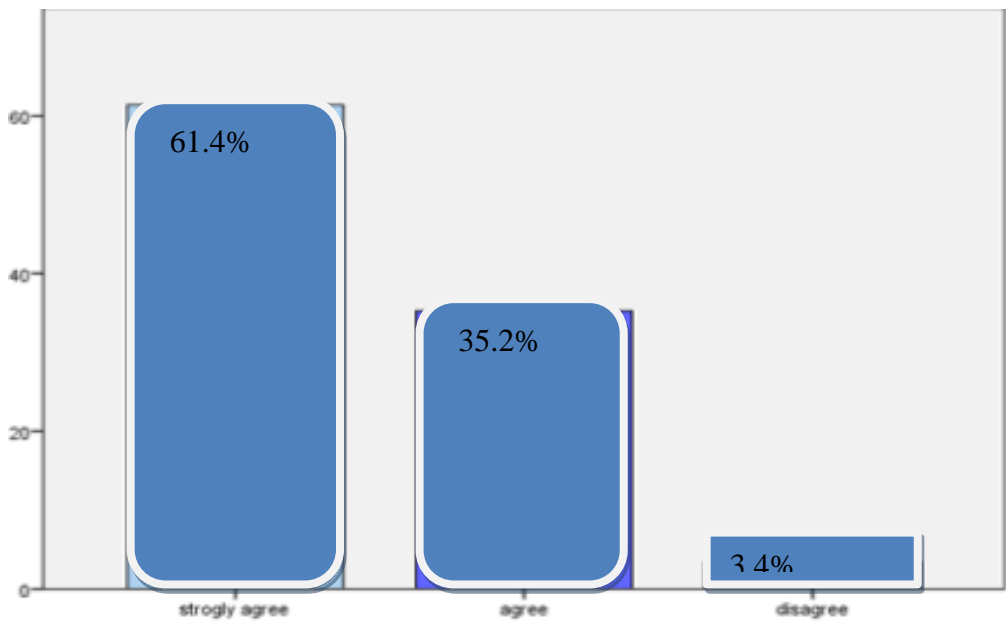
of the respondents strongly agreed while 51.1% of them agreed and 9.1% respondents were uncertain to give judgment where as the rest 22.7% of the respondents disagreed. similarly to the third question that is the use of information and communication technologies to apply knowledge in the organization was strongly agreed by 55.7% and 39.8% agreed while 3.4% left uncertain to give decision and the rest 1.1% respondents disagreed. The last question in the use of information and communication technologies was its utilization to capture existing knowledge similarly here 6.8% strongly agree, 51.1% agree, 39.8%) uncertain, 1.1% disagree and 1.1% strongly disagree. For a better clarification let's take a look at the figure 4.2 below.



**Figure 4.2 the use ICT for knowledge capture**

The other category of questions raised to the respondents were also regarding to the existence of different knowledge management system to comply all or any one of the knowledge management processes in the organization. Therefore it starts with the existence of organizational portal to support knowledge sharing, discovery, apply and knowledge capture; and the response is almost similar to the previous ones. Based on this the respondents agreed with about 67%, 29.5% uncertain and the rest 3.4% disagreed.

The second question prepared to assess if knowledge management systems can facilitate the knowledge management processes is that whether the organization uses the internet to share, apply ,acquire and discover knowledge ; and the response is 84.1% agreed while the rest 15.9% strongly disagreed. there was also a question raised regarding the existence of intranet networks to facilitate those KMPs, so the response is summarized as 2.3% strongly agree, 55.7% agree, 6.8% uncertain, 35.2% disagreed. The other question was also the use of Extranets to facilitate the knowledge management processes and the response is 12.5% agree, 52.3% uncertain and 35.2% disagree. And lastly the existence of groupware technology to facilitate those knowledge management processes was also asked to the respondents as part of KMS and they respond it 5.7% strongly agree, 2.3% agree, 77.3% uncertain, 11.4% disagree and 3.4% strongly disagree. Finally to conclude the first objective whether knowledge sharing systems and organizational learning are valued in the company’s culture was been assessed and the reaction is 61.4% strongly agreed, 35.2% agreed and the rest 3 3.4% disagreed the statement. The figure 4.3 below summarizes this description



**Figure 4.3knowledge sharing and organizational learning**

#### 4.1.2 Levels of knowledge and Knowledge Management in MiE

The current situation of Knowledge, KM and KMS practiced in Mesfin industrial engineering has been investigated in this study as one of the main motto of this research study. This observation is used to assess the current utilization of Knowledge Management systems in the organization. In order to achieve this objective the researcher developed a question and there after extended the question in a manner that the research questions are truly answered by the list of questionnaires. But rather than directly concentrating on the objectives & its parallel research questions the investigator preferred to highlight the intensity at which knowledge and knowledge management is being exercised in the organization. For this reason the first question posed to respondents was a question related with the utilization of knowledge in the organization in the form of ‘Yes’ or ‘No’ kind of option. The frequency of the first question (Do you consider that knowledge would enable your organization to develop and exploit tangible and intangible resources other than its competitors do) has presented in the form of tabular statistics to display the response frequency rate of the respondents as in the following table 4.4.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	79	89.8	89.8	89.8
	No	9	10.2	10.2	10.2
	Total	88	100	100.0	100

**Table 4.4. Knowledge and its application in organizations**

The above table indicates the total response of the respondents for the first introductory question that was raised relating to the use of knowledge in Mesfin industrial Engineering, as it is clearly presented in table 4.4 , out of the total 88 returned responses majority of the respondents that is 89.8% of them said that yes knowledge would enable my organization to develop and exploit tangible and intangible resources other than its competitors do, where as the rest 10.2% respondents said no knowledge wouldn't enable my organization

to develop and exploit tangible and intangible resources other than its competitors do. From this analysis it is possible to conclude the organization is applying knowledge for the purposes of facilitating works in.

Another idea the researcher posed to the respondents to assess how the level of knowledge and knowledge management was used in the organization regarding if they consider that knowledge management enables the organization to improve marketing, manufacturing and public relation

		Freque ncy	Percen t	Valid Percent	Cumulative Percent
V ali d	Yes	78	88.6	88.6	88.6
	No	10	11.4	11.4	11.4
	Total	88	100.0	100.0	

**Table 4.5 KM usage in M.I.E**

The second implication posed to the respondents as a complimentary idea was also whether knowledge management enables the organization to improve marketing, manufacturing and public relation; For this idea out of the entire 88 participants 88.6% of the respondents replied “Yes” and the rest 11.4% respondents replied “No” the above table 4.5 is statistical or numeric representation of this response rates.

The other idea used to assess knowledge and KM was also that respondents were asked about whether KMS is the appropriate solution of sustainable intellectual development in their organization, as presented in table 4.6.

		Freque ncy	Percen t	Valid Percent	Cumulative Percent
Vali d	Yes	82	93.2	93.2	93.2
	No	6	6.8	6.8	100.0
	Total	88	100.0	100.0	

**Table 4.6 KMS usage in M.I.E.**

In general the response of the participants regarding the above question as it is presented in table 4.6 is that majority that is 93.2% of them said yes it is a solution while the rest 6.8% said no it is not.

The last complimentary idea raised to the respondents were regarding the use of knowledge management system and Promoting Organizational Communication; this question were also presented to respondents in form of yes or no kind of option, For all the 88 participants out of this number 82 (93.2%) of them said “Yes” while the rest 6 (6.8%) responded “No”. the table 4.7 below is a statistical tabular representative of this idea.

Does knowledge management system Promote Organizational Communication

		Frequency	Percent
Valid	Yes	82	93.2
	No	6	6.8
	Total	88	100.0

**Table 4.7KMS and promoting organization**

Generally the above four questions are complementary ideas that the investigator thought to support the main objectives of this research study by just focusing on how are knowledge and knowledge management practiced in the specified study area that Mesfin industrial engineering . The response of the respondents shows that both knowledge and knowledge management are routine practice and assets which are typically adapted to the organization.

#### **4.1.3 The status of knowledge management systems in the organization**

In the first objective the researcher has tried to ask for his respondents what type of knowledge management systems are available in the organization with an already adjusted options, the second objective is all about the status of the use of those knowledge management systems in the organization. To understand the levels of usage of those



Knowledge management systems the researcher has developed about 8 likertt scale format question from strongly agree-strongly disagree and one closed question as in the next table 4.8 below

Statements	Response rates					Range
	SA	AG	UC	DA	SDA	DN
KMS is highly applicable such as the use of simulation technology before an actual object/product is designed	8	9	9	62	0	DA
	9.1%	10.2%	10.2%	70.5%	0%	
KMS is lowly applicable such as sharing knowledge through e-mail address	24	60	2	0	2	AG
	27.2%	68.3%	2.3%	0%	2.3%	
KMS is frequently used in productivity improvement and cost savings	0	27	31	30	0	UC
	0%	30.7%	35.2%	34%	0%	
KMS is moderately used such as for ecommerce (e-buy & e-sale)	12	72	1	1	2	AG
	13.6%	81.8%	1.1%	1.1%	2.3%	
All activities in this organization are highly dependent on KMS	0	20	26	42	0	DA
	0%	22.7%	29.5%	47.7%	0%	
There are some activities that mandatorily require KMS in the organization	24	57	0	5	2	AG
	27.3%	64.8%	0%	5.7%	2.3%	
There is no any activity that requires the existence KMS	0	21	25	42	0	DA
	0%	39.8%	3.4%	1.1%	0%	
I think the organization is in an advanced KMS usage	0	38	50	0	0	DA
	0%	43.2%	56.8%	0%	0%	

SA=strongly agree, AG= agree, UC=undecided, DA= disagree, SDA=strongly disagree, DN=decision

Assessing the status of utilizations obtained from linking an information system to improve business operation is decisive to an organization wishing to assess the value of its investment in the technological era (Moshe, 2015). For the purpose of this reason intellectuals continuously need to know how knowledge management system is used to advance business activities in different companies. Parallel to this idea the researcher would have been interested to identify what is the status of knowledge management systems in the specified study area that is Mesfin industrial engineering .in order to know this the investigator has developed sets of likertt scale questions that would enable him to guess this very objective

To decide the response of the respondents the researcher preferred to present starting from the first question which is whether KMS is highly applicable such as the use of simulation technology before an actual object/product is designed; for this question the respondents strongly agreed with 9.1%, agreed with 10.2%, undecided 10.2%, and disagreed by the rest 70.5%. Next to this the researcher also had asked the respondents if KMS is lowly applicable such as sharing knowledge through e-mail address to colleagues, and the response is 27.2% strongly agreed, 68.3% agree, 2.2% undecided and the remaining 2% disagreed. There was also question remembering whether KMS is frequently used in productivity improvement and cost savings in the company, for this question 35.1% of the respondents agreed while 30.1% undecided where as the rest 34% . And the other question was also if KMS is moderately used such as for ecommerce (e-buy & e-sale) purpose and the respondents replied as 13.6% strongly agree, 81.8%, agree, 1.1% undecided, 1.1%. the investigator also had asked the respondents if all the tasks in the organization are highly dependent on knowledge management systems and they agreed with about 22.7% and disagreed with about 47.7% while the rest 29.5 undecided to give judgment with mean score . An additional question the researcher was used to estimate the status of knowledge management systems was if there are some activities that mandatorily require KMS for functionality in the organization, then after the respondents strongly agreed the statement by about 27.3% and agreed by about 64.8% while the rest 5.7% respondents disagreed the idea. in the meantime respondents were also asked probably if there is no any activity that need the support from those knowledge management systems in the organization and their response is 24.7% agreed and 47.7% disagreed with 28.5%

undecided respondents. And the last question was if they are using knowledge management system in advanced state; for this question 43.2% of the respondents agreed while rest 56.8% of the respondents disagreed.

As a last and concluding statement the researcher forwarded 4 optional close ended questions that would generalize the above questions in single statement to all the respondents. The question is all about the way knowledge management system in the company is practiced, with options, enough, advanced, low and extremely low level and the response is 33% of the respondents selected enough, 9.1% said advanced level, 43.2% said low level and the rest 14.8% said extremely low level. and the table 4.7 below summarizes this question in tabular form .

Generally how do you rate KMS in MiE

		Frequency	Percent
Valid	Enough	29	33.0
	advanced level	8	9.1
	low level	38	43.2
	extremely low level	13	14.8
	Total	88	100.0

**Table 4.9. States of KMS in MiE**

#### **4.1.4 Factors affecting application of Knowledge management system in M.i.E**

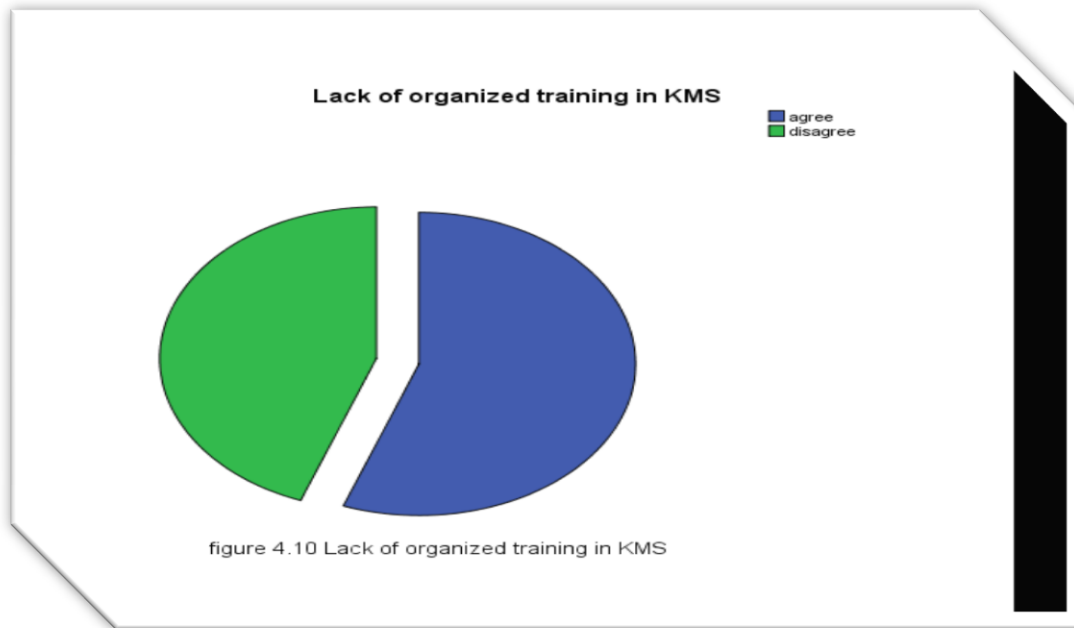
The third specific objective which this research study proposed to achieve was also what major factors are available in Mesfin industrial engineering to face the use of knowledge management system. To asses this researcher organized some factors from previously done research works and added some specific question which is expected to be a factor in knowledge management system. The objective organizes about 9 interrelated questions in the form of a likertt scale. The table 4.8 below indicates the frequency rate of the respondents and its parallel mean value & standard deviation.

Table 4.8factors affecting KMS in MiE

Statements	Response rates					Ranges
	SA	AG	UC	DA	SDA	DN
Lack of well organized ICT infrastructures in the organization	0	3	0	35	50	SDA
	0%	3.5%	0%	39.8%	56.8%	
Poor leadership attention to support KMS	3	31	0	50	4	DA
	3.4%	35.2%	0%	56.8%	4.5%	
Lack of trust of technological advancements	12	48	28	30	0	AG
	13.6%	54.5%	31.8%	9.1%	0%	
Lack of information materials on KMS	0	11	0	47	30	DA
	0%	12.5%	0%	53.4%	34.1%	
Inadequate knowledge of the benefits of KMS in the organization	0	81	0	7	0	AG
	0%	92%	29.5%	8%	0%	
employees opinion of KMS as a vital practice for organizational operation	0	81	3	4	0	AG
	0%	92%	3.4%	4.5%	0%	
Inadequate knowledge of technological application by staff	0	34	0	50	4	DA
	0%	38.6%	0%	56.8%	4.5%	
Lack of Personal motivation to use KMS	7	50	0	31	0	AG
	8%	56.8%	0%	35.2%	0%	
Lack of organized training in KMS	0	49	0	39	0	AG
	0%	55.7%	0%	44.3%	0%	

SA=strongly agree, AG= agree, UC=undecided, DA= disagree, SDA=strongly disagree, DN=decision

The above table simply presents the SPSS output of the respondents in tabular form .when we see the first question which is about Lack of well organized ICT infrastructures in the organization as an example, out of the entire number of respondents 3.5% of the respondents agreed with the statement while 39.8% of them disagreed and the rest 56.8% respondents strongly disagreed. Secondly there was also a question if there was a Poor leadership attention to support KMS in the organization; the participants replied for this 3.5% of the respondents strongly agreed with the statement, 35.2% agreed, 56.8% disagreed and the remaining 4.5% strongly disagreed. Lack of trust of technological advancements was also another question and the response is 13.6% of the respondents strongly agreed with the statement while 54.5% agreed, 31.8% undecided and 9.1% disagreed. In addition to this there was also a question if Lack of information materials on KMS is a factor in the organization and the response is 12.5% of the respondents agreed with the statement while 53.4% of them disagreed and the rest 34.1%% respondents strongly disagreed .Beside to those there was also a question intended as a factor for knowledge management systems that is Inadequate knowledge of the benefits of KMS in the organization here also the respondents reflected their response as 92% agreed while the remaining 8% disagreed the idea. Employees opinion of KMS as a vital practice for organizational operation was also the another question raised to the respondents and their answer deals 92% agreed and 4.5% strongly disagreed while the remaining 3.4% rest undecided with mean value 2.13 and standard deviation of 0.450. Knowledge scarce to perform technological application it was also forwarded as if it is factor and the response of the respondents is 38.6% agreed, 56.8% disagreed and the rest 4.5% strongly disagreed. The other question was also Lack of Personal motivation to use KMS, the response to this question is 8% strongly agree, 56.8% agree and 35.2% strongly disagree. The last question incorporated as knowledge management system factor in Mesfin industrial engineering was also Lack of organized training in KMS and their answer for this is also 55.7% agreed and 44.3% strongly disagreed. To see what the bar graph indicates for the last question let's have a look at the figure 4.4 below.



**Figure 4.4 lack of organized training in KMS**

Generally the study result show that lack of trust of technological advancement, in adequate knowledge of the benefit of KMS in the organization, employees opinion of KMS as a vital practice for organizational operation, lack of personal motivation to KMS and lack of organized training KMS are the factors affecting the application of knowledge management system negatively in the organization.

The fourth objective which this research study proposed to investigate was analyzing a fitting knowledge management system to the organization by asking the respondents. This objective can be achieved together with second objective that understands the extent to which knowledge management system in the organization is functional.

#### **4.1.5 The impact of knowledge management system on organizational performance**

The main objective of this study was to investigate the different types of knowledge management systems and their role in an overall company's performance. This is what the impact of knowledge management systems in Mesfin industrial Engineering is in general. In order to determine this research question the investigator prepared four questionnaires aligning with the four knowledge management systems to the organizations general

effectiveness. The table 4.8 below presents those questions and their parallel response frequency rate.

Table 4.8 the impact of KMS in MiE

Statements	Response rates					Ranges
	SA	AG	UC	DA	SDA	DN
Knowledge sharing systems have positive impact in the organizations performance	50 56.8%	4 4.5%	3 3.4%	31 35.2%	0 0%	SA
Knowledge application systems have positive impact in the organizations performance	49 55.7%	39 44.3%	0 0%	0 0%	0 0%	SA
Knowledge capture systems have positive impact in the organizations performance	3 3.4%	35 39.8%	50 56.8%	0 0%	0 0%	UC
Knowledge discovery systems have positive impact in the organizations performance	48 54.5%	36 40.9%	0 0%	4 4.5%	0 0%	SA

SA=strongly agree, AG= agree, UC=undecided, DA= disagree, SDA=strongly disagree, DN=decision

As we can see from the above table 4.8 for this objective there about four likert scale type questions which are expected to answer the general objective that remains unanswered from the specific objectives. Based on this the response of the respondents for the first question which is Knowledge sharing systems have positive impact in the organizations performance is 56.8% strongly agree, 4.5% agree, 3.4% undecided, and the rest 35.2% disagree. And the second question was also whether Knowledge application systems have positive impact in the organizations performance, for this question also the response seems to be 55.7% strongly agree and the rest 44.3% agree. Assessing whether Knowledge capture systems have positive impact in the organizations performance was also another part of this questionnaires and the respondents strongly agreed by about 3.4% and agreed by 39.8% and remaining 56.8% left undecided. the last question incorporated as one of

this four question in order to know the impact of knowledge management system in companies performance was also whether Knowledge discovery systems have positive impact in the organizations performance, the respondents strongly agreed this by about 48 54.5% and agreed by about 36 (40.9%) while the rest 4.5% disagreed. Based on the fact on the table 4.8 knowledge sharing system, knowledge application system and knowledge discovery system have positive impact in the organizations performance.

#### **4.1.6. INTERVIEW AND OBSERVATION**

##### **4.1.6.1 Interview Discussion**

According to Parikh, (2001) collecting data with multiple data collection instruments increases the accuracy of the data being collected. Based on this fact the investigator has used interview questions as one of the instruments for this research study. The interviewees which are the participant of the interview question are 10 heads and section heads including general manager, ICT department head, human resource head, project manager, quality assurance head, finance head and property control head. For all this individuals there were about 9 close and open indeed questions and their response is generalized as in the following. The first idea raised to them was what would they consider the most needed KM capability in their organization; Almost all of them said to this question managing organizational knowledge is not easy thing like its name, when people deeply think about it requires both technical and tactical understanding therefore it is enabling the organization in serving our customers wisely and enhancing product quality. We are able to own satisfied customer and providing well progressed products with the help of knowledge management. After that, what types of knowledge management systems does their organization uses; Knowledge sharing systems, we also use systems that preserve knowledge, knowledge application systems and knowledge discovery systems are the type of knowledge management systems that are slightly operated. And the other subject was whether Knowledge management systems are bringing innovative thoughts to the organization as whole. And the response is nowadays we people from different corner of the globe are able to find the same information in a matter of seconds equally with the help of World Wide Web. However our organization does not reach maximum range of knowledge management system usage we are trying to integrate relevant ideas to our



organization which we just find in different medias and sites and change it into the context of our exercises, therefore they are bringing a lot to the organization change. The other point was if they consider Knowledge management system enhances productivity of their organization; For the purpose of this idea, they said the need for any modern technology is to minimize extravagant effort and increase quality and quantities of products therefore our organization is not different from this fact that is yes it enhances productivity. The fifth main point the interviewer was raised to the interviewees question was; whether Knowledge management system was assisting the organization to meet customer demands; they said yes example we used to advertize some of our new products and services to customers through broad band network and social Medias this can help them not to worry where to find something. Another purpose was to know whether Knowledge management system is advancing the management of work in the company; their response were “Yes” the use of traditional procedure to manage any kind of work is tiresome and complex, but incorporating modern technologies such as to use knowledge management systems is preferable to avoid such a challenge. The researcher was also talk to the interviewees how KMS enable to improve performance; Knowledge management system can help to improve both financial and non financial performances this is in cost saving and product enhancement. Example the use of expert systems and best practice databases enables individuals to own knowledge which they never possess it before. The appropriate use of knowledge management systems is more than a decisive requirement in this case. Another idea was also if they think Knowledge management system increase customers and customer service; and their reply was the flow of well satisfied customers by itself increases customers in number in order to fulfill this contribution of the internet is the leading one. Finally the interviewer was also discussed about them about KMS and their view toward increasing financial resource; For this idea most of the interviewees said; in order to have fully function knowledge management systems in organizations you need to have adequate hardware and software requirements at the very first time and you will outflow some amount of expenditure to furnish that one, but after once you install it you will save money from lose for many purposes (Ngulube, 2007).

#### **4.1.6.2 Observation Discussion**

An observation is one of the data collection instruments in which an investigator is used

to attain first hand information or data from any specified study areas/objects.

The accuracy of a data collected with the help of more than one data collection instruments is also unambiguous (Dotsika, 2010). Having this in mind the researcher was used to incorporate observation checklists' as part of his data collection instrument. The items presented as checklist was things the researcher assumed to find such as the availability of specific ICT tools such as locally or globally connected computers; based on the observation made by the researcher there are computers which properly work internet connection in the company and global connectivity as well. The availability of organizational portal in the company was also re assured in this observation in addition to the one presented in questionnaires for the respondents. There are also computerized data base management systems to support best practice databases in the organization. In addition to this, they have global networks with peer organization and they are used to communicate with their customers with the help of social and multimedia's such as website, webpage, television and newspapers to forward their messages.

Generally this research study focusing on investigation of knowledge management systems and organizational performance comes up with the four knowledge management systems which are knowledge sharing systems, knowledge capture system, knowledge discovery system and knowledge application systems with a low level of utilization. And knowledge sharing systems (system that share knowledge) are very demanding than the other knowledge management systems. In general the organizational performance is positively related with all knowledge sharing systems, knowledge application system and knowledge discovery systems based on the result of Respondents'.

## **4.2 Findings of the study**

### **4.2.1. Knowledge management systems in Mesfin industrial Engineering**

Computer-based technology has transformed the way in which individuals and organizations accomplish knowledge work by amplifying, complementing, leveraging, and improving on innate human knowledge handling capabilities (Holsapple, 2005). KMS are designed to support the creation, storage/retrieval, Transfer, and application/reuse of

knowledge in the organization. KMS enable the sharing and reuse of knowledge in the context of the user's needs. Therefore, knowledge has to be modeled, appropriately structured, and interlinked to support its flexible integration and its personalized presentation to the consumer (Sure, 2001). This is why a research in investigating knowledge management systems is needed.

The leading objective on this research therefore was to investigate Knowledge Management Systems in Mesfin industrial engineering; to achieve this very objective of the study the researcher have developed about 14 inter related questions that are expected to extend and broaden the research question generally and provide appropriate answer for the objective specifically. In order to answer the research question and to achieve the objective the respondents were presented with those questions and they have provided their response as it already presented in the analysis part in table 4.2 above. The very reason of this research is that to clearly present what type of knowledge management systems are available in the company in order to understand this objective the investigator presented the respondents with sets of questions that either directly or indirectly represented knowledge management systems. That is summarized in result section of table 4.2 above and is going to be interpreted so the finding is going to be discovered clearly. To start justification for the first idea posed to them which is, do the organization currently supports the use of knowledge management systems; out of the returned 88 responses majority of the respondents agreed with the statement that the organization supports the use of knowledge management systems. From this it is possible to conclude that there is knowledge management system in Mesfin industrial engineering. Gupta, (2002) in his Adelphi study of knowledge management systems: scope and requirements studied that the existence of knowledge management systems and found that knowledge management system was highly applicable in the study area he had concerned. And the other one was about to understand whether the organization obtains a new knowledge from external sources by a mean of subscription fees and expert networks the respondents disagreed with a majority number of the entire returned responses. In opposite to the above implication it is also possible to conclude there is no a subscribed journal in the organization and no expert networks are available to the organization (Wang, 2012).

As the data in table 4.4 above indicated another complementary suggestion in this objective is also regarding the existence of content management systems in the company; in this idea the majority of the respondents agreed and support the view of the investigator. This shows that there is a content management system in the organization.

Another idea discussed with respondents was also regarding the type of information and knowledge exchange systems internally inside the organization such as the use of email address to share important ideas with organizational colleagues. For this suggestion also majority of the total respondents agreed they use email address to share any kind of message with their colleagues. The use of information and communication technology in the organization was also assessed by the specific four types of knowledge management processes; from these the first one was whether the organization uses information technology to share knowledge, the majority response to this question was strongly agreed with the statement and the other question was the use of any of the information and communication technologies to discover a new knowledge in the a organization; in this subject also majority of the respondents agreed that there is a use of information and communication technologies to discover new knowledge similarly to the third implication that is the use of information and communication technologies to apply knowledge in the organization was strongly agreed by a majority number . The last implication was also the use of information and communication technologies was its utilization to capture existing knowledge similarly here the majority number agreed. In the same way it is possible to conclude that there is the use of information and communication technologies to capture knowledge (Singh, 2009).

The other category of schemes raised to the respondents was also regarding to the existence of different knowledge management systems to comply all or any one of the knowledge management processes in the organization. Therefore it starts with the existence of organizational portal to support knowledge sharing, discovery, apply and knowledge capture; majority of the respondents agreed that there is an organizational portal in the company. There was also an idea prepared to assess if knowledge management systems can facilitate the knowledge management processes is that whether the organization uses the internet to share, apply ,acquire and discover knowledge ; and the majority response agreed that there is an internet utilization to activate all or one of the knowledge

management systems in the organization. There was also an implication raised regarding the existence of intranet networks to facilitate that KMPs, so the majority response to this is also agreed. Hence it is possible to say the organization owns intranet networks. The other thought was also the use of Extranets to facilitate the knowledge management processes and the majority response is uncertain. This indicates that major numbers of the respondents were not sure whether there is extranet. And lastly the existence of groupware technology to facilitate those knowledge management processes was also forwarded to the respondents as part of KMS and the majority of the respondents replied uncertain. This indicates almost were not sure whether is they use groupware technology or not in their organization. Finally to come up with achievable response for the first purpose whether knowledge sharing systems and organizational learning are valued in the company's culture was been assessed and the majority response was strongly agreed the statement by about the identified rate in the table 4.2 above in the result section. Generally by observing the response of the research participants for the first objective it is possible to put what knowledge management systems are available in the organization which is Mesfin industrial engineering. In this part of the study there were certain implications which are directly related with knowledge management systems provided to the respondents; out this implications the statements that find majority response in either agree or strongly agree are expected to exist in the organization (Zack, 2010).

Based on this it is agreed that the organization currently supports the use of knowledge management systems in general. Following to this they are also agreed to the existence of content management systems such as websites and portals which can be part of knowledge capture system and knowledge repository. Beside to this they are also highly positive for the existence of the exchange of data, information and knowledge within the organizations' units that can be part of knowledge transfer systems in the organization (Hawarden, 2003). Simply the organization also supports the existence of information and communication technologies to implement sharing, capturing, applying and discovering knowledge in the organization. They are also agreed on the use of organizational portal to share, apply, capture and discover knowledge. This indirectly represents to the existence of all knowledge sharing system, knowledge capture system, knowledge application system and knowledge discovery system in the organization since modern website and portals are of a

web 2.0 types that receive feedbacks and deliver its own content flexibly. And another one that was highly supported by the respondents was the use of the internet to share, apply, acquire and discover knowledge. The same like to the above this includes all the knowledge management systems. The organization also supports the use of groupware to share, apply, acquire and discover knowledge, and in general knowledge sharing systems and organizational learning are valued in the company's culture. According to Cranfield (2011) the existence of knowledge management processes in an organization by itself brings to find KMS and this habit deals organizations knowledge sharing and preservation with organizational learning.

#### **4.1.7. The Status of Knowledge Management Systems in the organization**

Knowledge is a vital asset and a significant resource of any organization; it conveys meaning and hence tends to be much more valuable, yet more ephemeral (Turban, 2014). Knowledge management contents typically focus on firm's strategic objectives such as innovation, improved performance, competitive advantage, as well as success stories and lessons learned. Hence, Knowledge Management Systems (KMS) can play a significant role in improving organizational and individual performance. Considered as the memory of the organization by leveraging the collective knowledge of the company from one project to another, substantial investments are done in technology infrastructure for KMS. Yet, little is known about return on investment for KMS, in terms of impact on employees and organization performance (Bock, 2014). KMS incorporates: create and capture new knowledge, support and facilitate content management, and share and re-use knowledge to generate value (Alavi & Leidner, 2001). Therefore, individual contributions, technology acting, and task structure are three of the main aspects of KMS (Frost, 2014). There is an increasing need within organizations to comprehend the antecedents of KMS usage and impact on employees' performance from the perspective of these various aspects. Prior research on the resistance to information systems in an organization focus mainly on the mandatory use context e.g., the use of enterprise resource planning systems is mandatory for employees.

As it have mentioned in the result above the first specific objective of this research study was all about the existence of knowledge management systems in the organization where as the second is all about the status of the use of those knowledge management systems in the organization. To understand the levels of usage of those knowledge management systems in the organization the researcher has developed about 8 likert scale format question from strongly agree-strongly disagree and one closed ended question as in the table 4.8.

Assessing the status of utilizations obtained from linking an information system to improve business operation is decisive to an organization wishing to assess the value of its investment in the technological era Moshe Z. (2015). For the purpose of this reason intellectuals continuously need to know how knowledge management system is used to advance business activities in different companies. Parallel to this idea the researcher were interested to identify what is the status of knowledge management systems in the specified study area that is Mesfin industrial engineering .in order to know this the investigator has developed sets of likert scale questions that would enable him to guess this very objective.

To decide the response of the respondents the researcher preferred to present starting from the first idea forwarded to them which is whether KMS is highly applicable such as the use of simulation technology before an actual object/product is designed; therefore majority of the respondents disagreed the statement hence the use of simulation technology is not available. beside to this the researcher also assessed if KMS is lowly applicable such as sharing knowledge through e-mail address to colleagues, and the majority response to this was agree, therefore it is possible to conclude the employee are used the email address to share their knowledge and ideas. There was also another implication posed regarding whether KMS is frequently used in productivity improvement and cost savings in the company, the majority response for this idea was rest undecided to give suggestion.

And the other idea was also if KMS is moderately used such as for ecommerce (e-buy & e-sale) purpose and the respondents replied with majority response agreed. The investigator also had presented the respondents with an idea that would enable him know if all the tasks in the organization are highly dependent on knowledge management systems; and the majority response was agreed to this view. Additionally the researcher was used to estimate the status of knowledge management systems by forwarding an idea if there are some

activities that mandatorily require KMS for functionality in the organization, the majority response rate for this was also agreed. In the meantime respondents were also presented with a kind of implication that can support to decide probably if there was no any activity that need the support from those knowledge management systems in the organization and the majority response was disagree. And the last idea was if they are using knowledge management system in advanced state; for this idea the majority response of the respondents were disagreed. As a last and concluding statement the researcher forwarded 4 optional bounded ideas that would generalize the above implications in a single statement to all the respondents. The implication was all about the way knowledge management system in the company is practiced, with options, enough, advanced, low and extremely low level and the majority response dents said low level .in order to generalize this the researcher used to list out all the feedback of the respondents for the questions example for first question that is KMS is highly applicable such as the use of simulation technology before an actual object/product is designed, the respondents disagreed this statement; this disagreement represents that there is no a technology for simulation and KMS is not highly applicable in the organization . While they agreed that is KMS is lowly applicable such as sharing knowledge through e-mail address, this also represents that there is a low KMS applicability in the organization. And another implication was if KMS is moderately used such as for ecommerce (e-buy & e-sale) and the respondents strongly disagreed this statement. Assessing if all activities in the organization are highly dependent on KMS was also other idea which was raised to the respondents, and the respondents disagreed this statement majorly. Therefore it is possible to conclude that there was no any task that highly depends on KMS. The other idea was if there are some activities that mandatorily require KMS in the organization, the respondents agreed this statement and the other idea was whether there is no any activity that requires the existence KMS in the organization and the respondents disagreed this statement that there some situations in which knowledge management systems are needed. The respondents also disagreed for the idea raised as do think the organization is in an advanced KMS usage; and finally all these ideas were generalized by a single interrogating statement that clearly and directly bring solution to the corresponding research question of this part by forwarding an idea for how they could rate the status of KMS in the organization ; they used to rate it as a low level and even the



other ideas that was being discussed to know the level indirectly represents the status as a low level. Slavkovic (2013) supports this finding and suggested that, the use of knowledge management systems as optional way to operate any organization work may lead this low status of the use of KMS sustainable in the organization , hence there should not be another option so the use of KMS is seen in moderate or high level of utilization .

#### **4.1.8. Factors affecting Knowledge management system in MiE**

The growing importance of knowledge as a critical resource has encouraged managers and employees to pay greater attention to the firms' KM strategies. Appropriate KM strategies are important to ensure that the alignment of organizational process, culture, and the KM-related information technology (IT) deployment produce effective knowledge creation, sharing, and utilization . KM strategies are no longer empty buzzwords but a fundamental concern for many firms.

The third specific objective which this research study proposed to achieve was also what major factors are available in Mesfin industrial engineering to face the use of knowledge management system. To asses this, the researcher organized some factors from previously done research works and added some specific questions which are expected to be a factor in knowledge management system. The objective consists about 9 interrelated questions in the form of a likert scale.

When we see the first statement which is about Lack of well organized ICT infrastructures in the organization as an example, the majority of the respondents strongly disagreed. This is to mean that there is no lack of ICT infrastructure in the organization. Next to this a Poor leadership attention to support KMS in the organization was also been raised; majority of the participants disagreed. Similarly this is to mean there is no poor leadership attention in the organization. Lack of trust of technological advancements was also another implication which was assessed, and the majority of the respondents agreed. In addition to this there was also an idea presented to know if Lack of information materials on KMS is a factor in the organization and the majority response disagreed the statement that there is no lack of information materials to justify knowledge management systems. beside to those there was

also a reflection intended as a factor for knowledge management systems that is Inadequate knowledge of the benefits of KMS in the organization here also the majority of the respondents agreed the statement. This agreement refers that the employee did not have a good awareness the benefit of knowledge management systems. Employee's opinion of KMS as a vital practice for organizational operation was also another reflection raised to the respondents and their majority answer was agreed that employee's opinion of KMS as a vital practice is a factor. Knowledge scarce to perform technological application was also forwarded as if it is factor and the majority response disagreed the statement. The other idea was also Lack of Personal motivation to use KMS, the majority response was agreed. This agreement of the respondents enables the researcher to decide that lack of personal motivation to use KMS is a factor.

The last idea incorporated as knowledge management system factor in Mesfin industrial engineering was also Lack of organized training in KMS and the majority response to this idea was agreed that there is no organized training in KMS ( Karlinsky, 2016).

Suggesting appropriate and fitting knowledge management system to the organization by understanding the respondent's interest in some of the question in the second objective was a direct output for the fourth objective. This objective can be achieved together with second objective that understands the extent to which knowledge management system in the organization is functional. Based on the response rate of the questionnaire from the respondents in this research it is possible to put the factors clearly. Therefore Lack of trust of technological advancements, inadequate knowledge of the benefits of KMS in the organization, employees' opinion of KMS as a vital practice for organizational operation, Lack of Personal motivation to use KMS and Lack of organized training in KMS are identified as factor in the context of Mesfin industrial engineering. Kianto, ( 2013) proves all this factors his study of the factors for knowledge management system to determine SME effectiveness as organizational structure, culture ,human and technological infrastructure factors to the specified study area he was concerned.

## 4.2. The Impact of Knowledge Management System in organizational Performance

A relatively small number of studies have addressed the relationship between KM strategies and organizational performance because of the difficulty in measuring and quantifying the value of knowledge. These studies can be classified into two categories depending on how they implicitly define the relationship among KM strategies as being either complementary or none complementary. The studies under the first category suggest a complementary relationship among KM strategies. A central proposition is that adopting a full set of KM strategies is related to high performance while the adoption of individual KM strategies results in little or insignificant performance gain. This can go in line with the main objective of this study targeting on identifying the impact of KMS on organizational performance and is presented below both in descriptive and inferential statistics below respectively.

The main objective of this study was to investigate knowledge management systems and organizational performance. This is what the impact of knowledge management systems in Mesfin industrial Engineering is in general. In order to determine this research question the investigator prepared four questions aligning with the four knowledge management systems to the organizations general effectiveness.

The same like to the other part this research the objective was made to have about four likertt interrogating statements which are expected to answer the general objective that remains unanswered from the specific objectives. Based on this the response of the respondents for the first statement which is Knowledge sharing systems have positive impact in the organizations performance was answered by a majority of the respondents strongly agree. This is to mean that knowledge sharing systems have positive impact in the organizations general performance. And the second reflection was also whether Knowledge application systems have positive impact in the organizations performance, for idea also the majority response seems to be strongly agree. Assessing whether Knowledge capture systems have positive impact in the organizations performance was also another side of this thought and the respondents majority response was left undecided to give their exact opinion to this implication. The last idea incorporated as one of this four interrogating statements in order to know the impact of knowledge management system in companies' performance was also whether Knowledge discovery systems have positive

impact in the organizations performance, the respondent's majority response to this thought was also strongly agree. In general the organizational performance is positively related with all knowledge sharing systems, knowledge application system and knowledge discovery systems based on the Respondent's response. According to Mehralian (2011) also all knowledge sharing, knowledge capture, knowdge discovery and knowledge applications were positively related with organizational overall performance.

## 4.2 INFERENTIAL STATISTICS ANALYSIS

### 4.2.1 Correlation Result of the Respondents

In order to examine the size and magnitude of the relationship between the variables, Pearson correlation coefficient was performed.

In this research, the dependent variable is Organizational performance and the independent variables are knowledge sharing system, knowledge application system, knowledge capture system and knowledge discovery systems which are generalized as knowledge management systems.

**Table 4.9 Pearson correlation coefficient of respondents**

		Knowledge Sharing System	Organizational performance	Knowledge discovery system	knowledge capture system	knowledge application system
Knowledge Sharing System	Pearson Correlation	1	.729**	.030	-.072	-.074
	Sig. (2-tailed)		.000	.641	.254	.246
Organizational Performance	Pearson Correlation	.729**	1	.205**	.229**	.231**
	Sig. (2-tailed)	.000		.001	.000	.000

Knowledge discovery system	Pearson Correlation	.030	.205**	1	-.018	.284**
	Sig. (2-tailed)	.641	.001		.776	.000
Knowledge Capture System	Pearson Correlation	-.072	.229**	-.018	1	.113
	Sig. (2-tailed)	.254	.000	.776		.075
Knowledge Application System	Pearson Correlation	-.074	.231**	.284**	.113	1
	Sig. (2-tailed)	.246	.000	.000	.075	

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

B. Listwise N=250, Source: own survey 2017

The Pearson correlation coefficient statistics was computed using SPSS 20.0 version. According to Kothari (2004) describe that for a unit change in independent variable, if there happens to be a constant change in the dependent variable in the same direction, then correlation will be termed as perfect positive. But perfect negative implies if such change occurs in the opposite direction.

Following that the above table 4.9 indicate that a significantly very strong positive correlation found between knowledge sharing system and Organizational performance ( $r = 0.729$ ). Then it interpret as any change in the knowledge sharing system of employees in the company, the Organizational performance of it's also have a constant change in the same direction. Unlikely to that, there is weak positive impact found between knowledge application system and Organizational performance ( $r = 0.231$ ), knowledge capture system organizational performance ( $r = 0.229$ ), and knowledge discovery system and Organizational performance ( $r = 0.205$ ).

In that case as any change in the knowledge capture system, knowledge application system, and knowledge sharing system in organization, the Organizational performance of it's also having a weak change in the opposite direction. According Wani (2014) describes knowledge application system has negative impact in companies overall performance unlike the existernce weak postive impact between knowledge appication system and organizational performance in the current research . Huda et al. (2008) knowledge capture system and Organizational performance go

together as they have very closely association however the current research shows that there is positive impact of knowledge capture system and organizational performance.

That implies knowledge sharing system and Organizational performance have a positive relationship in the organizations. The rest knowledge application system, knowledge capture system and knowledge discovery system have slightly weak relationship with Organizational performance in the company.

#### **4.2.2 REGRESSION ASSUMPTION OF RESPONDENTS TEST**

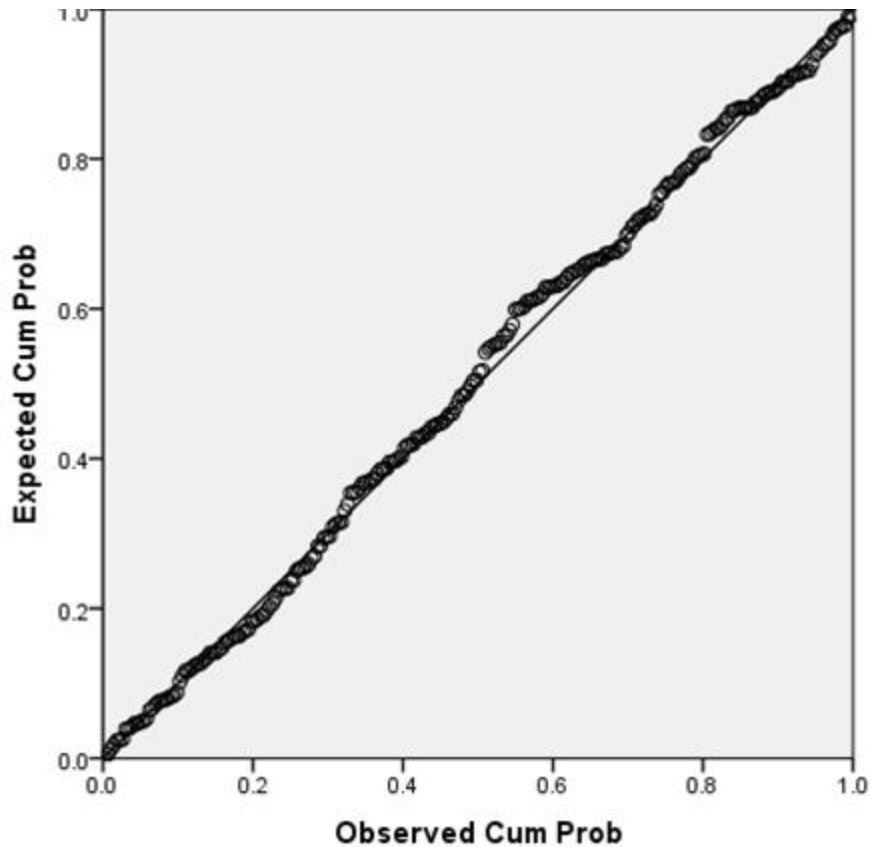
When calculating a regression equation the researcher needs to ensure the following assumptions are met:

##### **4.2.1.1 Test of Linearity**

According to Saunders et al. (2009) the relationship between dependent and independent variables is linear. Linearity refers to the degree to which the change in the dependent variable is related to the change in the independent variables. Linearity can easily be examined through residual plots. The figure 4.7 below shows the normal P-P Plot of regression standardized residual; linear regression fit the data on a straight line which complete reality of linearity.

#### **Figure: 4. normal p-p plot of regression standardized residual**

**Dependent variable: organizational performance**



#### 4.2.1.2 Multi co linearity Test

It means if there is high correlation between the independent variables have multi co linearity problem. The rule of thumb is that the presence of high correlations (generally 0.90 and above) indicates substantial multi co linearity (Hair et al., 2009). In this study table 4.9 the highest correlation coefficient is 0.284 less than 0.90 for the independent variables, which is knowledge discovery system and knowledge application systems in the table below explained. So in this study it is possible to conclude that there is no multi co linearity problem.

**Table 4.10 multi co linearity test**

		Knowledge discovery system	Knowledge sharing system	knowledge capture system	Knowledge application system
Knowledge discovery system	Pearson Correlation	1	.030	-.072	-.074
	Sig. (2-tailed)		.641	.254	.246
Knowledge sharing system	Pearson Correlation	.030	1	-.018	.284**
	Sig. (2-tailed)	.641		.776	.000
knowledge capture system	Pearson Correlation	-.072	-.018	1	.113
	Sig. (2-tailed)	.254	.776		.075
Knowledge application system	Pearson Correlation	-.074	.284**	.113	1
	Sig. (2-tailed)	.246	.000	.075	



## **CHAPTER FIVE**

### **CONCLUSION AND RECOMMENDATION**

#### **5.1 conclusion**

The study was to investigate knowledge management systems on organizational performance in Mesfin industrial engineering. In first chapter, the researcher envisaged that organizations especially manufacturing industries need knowledge management system to enhance organizational performance. Facing with struggle and increasing dynamic environments, organizations are beginning to realize that there is a largely untapped asset diffused around the organizations knowledge. The main objective of this research study was therefore to investigate the knowledge management systems and organizational performance and specifically to Explore Knowledge Management System in Mesfin industrial engineering

Although knowledge management systems serve as critical enablers of business processes in organizations, there is no a clear relationship between knowledge management system and organizational performance. Although, the significant direct linkage between Knowledge Management System usage and organizational performance suggests the existence of other potential contingencies. Further research was needed to identify these additional contingencies to deepen the understanding of KMS achievements. So as to get the right solution to the problem the investigator developed about four corresponding questions to the objective And to answer these questions the researcher used a cross sectional survey research method was used in the Mesfin industrial engineering employees and the collected data was analyzed using SPSS version.20 statistically and interpreted descriptively qualitative for the questionnaires and quantitative for the interview questions and found that all knowledge management system are there to support organizational performance; the participant also indicated that the status of knowledge management system in the organization is low level, however it is a little available with all KMS and represented that knowledge sharing system is a lot preferable than the other knowledge management systems with influencing constraint such as Lack of trust of technological advancements, inadequate knowledge of the benefits of KMS in the organization and Lack of Personal motivation to use KMS and Lack of organized training in KMS. In the meantime this research was done giving special emphasis for single organizations

employees, in order to encompass multiple organizations employees' future researchers can use to incorporate more than one organization to study the same work. The study is a unique type of empirical study focusing in KMS systems especially in the context of Ethiopian companies

## 5.2 Recommendations

There are some limitations in this research. When the researcher built up this research question and the questionnaire , most are used to focused on the processes and non technical factors but some -technical factors were not considered like implementation of each the of the knowledge management systems and generally knowledge management system implementation or prototype development to enhancing organizational productivity. In addition, the research questions were not able to have corresponding questionnaires that could be answered with other type of statistical analysis beside descriptive, since this methods of data analysis could find indirect answer for complication from other similar questions with inside the questionnaire for the purpose of cross checking the answer found from correlating with another question and the answer that would be found from the main question itself. .generally in the future time, the above limitations will be the good research opportunity to do the deep analysis on the KMS and organizational performance. In addition to this next researchers can have a better chance to do a research with titles such as

- Developing frameworks for knowledge management sub-systems to enhance organizational productivity
- The development of knowledge management system prototype to facilitate knowledge sharing and knowledge preservation specifically

And finally the researchers' suggestion to the organization is to offer a kind of training that might be held either annually or biannually so as to enhance the employees' attitude toward knowledge management system.

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## **Appendix I**

**Jimma University,  
College of Natural Sciences  
Department of Information Science**

### **Questionnaires for MiE employee**

**Dear Respondent,**

I am Zeleke Kiros of Jimma University, a graduating Master's degree student in the department of Information Science ; this questionnaire is therefore a data collection instrument for a research which is entitled as "An Investigation of Knowledge Management Systems on Organizational Performance: in The Case of Mesfin Industrial Engineering".

It is prepared for the attainment of a Master's Degree in Information Science (Information and Knowledge management) from Jimma University. The information in this questionnaire will be used for academic purpose and is strictly kept confidential. No responses are used against the organizations' Heads and employees.

The purpose of this questionnaire is to collect data on Knowledge Management systems and their relationship with performance in their organization and all participants of the study are highly encouraged to fill the entire questionnaire.

Legitimate, candid and timely responses are therefore much appreciated as they lay the foundation for realistic and sound research work and thus contribute to the quality and success of this study.

**Thank you very much**

For any feedback use my addresses below:

Zeleke Kiros

Phone: 0914891881

[kiroszeleke@gmail.com](mailto:kiroszeleke@gmail.com)

Part one: Demographic information

1. Gender?  Male  Female
2. Age group?  Less than 25 year  25-35 Years  
 35-45 years  above 45
3. Your Educational Status?  Diploma  
 Degree  Masters  PhD

Other specify \_\_\_\_\_

4. Your experience in the company  Less than 5 Years  
 5 -10Year  10-15 Year  above 15 years

5 What is your job classification?

Part-time  Full-time

6 Your current position in the company \_\_\_\_\_.

Part two: Knowledge Management Systems in MiE

1 Do you consider that knowledge would enable your organization to develop and exploit tangible and intangible resources other than its competitors do?

1 yes 2 No

2 Do you consider that knowledge management enables this organization to improve marketing, manufacturing and public relation? **1 yes 2 No**

3 Do you think KMS is the appropriate solution of sustainable intellectual development in your organization?

**1 yes 2 No**

4 Does knowledge management system Promote Organizational Communication?

**1 yes 2 No**

Please rate the following questions that explains the existence of knowledge management systems in MiE from the given choices listed as Strongly agree - Strongly disagree below



No	Statements	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
5	Our organization currently supports the use of knowledge management systems					
6	Our organization obtains a new knowledge from external sources such as through, subscription journals & expert networks					
7	My organization uses content management systems such as websites and portals					
8	In my organization I support the exchange of data, information and knowledge within the organizations' units.					
9	My organization uses information technology to share knowledge					
10	My organization uses information technology to discover knowledge					
11	My organization uses information technology to apply Knowledge					
12	My organization uses information technology to capture knowledge					
13	My organization uses organizational portal to share ,apply ,acquire and discover knowledge					
14	My organization uses the internet to share ,apply ,acquire and discover knowledge					
15	My organization uses intranet to share ,apply ,acquire and discover knowledge					
16	My organization uses extranet to share ,apply ,acquire and discover knowledge					
17	My organization uses groupware to share ,apply ,acquire and discover knowledge					

18	In general, knowledge sharing systems and organizational learning are valued in my company's' culture					
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If there is any other related KMS which is available in your Organization, specify it here

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Part three: status of KMS

Please rate the following questions that explains the status of knowledge management systems in MiE from the given choices listed as strongly agree - strongly disagree below

No	Statements	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
19	KMS is highly applicable such as the use of simulation technology before an actual object/product is designed					
20	KMS is lowly applicable such as sharing knowledge through e-mail address					
21	KMS is frequently used in productivity improvement and cost savings					
22	KMS is moderately used such as for ecommerce (e-buy & e-sale)					
23	All activities in this organization are highly dependent on KMS					
24	There are some activities that mandatorily require KMS in the organization					
25	There is no any activity that requires the existence KMS					
26	I think the organization is in an advanced KMS usage					
27	I think the organization is in a low KMS usage					

28 Generally how do you rate KMS in MiE?

Enough  advanced level  low level  extremely low level

Put your own opinion if you believe in other assumption of the status of KMS in MiE \_\_\_\_\_

**Part four: factors affecting Knowledge Management System**

Please rate the following questions that explains factors affecting Knowledge management systems in MiE from the given choices listed as strongly agree - strongly disagree below

No	Statements	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
29	Lack of well organized ICT infrastructures in the organization					
30	Poor leadership attention to support KMS					
31	Lack of trust of technological advancements					
32	Lack of information materials on KMS					
33	Inadequate knowledge of the benefits of KMS in the organization					
34	employees opinion of KMS as a vital practice for organizational operation					
35	Inadequate knowledge of technological application by staff					
36	Lack of Personal motivation to use KMS					
37	Lack of organized training in KMS					

**Part five: Effects of KMS**

Please rate the following questions that explains the effect of knowledge management systems in the company's performance from the given choices listed as strongly agree - strongly disagree below

No	Statements	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
38	Knowledge sharing systems have positive impact in the organizations performance					
39	Knowledge application systems have positive impact in the organizations performance					
40	Knowledge capture systems have positive impact in the organizations performance					
41	Knowledge discovery systems have positive impact in the organizations performance					

**Thank you**

## **Appendix II**

### **Interviews for the chiefs**

- 1 What would you consider the most needed KM capability (products/services) in your organization?
- 2 What types of knowledge management systems does your organization uses?
- 3 Knowledge management systems are bringing innovative thoughts to the organization as whole.
- 4 Do you think Knowledge management system enhances productivity of your organization?
- 5 Is Knowledge management system assisting the organization to meet customer demands?
- 6 Do you think Knowledge management system is advancing the management of work in the company?
- 7 How do Knowledge management Systems enables to improve performance?
- 8 Do you think Knowledge management system increase customers and customer service?
- 9 Do you think Knowledge management system increases financial resource?

**Thank you**

### Appendix A III: Observation checklist

S.No	Observation	Note
1,	Availability of specific ICT tools such as locally or globally connected computers	
2,	Availability of internet connection in the organization	
3,	Availability of organizational portal in the organization	
4,	Types of Database management systems in the company	
5	Availability of specific best practice databases	
6	Availability of global networks with other peer organizations	
7	The link between employee and their customers, whether it includes asocial media & multi media	

**የኒቨርሲቲ ጅም**  
**ኮሌጅ ተፈጥሮ ሳይንስ**  
**ኢንፎርሜሽን ሳይንስ ት/ት ክፍሊ**  
**ንሰራሕተኛታት መ.ኢ.እ. ዝተዳለወ ቃለ-መሕትት**

ክቡራት ተሳተፍቲ

ኣነ ተምሃራይ ዘለቀ ኪሮስ ይበሃል ኣብ የኒቨርሲቲ ጅም 2<sup>ይ</sup> ድግሪ ኢንፎርሜሽን ሳይንስ ት/ት ክፍሊ ተምሃራይ እየ፤ ስለዘይ ድማ እዚ ቃለ-መሕትት እዘይ "An Investigation of Knowledge Management Systems on Organizational Performance: in The Case of Mesfin Industrial Engineering". ናይ ዝብል ርእሲ መፅናዕቲ መመሪቂ ፅሑፍ ሓበሬታ መኣከቢ መሳርሒ እዩ።

እዚ ቃለ-መሕትት እዘይ ዝተዳለወሉ ዓላማ ማሰተርስ ዲግሪ ብ Information Science (Information and Knowledge management) ካብ የኒቨርሲቲ ጅም ንምርካብ እዩ። ኣብዚ ቃለ-መሕትት እዘይ ዝርከብ ሓበሬታ ኩሉ ሚስጢራዊነቱ ዝተሓለወን ንትምህርታዊ ዓላማ ዝወፅእን እንትኸውን ናይ ዚ ድርጅት ሓላፊ ኮነ ሰራሕተኛታት ዓርሰ-ሓበሬታ ኣይምልከትን።

እዚ ቃለ-መሕትት እዘይ ንምድላው ዘድለዩሉ ዋና ምክንያት ናይ እዚ ድርጅት እዚ ውፅኢታዊነት ምስ ናውሌጅ ማኔጅመንት ሲስተም ዘለዎ ርክብ ንምፍላጥ ሓበሬታ መኣከቢ እንትኸውን ኩሎም ተሳተፍቲ እዚ ቃለ-መሕትት ብዝተከላለዎም ኩሎም ሕቶታት ንክምልሱ ይድለዩ።

ምክንያታዊ፣ግልፅን ግዜኣም ዝሓለዉን መልስታት ምፅሓፍኩም ናይእዚ መፅናዕቲ እዚ ዓንዲ-ሑቕን መሰረታውን ክንዲ ምካኑ ኣብ ውፅኢታዊነትን ዕዉትነትን እዚ ፅንዓት ናይ ባዕሉ እጃም ስለዘበርከትን ይበረታታዕ።

**የቐንደላይ**

ንዝኮነ ይኩን ሓበሬታ ዝስዕብ ኣድራሻ ተጠቐሙ:-

ዘለቀ ኪሮስ

ቐፅሪ ስልኪ: 0914891881

ኢሜል ኣድራሻ: [kiroszeleke@gmail.com](mailto:kiroszeleke@gmail.com)

ክፋል ሓደ፡ ዓርሰ ኩነታት

1. የታ?  ተባዕታይ  አነስታይ

2. ናይ ዕድመ ክልል?  ትሕቲ 25 ዓመት  26-35 ዓመት

36-45 ዓመት  ልዕሊ 45

3. ደረጃ ት/ቲ?  ዲፕሎማ

ድግሪ  ማስተርስ  ዶክተር

ካብዚ ወፃኢ እንተኮይኑ ኣብዚ ይግለጹ \_\_\_\_\_

4. ልምዲ ስራሕ?  ትሕቲ 5 ዓመት

6 -10 ዓመት  11-15 ዓ  ልዕሊ 15 ዓመት

5 ኩነታት ቁጻር ?

ግዝያዊ  ቀዋሚ

6 ኣብቲ ኣብያተ ዕዮ ዘለዎም/ወን ናይ ስራሕ ብጽሒት \_\_\_\_\_

ክፋል ክልተ : ነውሎጅ ማናጅመንት ሲስተም ኣብ መ.ኢ.እ

1 ፍልጠት ንኣብያተ ዕዮኩም ዕብየትን ለውጥን ከም ጉኡዛትን ዝጭበጡን ናውታት ኮይኑ ዘገልግል ናይ ግልኩም ቐስ እዩ ኢልኩም ትሓስቡ ዶ ?

1 እወ 2 ኣይኮነን

2 ነውሎጅ ማናጅመንት ናይ እዚ ኣብያተ ዕዮ እዚ ለውጥታት ዕዳጋ፣ፍርያትን ህዝባዊ ርክብን መሰረት እዩ ኢልኩም ትሓስቡ ዶ ?

1 እወ 2 ኣይኮነን

3 ነውሎጅ ማናጅመንት ሲስተም ቐፃልነት ንዘለዎ ናይ ኣብያተ ዕዮታት ፍልጠት ምውሳክ ትክክለኛ መፍትሒ እዩ ኢልኩም ትሓስቡ ዶ ?

1 እወ 2 ኣይኮነን

4 ነውሎጅ ማናጅመንት ሲስተም ናይ እዚ ኣብያተ ዕዮ እዚ ናይ ሓሳብ ልውውጥ የዕብይ እዩ.

1 እወ 2 ኣይኮነን

በጅአም ካብቶም ቀደሎም ዝተዘርዘሩ ናይ ነውሌጅ ማናጅመንት ሲስተም ህልውና ኣብ መ.ኢ.እ ዝገልፁ ካብ ብጣዕሚ ይስማዕማዕ - ብጣዕሚ ኣይስማዕማዕን ዝብሉ ሓሳባት ኣብ ዝደልይዎ መሣረዒ ናይ እርማት ምልክት ብምቅማጥ ሃሳብም ይግለፁ

ተ. ቁ	ሙ/ሓሳብ	ብጣዕሚ ይስማዕማዕ	ይስማዕ ዕማዕ	ርግፀኛ ኣይኮንኩን	ኣይስማዕ ዕማዕን	ብጣዕሚ ኣይስማዕማዕን
5	ኣብዚ ሕጂ ግዜ ኣብያተ ዕዮና ነውሌጅ ማናጅመንት ሲስተም ምጥቃም ይድግፍ					
6	ኣብያተ ዕዮና ሓዲስ ፍልጠት ካብ ናይ ወጻኢ ፍልፍላት ከም በዓል ዝክፈሎም መፅሄታትን ኤክስፐርት ኔትዎርክን ይረክብ					
7	ኣብያተ ዕዮኣይ ትሕዝቶ መቆፃፀሪ ሲስተማት ከም በዓል ዌብሳይተን ፖርታልን ይጥቀም					
8	ኣብ ኣብያተ ዕዮኣይ ውሽጢ ዝግበር ናይ ፀብዓብ፣ሓበሬታን ፍልጠትን ልውውቅጥ ይድግፎ እዩ					
9	ኣብያተ ዕዮኣይ ኢንፎርሜሽን ቴክኖሎጂ ተጠቂሙ ፍልጠት ይቀባበል					
10	ኣብያተ ዕዮኣይ ኢንፎርሜሽን ቴክኖሎጂ ተጠቂሙ ፍልጠት ይእልሽ					
11	ኣብያተ ዕዮኣይ ኢንፎርሜሽን ቴክኖሎጂ ተጠቂሙ ፍልጠት ናብ ተግባር የውዕል					
12	ኣብያተ ዕዮኣይ ኢንፎርሜሽን ቴክኖሎጂ ተጠቂሙ ፍልጠት የትርፍ					
13	ኣብያተ ዕዮኣይ ፖርታል ተጠቂሙ ፍልጠት ይእልሽ፣ፍልጠት ይቀባበል፣ፍልጠት የትርፍን ፍልጠት ናብ ተግባር የውዕልን					
14	ኣብያተ ዕዮኣይ ኢንተርኔት ተጠቂሙ ፍልጠት ይእልሽ፣ፍልጠት ይቀባበል፣ፍልጠት የትርፍን ፍልጠት ናብ ተግባር የውዕልን					
15	ኣብያተ ዕዮኣይ ኢንትራኔት ተጠቂሙ ፍልጠት ይእልሽ፣ፍልጠት ይቀባበል፣ፍልጠት የትርፍን ፍልጠት ናብ ተግባር የውዕልን					
16	ኣብያተ ዕዮኣይ ኤክስተራኔት ተጠቂሙ ፍልጠት					



	ይእልሸ፣ፍልጠት ይቀጣበል፣ፍልጠት የትርፍን ፍልጠት ናብ ተግባር የውዕልን					
17	ኣብያተ ዕዮኣይ ግሩፕዌር ተጠቂሙ ፍልጠት ይእልሸ፣ፍልጠት ይቀጣበል፣ፍልጠት የትርፍን ፍልጠት ናብ ተግባር የውዕልን					
18	ብሓፊሻ ነውሌጅ ሼሪንግ ሲስተምን ኦርጋናይዜሽናል ለርኒንግን ኣብ ኣብያተ ዕዮኣይ ዓብይ ግምት ይወሃቦም					

ካለእ ዘይተጠቀሰ ነውሌጅ ማኔጅመንት ሲስተም እንተሃልይኩም ኣብ ታሕቲ ፀሓፍዎ

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ከፋል ሰለስተ፡ ኹነታት ኣጠቓቓ ነውሌጅ ማኔጅመንት ሲስተም

በጅኣም ካብቶም ቀዲሎም ዝተዘርዘሩ ናይ ነውሌጅ ማኔጅመንት ሲስተም ኩነታት ኣጠቓቓ ኣብ መ.ኢ.እ ዝገልፁ ካብ ብጣዕሚ ይስማዕማዕ - ብጣዕሚኣይስማዕማዕን ዝብሉ ሓሳባት ኣብ ዝደልይዎ መማረፂ ናይ እርማት ምልክት ብምቅማጥ ሓሳቦም ይግለፁ

ተ.ቁ	ሙ/ሓሳብ	ብጣዕሚ ይስማዕማዕ	ይስማዕ	ርግፀኛ ኣይኮንኩን	ኣይስማዕ ዕማዕን	ብጣዕሚ ኣይስማዕማዕን
19	ነውሌጅ ማኔጅመንት ሲስተም ኣብ ኣብያተ ዕዮና ብዝልዓለ ደረጃ ይትግበር ከም ኣብነት ሲሙሌሽን ቴክኖሎጂ ምጥቃም ቐድሚ ተክክለኛ ኣቅሓ ምስርሑ					
20	ነውሌጅ ማኔጅመንት ሲስተም ኣብ ኣብያተ ዕዮና ብዝተሓተ ደረጃ ይትግበር ከም ኣብነት ምክፍፋል ፍልጠት ብ-ኢ.ሜል ደራሻ					
21	ኣብ ኣብያተ ዕዮና ነውሌጅ ማኔጅመንት ሲስተም ብተደጋጋሚ ን ምምሕያሽ ፍርያታዊነትን ወፃኢ ንምቁጣብን ይጠቅም					
22	ነውሌጅ ማኔጅመንት ሲስተም ኣብ ኣብያተ ዕዮና ብማእከላይ ደረጃ ይትግበር ከም ኣብነት ኤሌክትሮኒክ ዕድገትን መሸጣን					
23	ኩሎም ስራሕቲ እዚ ኣብያተ ዕዮ እዚ ኣብ ህልውና ነውሌጅ ማኔጅመንት ሲስተም ዝተደረቱ እዮም					

24	ሓዲሓዲ ስራሕቲ እዚ ኣብያተ ዕዮ እዚ ግድን ናይ ነውሌጅ ማኔጅመንት ሲስተም ህልውና ይደልዩ					
25	ኩሎም ስራሕቲ እዚ ኣብያተ ዕዮ እዚ ናይ ነውሌጅ ማኔጅመንት ሲስተም ህልውና ኣይደልዩ					
26	ከም ዝመስለኒ እዚ ኣብያተ ዕዮ እዚ ኣብ ልዑል ደረጃ ኣጠቓቕማ ነውሌጅ ማኔጅመንት ሲስተም ይርከብ					
27	ከም ዝመስለኒ እዚ ኣብያተ ዕዮ እዚ ኣብ ትሑት ደረጃ ኣጠቓቕማ ነውሌጅ ማኔጅመንት ሲስተም ይርከብ					

28 ብሓፈሻ ኹነታት ህልውና ነውሌጅ ማኔጅመንት ሲስተም ኣብ መ.ኢ.እ ከመይ ትምድቦ/ብዮ ?

እኹል  ልዑል  ትተ  ጃ ኣዘዩ  ደረጃ

ተወሳኪ      ሓሳብ      እንተሃልይዎም/ወን      ኣብዚ      ቀጺሉ      ዘሎ      ክፍቲ      ቦታ      ይፅሓፉ

ክፋል ኣርባዕተ: ንነውሌጅ ማኔጅመንት ሲስተም ፅዕንቶ ዘሕድሩ ኹነታት

ብጅሓም ካብቶም ቀጺሎም ዝተዘርዘሩ ንነውሌጅ ማኔጅመንት ሲስተም ፅዕንቶ ዘሕድሩ ኹነታት ካብቶም ብጣዕሚ ይስማዕማዕ - ብጣዕሚ ኣይስማዕማዕን ዝብሉ ሓሳባት ኣብ ዝደልይዎ መማረፂ ናይ እርማት ምልክት ብምቕማጥ ሓሳብም ይግለፁ

ተ.ቁ	ሙ/ሓሳብ	ብጣዕሚ ይስማዕማዕ	ይስማዕማዕ ዕ	ርግፀኛ ኣይኮንኩን	ኣይስማዕማዕ	ብጣዕሚ ኣይስማዕማዕ
29	ሕፅረት ዝተቀናጀው ናይ ኣይሲቲ ኣቕሑት					
30	ናይቲ ኣብያተ ዕዮ ምምሕዳር ኣብ ነውሌጅ ማኔጅመንት ሲስተም ዘሎዎ ደካማ ኣመለካክታ					
31	ኣብ ዕብይታት ቴክኖሎጂ ዕምነት ምስኣን					
32	ስለ ነውሌጅ ማኔጅመንት ሲስተም ሓበሬታ ምስኣን					
33	ሕፅረት እኹል ፍልጠት ጥቕሚ ነውሌጅ ማኔጅመንት ሲስተም					
34	ናይቲ ኣብያተ ዕዮ ስራሕተኛታት ኣብ ነውሌጅ ማኔጅመንት ሲስተም ዘሎዎ ደካማ ኣመለካክታ					
35	እኹል ዘይኹን ፍልጠት ኣጠቓቕማ ስራሕቲ ቴክኖሎጂ					
36	ሕፅረት ዓርሰ ድልዎት ነውሌጅ ማኔጅመንት					

	ሲስተም ምጥቃም					
37	ዝተደራጀው ናይ ነውሌጅ ማናጅመንት ሲስተም ስልጠና ዘይምህላው					

ክፋል ሓሙሽተ: ሳዕቤናት ነውሌጅ ማናጅመንት ሲስተም

በጅኦም ካብቶም ቀደሎም ዝተዘርዘሩ ናይ ነውሌጅ ማናጅመንት ሲስተም ሳዕቤናት ካብ ብጣዕሚ ይስማዕማዕ - ብጣዕሚ ኣይስማዕማዕን ዝብሉ ሓሳባት ኣብ ዝደልይዎ መሣሪታ ናይ እርማት ምልክት ብምቅማጥ ሓሳብም ይግለጹ

ተ.ቁ	ሙ/ሓሳብ	ብጣዕሚ ይስማዕማዕ	ይስማዕማዕ	ርግፍኛ ኣይኮንኩን	ኣይስማዕማዕ ን	ብጣዕሚ ኣይስማዕማዕን
38	ነውሌጅ ሼሪንግ ሲስተም ኣብ ናይዚ ኣብያተ ዕዮ እዚ ውፅኢት ኣዎንታዊ ሳዕቤን ኣሎዎ					
39	ነውሌጅ ኣፕሊኬሽን ሲስተም ኣብ ናይዚ ኣብያተ ዕዮ እዚ ውፅኢት ኣዎንታዊ ሳዕቤን ኣሎዎ					
40	ነውሌጅ ካፕቹር ሲስተም ኣብ ናይዚ ኣብያተ ዕዮ እዚ ውፅኢት ኣዎንታዊ ሳዕቤን ኣሎዎ					
41	ነውሌጅ ዲሰኩቨሬ ሲስተም ኣብ ናይዚ ኣብያተ ዕዮ እዚ ውፅኢት ኣዎንታዊ ሳዕቤን ኣሎዎ					