

**ASSESSMENT OF KNOWLEDGE MANAGEMENT PRACTICE IN
JIMMA UNIVERSITY: CONSIDERATION OF TECHNOLOGY,
LEADERSHIP, ORGANIZATION AND LEARNING PILLARS**

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JIMMA UNIVERSITY
COLLEGE OF NATURAL SCIENCES
DEPARTMENT OF INFORMATION SCIENCES



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This thesis entitled “Assessment of Knowledge Management Practice in Jimma University: Consideration of Technology, Leadership, Organization and Learning Pillars ” has been read and approved as meeting the partial fulfillment for the award of the degree of Master of Science in Information and knowledge Management in the Department of Information Science, Jimma University, Jimma, Ethiopia.

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Dedication

This thesis is dedicated to my beloved mother Brhan Giday. I never forget your encouragements and care in all of my successes.

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I am deeply indebted to my advisors, Dr. Rahel Bekele and Mr. Worku Jimma for all their, guidance, advice, material support and valuable comments in the course of conducting this research. Your dedication to timely comment my work is truly inspirational and I am honored to have had the opportunity to work with you.

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Abstract

In today's knowledge based economy, there is a dire need for modern organizations to integrate Knowledge Management (KM) practice in their organization process and structure in order to extend their success and values for sustainable organizational development and competency in the increasingly competitive global economy. Higher learning institutions (HLIs) are among the most vulnerable organizations in terms of gaining from good and/or losing from poor quality of KM practice in their structure. However, KM practice seems to be relatively overlooked by Ethiopian higher learning institutions and there is lack of evidence on their current KM practice. The main objective of this study was investigating KM practice in Jimma University in the year 2013. Combination of quantitative and qualitative study methods were used to assess KM practice using four pillars of KM. A total of 364 staff; 168 academic and 196 non academic staff were randomly sampled to fill a self administered structured questionnaire, adopted from Knowledge Management Assessment Tool (KMAT) and the know all ten KM practice tools. Moreover key informants were used for in-depth interview. Independent sample t-test was used to compare KM practice and also proportions and means with standard deviation (SD) were calculated findings from the in-depth interview were analyzed thematically. The findings indicated that the total KM practices in the university, based on the four pillars (53items) were ranked above average level with the mean score of 175.2. But, the level of leadership and organization of academic participants was found to be lower than average with a score of 32.7 and 41.3 respectively. Moreover, the result of the study reveals that there was a significant difference in the perception of KM practice in the university between academic and non-academic groups. A ranking of the four pillars based on perception of participants in the existing KM practice from the most problematic to least was found to be leadership, learning, organization and technology where as the desired conditions to prioritize among the four pillars to improve future KM practice was found to be learning, leadership, technology, and organization. Finally, based on the finding and review of literatures, recommendations and guidance on improving KM practice in the university were proffered.

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List of Acronyms

AA	Addis Ababa
CBE	Community Base Education
CoP	Community of Practice
JU	Jimma University
HLI_s	Higher Learning Institution
IC	Intellectual Capital
ICT	Information Communication Technology
INKM	Information and Knowledge management
IT	Information technology
KBE	Knowledge Base Economy
KM	Knowledge Management
KMAT	Knowledge Management Assessment Tool
KMF	Knowledge Management Framework
PG	Post Graduate

Operational Definitions

- **KM practices:** is a process for identifying, managing, and sharing both tacit and explicit knowledge.
- **Assessments of KM practice:** quantitative assessment, involves evaluating the extent to which identifying knowledge, managing, sharing, and application processes are utilized, and how well they are supported by KM practice.
- **KM Guideline:** Prescriptive framework or blueprint helps to consider in developing organization's KM programs and strategies in the University.
- **KM Learning:** issues related with how the organization views and facilitates both learning and innovation; the organizational behaviors and social engineering in relation to knowledge sharing.
- **KM Technology:** issues related with organizational infrastructures (information technologies and communication systems) that link staffs internally and to external knowledge sources; how the organization equips employees to communicate among each other and with external knowledge sources as well as the organizational system for the collection, storage and dissemination of information.
- **KM Organization process:** issues related with how the organization identifies and uses knowledge assets; the manner, in which the organization collects, adapts and transfers the necessary information and knowledge for its organizational operation.
- **KM Leadership:** issues related with the potential and role of the leadership to achieve organizational success through improving organizational KM. It covers broad aspects of the role of the leadership for organizational KM including: KM strategy; how the organization defines its business, uses its knowledge assets, and quantifies its knowledge capital; and how resources are allocated to fuel organization's growth at environmental, strategic, and enterprise-level through decision-making processes

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

In the today's knowledge base economy, organizations are highly investing on organizing and use of their intellectual capital (David, 1997). Utilizing the organizational knowledge determines the success and maintains competitive advantage of a given organization. In this regard, Knowledge Management (KM) is created as a tool for this purpose (Senge, 1990). According to this author, due to recent advances in the business complexity and increasing competition for survival and thus to maintain competitive advantage, the interest of organizations in KM initiation and practice is increased. KM is based on the idea that an organization's most valuable resource is the knowledge of its people. This means that creating, sharing and using knowledge are among the most important activities of nearly every person in every organization (Servin, 2005).

Higher Learning Institutions (HLIs) are no exception in the advancement of KM practice. University environment seems suitable for the application of KM principles and methods. Its nature, vision, mission, objective and intellectual capital (i.e., human, customer, structure and intellectual property) seems suitable to KM practice. In research inquiries of "are the concepts of KM applications are applicable to colleges and universities?" Kidwell *et al.* (2001) should that although some examples of KM existing, but their practices are exception rather than the rule. Moreover, KM is relatively new field, and conducting KM researches are just beginning in higher education and universities.

On the other hand, the modernization of higher education has forced the institution to store, manage and use existing information and knowledge store in a better way in order to meet new accountability, effectiveness and efficiency requirement (Pircher & Pausits, 2011). Lubega *et al.*, (2011) in their study of Knowledge Management Technologies and Higher Education Processes stated that, "To achieve their goals, higher education institutions must try to align operational processes and organizational learning with KM technology solutions to create a performance improvement environment that strategically leverages KM technologies with higher education processes". To take the advantage and good capability of KM universities need to investigative the current KM practices by considering some KM indicators.

Creating knowledge environment in organization and/or maintain success the KM practice in an organization needs examine the current practice and identifying the existing knowledge environment. According Becerra-Fernandez, et al. (2004), the assessment of the current practice helps the organization to determine where improvements are needed, helps to identify the gap in KM efforts and helps to establishing a baseline for implementing KM solutions. There are many varied KM assessment methods in KM literatures. In selecting the assessment model for KM, need to consider various factors. According Fathian et al., (2008) the assessment models must be complete and be able to evolve the whole dimensions of organizational KM indicators.

Even though, there are no adequate indicators and research outcomes regarding the challenges and opportunities of KM practice in Ethiopian universities, some researchers are beginning to study the outlook of KM and knowledge sharing among the universities. For example According Yigzaw, & Boudreau (2010) in their study of “Indigenous Knowledge Creation Practices: the Case of Ethiopia” point out, most Ethiopian businesses have neither a strategy for managing knowledge, nor initiatives to create or use knowledge management systems. Likewise, KM has not yet gained much attention within academic institutions. Moreover, the study conducted by Rahel & Ermias (2011) on the prospects of knowledge sharing among Ethiopian institutions of higher learning and their findings with regard to awareness of knowledge sharing among staff indicate that, the respondent feels very strongly about the importance of, and motivated enough to, knowledge sharing in their work environment. In addition, the rating on knowledge sharing notice as a strong and knowledge hoarding as a weakness.

JU is a public higher educational institute established in December 1999 by the combination of Jimma College of Agriculture, which is founded 1952, and Jimma Institute of Health Sciences that was established in 1983. Geographically, it is located at Jimma city 352 km southwest of AA. The university is organized into different colleges and institutions. There are five colleges (College of Agriculture and Veterinary Medicine, Business & Economics, Natural Sciences, Public Health and Medical Sciences and Social sciences and Law and three institutes; Institute of Education and Professional Development Studies, Institutes of health sciences and Institute of Technology. Today, the university serves for 53 undergraduate and 82 postgraduate programs in both regular and non-regular programs (Jimma University, 2012).

Similar to other universities, the JU environment seems complimentary to KM application. The university process and mission (teaching, research innovation) are highly engaged in knowledge process; creation, retention, transfer and utilization. For example, teaching, conducting research, invention/innovation and Community service is among the most common practice of various universities. This is also true in JU engaged in such knowledge process activity, practically its cherished philosophy of Community Based Education (CBE). The availability of Information Technology infrastructure in university determines the practice of KM and currently JU is one of the Ethiopian universities with adequate technology. In addition, like other Ethiopian universities, JU has a relation with a number of international universities and link to external databases (e-journal resources) and KM is not only gathering and disseminating of knowledge within the organization but also, acquiring, organizing and diffusion of knowledge from other organizations and institutions. Therefore, the study is initiated to evaluate the current KM practice using the four KM process indicators, leadership, technology, organization and learning. The main aim of the research is to identify the gap and use the finding as base in identifying requirements and materializing well organized KM in JU.

1.2. Statement of the Problem

Modern knowledge base organizations integrate KM with the organization process and structure to extend their success factors and values of an organization for sustainable organizational development and change global economy, whereby universities are no exception. Like business organizations, universities need to have integrated KM practice to keep and maintain their competitive advantage (Lubega *et al.*, (2011). Integrated KM practice helps university to present itself in today's knowledge economy by adapting learning organization attributes and to ensure effective and efficient management and administration within an increasingly competitive market.

As various research findings indicate that, KM process has been overlooked by many business organizations and universities due to several contributing factors like; inadequate IT infrastructure, lack of managerial support and champion (Disterer, 2001), lack of KM assessment and organizational knowledge audit (Alavi & Leidner, 1999) and lack of clear indication on how learning organization adopts KM, how to capture, share and manage organizational knowledge through available KM technologies (Chen et al. (2003). Moreover, organizational KM project can fail due to lack of integration among KM components human, process and technology (Weber,

2007). For example, the organizational KM approach fail when they do not integrate human, process and technology (Abecker, Decker & Maurer, 2000) and when they rely on inadequate technology (Davenport & Prusak, 1998). As a result, they lose the institution benefits and advantage promised by adapting the KM process in teaching, research, innovation, invention and knowledge sharing in the organizational process.

Since, universities are different in their organizational background, culture, structure, process, and leadership/ management, many scholars advice the importance of KM assessment before adopting best practice of KM techniques, method and tool from another institution because they may have different capacity and KM problem (Servin, 2005). Effective introduction of KM technologies in higher education processes requires addressing key organizational issues placed at strategy, people, processes and enabler level (Margherita and Petti 2010). Aligning higher education strategy, KM technologies and organizational processes for performance improvement is currently one of the key challenges facing higher education institutions (Lubega et al., 2011). Initiation of KM practices in the organization without assessing the current strength, weakness and available resource, the progress may make slow and even make the right direction impossible from the start (Kulkarni & Louis, 2003). Therefore, assessing the current organizational capability and practice of KM process is a base for successful KM initiative and development.

Currently, there are no adequate literatures and research findings indicating the current status of KM practice in Ethiopian universities, but the current challenges, barrier and/or opportunities of KM initiation and development in other organizations and universities, maybe faced in Ethiopian HLI_s and in JU. Thus, assessing the current state of KM practice and associated factors using learning, enabling technology, organization process and leadership as indicator helps to indicate the gap and strong side of JU. Initiate or develop integrated KM practice can support and enhance the university in various applications. Thus, the following research questions are expected to be addressed based on the stated problem:

- What is the current status of KM practice in JU?
- What are the KM Pillars (learning, leadership, organization and technology) prioritized by the existing KM practices of JU?
- Is there a difference in the perceptions of KM and the four KM pillars between academic and non-academic staffs?

- What are current gaps and possible solution of the KM practice in JU?

1.3. Significance of the Study

The KM practice seems complimentary with the university process and mission (teaching, research innovation) because they are highly engaged in knowledge process; creation, retention, transfer and utilization. For example, teaching, conducting research, invention/innovation and community service are the most common practices of various universities. This is also true in JU as it engages in such knowledge process activities, practically its cherished philosophy of Community Based Education (CBE).

To achieve their goal, universities should create a knowledge environment to facilitate better knowledge flow among the community. This can be achieved by KM: a process emphasizes in generating, capturing and sharing of knowledge by creating a knowledge environment within or outside the organization (Servin, 2005).

Examining the current KM practice in universities is important in identifying the existing knowledge environment. Without assessing current status it would not be possible to determine the gap in KM efforts. To take the advantage and good capability of KM, this study will provide an input regarding the current status, gap, capability and solution to KM process in JU by referring the area of organizational KM process, KM leadership, KM learning and KM technology. In addition, it helps to determine the KM enablers to initiate or develop integrated KM practice to support and enhance the university in various applications like, Community Based Education (CBE), strengthening the university linkage with industry, conducting demand driven research and project and efficient and effective resource utilization.

Moreover, the study is significance to the university administration on current resource allocation on KM. Also, the outcome of this study could help as a base for further investigation of KM practice in other Ethiopian universities. Furthermore, the finding could help for INKM PG prospective students and other researchers as a reference for further studies.

1.4. Objective

1.4.1. General Objective

The main objective of the study is to assess the Knowledge Management practices in JU using the four KM pillars: learning, leadership organization and technology and provide the guidance to improving KM practice in the university.

1.4.2. Specific Objectives

To achieve the main goals, the study has the following specific objective:

- To assess the level of KM practice in JU through four pillars (learning organization, technology and leadership)
- To evaluate the existing predominance learning, leadership, organization and technology in KM practice in JU.
- To determine whether there is difference between the academic and non-academic staffs in the perceptions of KM practices in the university
- To recommend KM guidance on the identified gaps and to provide solutions

1.5. Assumptions

The study assumed that the four KM pillars (learning, technology, organization and leadership) can indicate KM practice in the university. Moreover, the nature of work (academic and non-academic staffs) can vary in the KM practice. Also, the KM assessment result of the academic and non-academic staffs can be account to all staffs in JU.

1.6. Scope and Limitation

KM practice of an organization can be assessed by considering various pillars. However, the scope of the study is limited to the perceptions of KM practice in JU by considering the four KM pillars: learning, technology, organization and leadership. This enables to identify the KM practice indicator in the JU. In each pillar and KM practice in general there are various factors that vary the level of practice, but the study does not include cause and effect of each indicators. In addition, the study focus on academic and non-academic, which means the study doesn't consider the perception of student in the KM practice. The result of the research would be more fruitful if it is conducted

widely by including student perception and, however, due to time, labor and money constraints the study is limited to treat the level of perception in KM practice among JU staffs.

1.7. Organization of the Study

This paper is organized into five chapters. The first chapter is about the background of the study, statement of the problem, significance of the study, objective of the study and the scope and limitation of the study. The second chapter presents review of related literatures to overview of KM practice, KM pillars and discuss related works in that area. The third chapter discusses the methodologies, materials and procedures followed for the data collection, analysis and interpretations. The fourth chapter presents the data analysis and discussion. The Fifth chapter brings to an end of this research with summery, conclusion and recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Overview of Knowledge

In order to comprehend KM, it is necessary to first understand the concept of knowledge. Various business activities can be considered as examples of KM activity; one of the most confusing aspects of the practice is clarifying exactly what constitutes knowledge, information, and data (Bergeron, 2003). Also how and where knowledge creates and how it differs from information and data. The academic community and practitioners defined knowledge, information and data from different viewpoint, context and considerations. According to Uriarte, (2008) data is a number or word or letter without any context and reference to either to space or time, these numbers or data are meaningless points in space and time. Since it is out of context then it has no meaningful relation to anything else. Also, Uriarta explained, a mere collection of data is not information, what makes a collection of data information is the understanding of the relationships between the pieces of data or between the collection of data and other information. When information is further processed, it has the potential for becoming knowledge. Information is further processed when one finds a pattern relation existing among data and information. This means, when information is further processed it has the potential for become knowledge. Nonaka (1994) point out, information is data or messages having recognizable context and order that are capable of adding, restructuring, yielding, or becoming knowledge. Also, Servin & De Brun, (2005) explained knowledge from the point of formulation as, knowledge is derived from information but it is richer and more meaningful than information. It includes familiarity, awareness and understanding gained through experience or study, and results from making comparisons, identifying consequences, and making connections. Fahey & Prusak (1998) pointed out knowledge is a high-value form of information or intellectual content possessing meaningful context that usually originates from and is applied in the minds of people. In organizational terms, (Servin & De Brun (2005) described knowledge is generally thought of as being “know how”, or “applied action”. Ternes (2011), citing Gill described, today’s organizations contain a vast amount of knowledge in every organizational process including hard copy documents, computer files and also exist in organizational culture, product, trademark, customer, competitors and mainly in human minds. In HLI_s is no certainly an exception. Also, scholars describe information and knowledge from action point of view. For example, according to Drucker (1988), Knowledge is information that changes something or somebody either by

becoming grounds for actions, or by making an individual (or an institution) capable of different or more effective action. As Drucker stated; the key to unlocking the value of information and knowledge is “action,” that is, it must be dynamic. The active and dynamic implementation and management of knowledge are critical to enabling organizational performance enhancements, problem solving, decision making, and teaching. Uriarte (2008) described the conceptual progression of knowledge in figure (2.1) below as, knowledge starts as data, raw facts and numbers with less or no pattern and contextual.

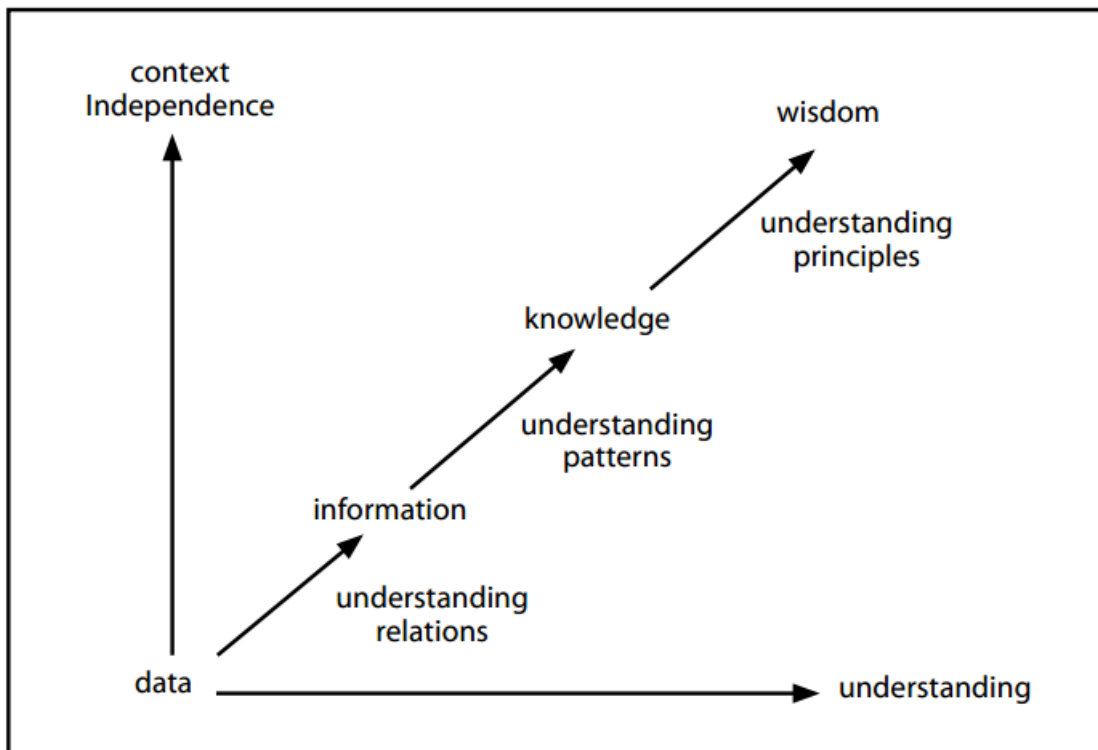


Figure2.1. Conceptual Progressions from Data to Knowledge (taken from Uriarte, F. A. (2008)

2.1.1 Types of Knowledge

Knowledge is categorized to different types. A popular framework for thinking about knowledge proposes two main types of knowledge, namely explicit and tacit knowledge. Also, various organizations can categorize knowledge in various forms depend on its existence and structure. Some scholars said that knowledge only exists in human being’s mind as a result it is difficult to manage. Other scholars argued, originally knowledge is born in the human being’s mind and develop through learning and experience. Some argued, knowledge can also exist in the organizational process, culture, structure, and product, etc and form organizational knowledge.

Knowledge also is embedded in work processes, and it exists in all core functions of an organization as well as in its systems and infrastructure. Effective KM programs identify and leverage the know-how embedded in work, with a focus on how it will be applied (Kidwell et al., 2001).

In this context, it is very important to realize that there are various types of knowledge, which needs different methods for managing through KM. Regarding knowledge in the university, from the learning perspective and mission, knowledge exists in every part of the university such as students, instructors, process, research, structure, culture and patent. As a result, today's universities are highly engaged in identifying store, manage, and use existing information and knowledge parallel to creating new knowledge in order to meet new accountability, effectiveness and efficiency requirement (Pircher & Pausits, 2011). In general, in Table 2.1, the types of knowledge, the content and forms is described (Davenport & Prusak, 1998). Knowing the type of knowledge and how it exists in an organization can facilitate the KM practice and identifying the knowledge gap assessment mechanism and to close the gap.

Table 2.1: Types of Knowledge (Source: Davenport & Prusak (1998))

		General	Contextually Specific	Technically Specific
Declarative	Explicit	A book describing factors to consider when deciding whether to buy a company's stock. This may include price to earnings ratio, dividends	A company document identifying the circumstances under which a consultant team's manager should consider replacing a team member who is having problems with the project.	A manual describing the factors to consider in configuring a computer so as to achieve performance specifications
	Tacit	Knowledge of the major factors to consider when deciding whether to buy a company's stock.	A human relations manager's knowledge of factors to consider in motivating an employee in a particular company.	A technician's knowledge of symptoms to look for in trying to repair a faulty television set.
Procedural	Explicit	A book describing steps to take in deciding whether to buy a company's stock.	A company document identifying the sequence of actions a consultant team's manager should take when requesting senior management to replace a team member having problems with the project.	A manual describing how to change the operating system setting on a computer so as to achieve desired performance changes.
	Tacit	Basic knowledge of the steps to take in deciding whether to buy a company's stock.	A human relations manager's knowledge of steps to take in motivating an employee in a particular company.	A technician's knowledge of the sequence of steps to perform in repairing a television set.

2.1.2 Knowledge and Competitive Advantage

According to Yang et al. (2011) , the tangible assets like land, labor and capital are no longer sufficient to evaluate the real value of an organization's effectiveness and efficiency rather the efficiency of using the intangible assets of the organization that is knowledge are reinforced to identify the value of an organization. Also, Valmohammadi (2010) described the foundation of organizational competitiveness in the contemporary economy has shifted from physical and tangible resources to knowledge. Oosterlinck, & Leuven (2002) described, capital and labour are no longer the dominant production factors, they superseded by knowledge. Businesses that can efficiently capture the knowledge embedded in their organizations and deploy it into their operations, productions and services will have an edge over their competitors. Stankosky (2005) pointed out; knowledge has become one of the most important driving forces for business success. Thus, to

renew and sustain a competitive edge in today's business environment, an enterprise must capture and use all the knowledge and skills of its employees. Stankosky added, Knowledge and information are now the most important resources that a firm can master.

In the modern economy, the knowledge that is able to harness is the organization's competitive advantage. This competitive advantage is realized through the full utilization of knowledge and recognized it and gives values as the new strategic imperative of organizations (Uriarte, 2008). As such knowledge is an essential asset that has become more important than land, labor or capital in today's economy. Also, the survival of modern organization in the knowledge base economy depends on how they utilize knowledge within or outside the organization. This indicates organization give considerable attention in organizing and diffusion of knowledge within and outside the organization to those who need for action or dissection making. This helps to keep their competitive advantages through effective and efficient utilization of intellectual resource. In this regard, enterprises need to know the source of knowledge, which and who need it, how to deliver and reuse for the benefit of the organization. Also, this author supports this idea, an organization's competitiveness depends on what it knows, how well it uses what it knows, how fast it can adapt what it knows to the rapidly changing environment, and how quickly it can acquire new knowledge.

With respect to competitive advantage of knowledge in universities, Mikulecka, & Mikulecky (2000) mentioned that, modern universities are very much like business organizations with a lot of business activities on the "educational market" any method of increasing their competitive advantage might be very useful and interesting for them. Also Anvari et al. (2011) described that, universities are centers for the production and distribution of knowledge; they need to have sufficient potential for both greater dynamism and stability. Beside establishment of innovation and consequently creating new knowledge, academic institutions need to identify and use the existing intellectual capital systematically through proper management methods. The authors stated KM is the proper approach to manage knowledge in university. Akmar & Lee (2004) stated that nowadays, people are aware of the importance of knowledge and ways to acquire, recognize, capture, retrieve, use or measure, manage and collaborate knowledge, so that knowledge can be shared without losing it. As a result, the term KM is created. KM helps organizations to find, select, organize, distribute, and transfer vital information and knowledge. KM is an integrated, systematic approach to identify, manage, and share all of the department's information and knowledge assets, including databases, documents, policies and procedures, as well as previously unarticulated

expertise and experience resident in individual officers (Jones, 2003). Through successful KM, organizations improve their effectiveness and gain competitive advantage (Theriou et al., 2010). KM enables the existing individual knowledge to be captured and transformed into organizational knowledge, which in turn should be diffused and shared among many employees. These employees use this knowledge but they also create new individual knowledge, which becomes organizational knowledge, and so on.

2.2. Knowledge Management

Although knowledge management has been extensively studied by researchers and academics, so far there is none generally accepted definition of knowledge management. Defining knowledge management is not an easy task because it is multi-faced and controversial concept and what's more is a mix of strategies, tools, and techniques (Theriou et al., 2010). Different authors and researchers have presented different definitions of KM. For example, Davenport and Prusak, (1998) defined KM from the integration of information system and human resource as 'KM from existing resources that your organization may already have in place – good information systems management, organizational change management, and human resources management practices.' Also Skyrme, (1999) defined from the human resource process as "The explicit and systematic management of vital knowledge and its associated processes of creating, gathering, organizing, diffusion, use and exploitation, in pursuit of organizational objectives". Moreover, Jashapara (2004) defined KM from various perspective as 'The effective learning processes associated with exploration, exploitation and sharing of human knowledge (tacit and explicit) that use appropriate technology and cultural environments to enhance an organization's intellectual capital and performance'. Those all definition derives from various dimensions and the premises of KM. Also, Coleman (1999) defined KM as an umbrella term for a wide variety of interdependent and interlocking functions consisting of: knowledge creation, knowledge valuation and metrics, knowledge mapping and indexing, knowledge transport, storage and distribution, and knowledge sharing.

Even though, the dimension and premises of KM are slightly varied among business organizations, institutions and other corporations, but possible to say that the aim of KM practice is to facilitate in creating a knowledge environment in which an organization ensuring people to have the knowledge they need, where they need, when they need the right knowledge, in the right place, at the right time

(Newman & Conrad, 1999). Also, Bergeron, (2003) KM is an organized, systematic business optimization strategy that selects, collects, stores, organizes, packages, and communicates information that considers vital to the business of a company in a manner that improve employees performance and corporate competitiveness.

With respect to what KM is and not, various practitioners and research consider KM in different perspective based on their experience and expectation. For example, some scholars thought that, KM is all about technology, and the others assume it's about people, and some said it's all about the process (Stankosky, 2005). Moreover, several organizations consider KM is about the utilization of advanced technology. According (Loh et al., 2003) KM is described as, the totality of organizational strategies aimed at creating an intelligent organization, which is able to leverage upon its tangible and intangible assets, to learn from past experiences, whether successful or unsuccessful, and to create new knowledge. The authors added, KM looks into various levels. At the people level, KM Centre's on the competencies and learning abilities of individuals. At the organizational level, KM puts emphasis on the creation, utilization and development of an organization's collective intelligence. In terms of technology, effective KM requires an efficiently organized and relevant communication and information infrastructure. However, KM executives at every level are primarily responsible for ensuring that knowledge management objectives are in-line with organizational strategies and objectives (Berlade & Harman, 2000). Also, those authors conclude that all KM beliefs and methodologies that have been developed focused on the belief that knowledge is an important asset which needs to be handled cautiously while the core of KM is to get the right knowledge to the right people at the right time. Therefore, knowledge management is a process that facilitates organizations to capture, select, organize, distribute, and transfer significant information, knowledge, and expertise so as to gain business advantage (Theriou et al., 2010).

2.2.1 Knowledge Management Motivation

According to Theriou et al. (2010) KM has been a natural evolution over the early years of the twenty-first century, and a hot topic in several business communities. The ability to manage knowledge has become increasingly more crucial in today's knowledge economy. A number of researchers described the various reasons for the motivations of KM. for example, King (2009) stated KM is based on the premise that just as human beings are unable to draw on the full potential of their brains, organizations are generally not able to fully utilize the knowledge that they possess.

Also Servin (2005) described the motivation of KM is based on the idea that an organization's most valuable resource is the knowledge of its people. This means that creating, sharing and using knowledge are among the most important activities of nearly every person in every organization. Through KM, organizations seek to acquire or create potentially useful knowledge and to make it available to those who can use it at a time and place that is appropriate for them to achieve maximum effective usage in order to positively influence organizational performance. KM creates a new working environment where knowledge and experience can easily be shared and also enables information and knowledge to emerge and flow to the right people at the right time so they can act more efficiently and effectively (Smith, 2001). According to Coleman (1999) the key to effective KM implementation is its ability to solve the enterprise's problems; that is, providing the right knowledge, "just in time and just enough," to successfully meet the needs of the employees. KM, as the basis for enterprise integration, formalizes and distributes experience, knowledge, and expertise that create new capabilities, solves problems, enables superior performance, encourages innovation, and enhances customer value. Bixler, (2000) pointed out, four major drivers in today's technical enterprise use;

- The primary driver is the information technology (IT) progress that has recently evolved and revolutionized the way information is processed and stored. It has had a dramatic influence on the development and growth of technical capabilities and new products and processes; it is within this development context that the requirement for effective KM is critical.
- Communication technology, transportation, and the new global economy have increased cognizance of KM as a core competence. This, coupled with recent advances in IT, such as local area networks and the Internet, has dramatically enhanced organizational interest in KM.
- Clients' level of sophistication and expectations has significantly increased. There is much lower tolerance for inferior products and services as a result of the competitive environment and availability of professional goods and services. Clients expect planned cost, schedule, and performance parameters to be completely met.
- The need to innovate technology and processes has increased dramatically over the past decade. It is overwhelmingly evident that innovation is essential for growth and business survival.

Regarding to motivation of KM in university, Loh et al., (2003) described in the knowledge-based economy, universities is encountering dramatic changes. Their missions and functions are 'pragmatized' because of emerging new players and competing markets for knowledge production, the availability of higher education to a wider range of social classes and age groups, as well as the assimilation of IT into the university environment. KM enables and supports university process in managing academic research, teaching, and innovation. This helps through making research and teaching are complemented rather than hampered by the university's active engagement and involvement in the emerging processes of industrial and entrepreneurial innovation and knowledge transfer. Effective KM in university provides, students, teachers, researchers, leaders, and other supportive staffs' relevant information and knowledge, providing the link between the tacit and explicit knowledge found in the university. Knowledge and information are everywhere in universities. They should involve in acquiring knowledge by understanding the processes, activities, and systems available to share information. A university environment seems to be by its nature especially suitable for the application of KM principles and methods. Mikulecka, & Mikulecky (2000) pointed out the main reasons why university environment suitable for the application are:

- Universities usually possess a modern information technology infrastructure;
- To share their knowledge with others is very natural for professors and teachers in general;
- To acquire knowledge from accessible sources as fast as possible is a natural desire of students;
- There is usually a trustful atmosphere at universities, no one is hesitating nor being afraid of publishing or otherwise disseminating her or his knowledge.

2.2.2 Knowledge Management Process

Defining the context of knowledge with the organizational operation and define KM in respect to its organizational applications, then it is important to take into consideration the process of KM in organizations. This means the selection of KM approach to manage knowledge assets in an organization depends on the type of knowledge available and used to organizational operations. While, there is agreement KM is a process and encompasses people, technology and organizational process. Also, the process comprises a range of strategies and practices used in an organization to identify, create, represent, distribute, and enable adoption of insights and experiences. However, inconsistency was observed in the literature with regard to the explanation of the KM processes.

Several researchers pointed out that the KM process of the organization can contain several processes. Some of the KM processes are:

- Bergeron (2003) presents eight steps KM life cycle of enabling technologies: Creation/acquisition, Modification, use, archive, transfer, Translation/repurposing, access and disposal. According to Bergeron these technologies serve as intellectual levers that provide the connectivity needed to efficiently transfer information among knowledge workers, either in real time or asynchronously.
- Jashapara (2004) noted that five integrated KM approaches: discovery of knowledge, generating knowledge, evaluating knowledge, sharing knowledge and leverage knowledge.
- Gold et al. (2001) grouped KM process into four broad dimensions of process capability acquiring knowledge, converting it into useful form, applying or using it, and protecting it.
- Probst, (1998) on his practical KM model, the process is grouped in to Knowledge goal, knowledge identification, knowledge acquisition, knowledge development, knowledge distribution, knowledge preservation, knowledge use and Knowledge audit/measurement.

The practical KM processes designed by Probst encompass major common tasks. Accordingly the goal of knowledge management is a practical one: to improve organizational capabilities through better use of the organization's individual and collective knowledge resources. These resources include skills, capabilities, experience, routines, and norms, as well as technologies.

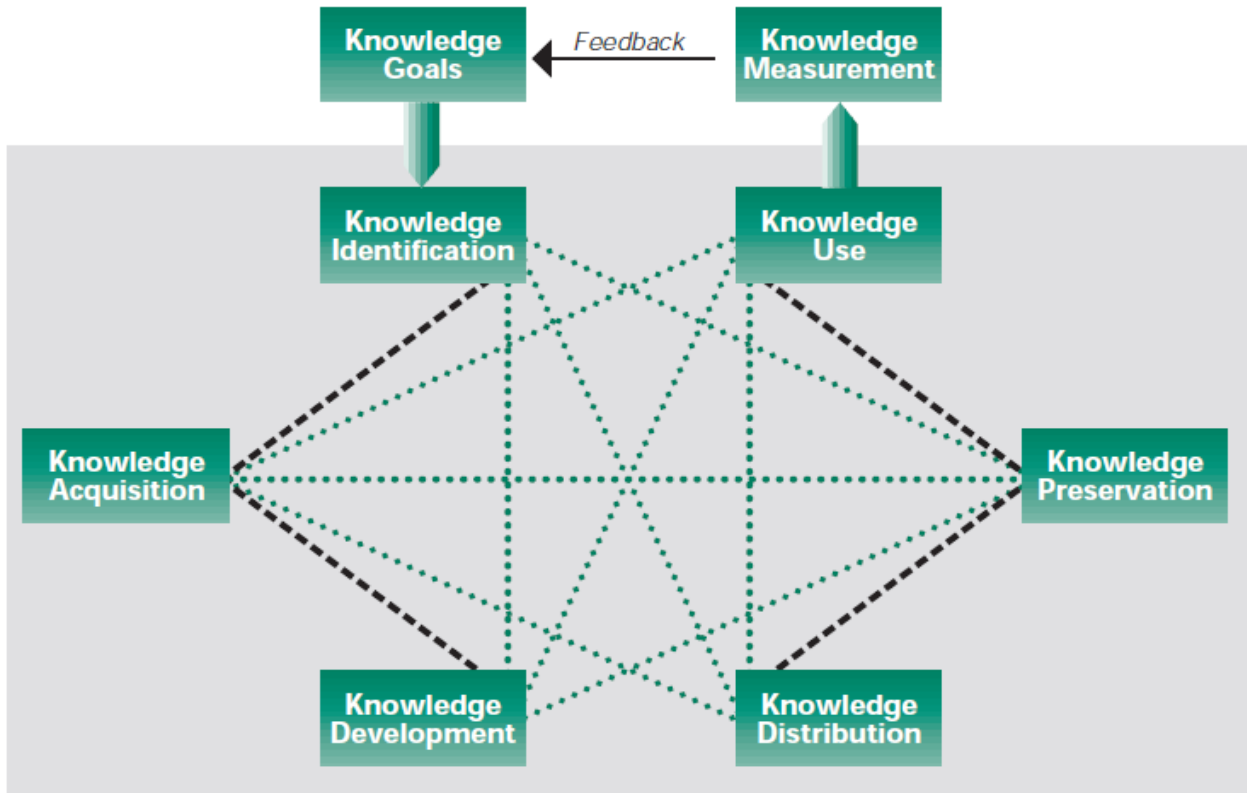


Figure 2.2: The building block of Knowledge Management process Source: Probst, G. J. (1998)

2.2.3 Assessment of Knowledge Management

Defining “knowledge” and constructing the metrics to assess how effectively an organization is managing its assets is a challenging task. Assessment is the first step towards improvement; one can’t improve what one can’t measure – formally or informally (Kulkarni & Louis, 2003). One of the most important problems in the Knowledge Management area which managers are faced with is knowledge level assessment, in order to employ the ways for assessing and promoting the organizational knowledge level (Fathian et al., 2008). Current management interests are also focused their efforts to create, assess and promote knowledge management in enterprises. But the efficiency of these efforts is not recognized. Without an assessment of knowledge assets, agile companies can’t design and run knowledge promotion programs required for survival in competitive environments in the modern economy (Fathian et al., 2008). There are various KM assessment tools designed by a number of researchers and practitioners. There is a wide variety of techniques for each step of KM assessment, if considered separately; however, there exists no integrated model to cover thoroughly; in other words, no model is available to lead wise managers towards KM-related goals in enterprises. Maier’s (2002) study KM assessments resulted that KM

was mostly an information technology (IT) and information systems (IS) issue. Accordingly, Maier (2002) focused on the pure technological side of KM and suggested that especially all large organizations should have highly complex IT and communication technology systems such as interactive tools, social software and networks.

While, universities are very complex institution, with diverse backgrounds, culture, resources and missions, assessment of current KM practice is very likely to be a base for successful KM initiation and development in university (Cranfield & Taylor, 2008). Various universities assess their current KM practice to identify the existing status and gaps through variety of assessment area. For example, Ejemeh & Gboge (2011) assess the level of application of KM principles and practices in Nigerian Universities using four assessment areas, namely Knowledge Awareness, KM Tools, Knowledge Acquisition and Sharing and KM Audit), and concluded “relatively there is high level of KM awareness regarding the important of the need to scientifically manage knowledge, regarding KM tools, the findings revealed a significant gap between the awareness of the relevance of technology and the desire to appropriate it to serve institutional purposes. Moreover, in the area of Knowledge Acquisition and Sharing, the finding indicated, search for knowledge is not a strong forte of the institution. Also, Knowledge Audit is the area in which the university least performed and the university was at the Basic and Rudimentary level of KM”.

In addition, Anvari et al. (2011) in their assessment of knowledge management in Firoozabad Islamic Azad University Iran, using the four KM pillar (leadership, culture, technology, skill and information) reported even though, the practice of KM showed improvement in the university from the resent year, the current performances are still under average. Besides, the research finding showed the university offer imbalanced priority to KM pillar, and there was a significant difference in the perception and experience of KM among lectures and administration staffs. A study conducted by Francesco, (2005) to obtain each respondent’s preferred rank ordering of importance for the four pillars, rankings were to reflect 1 (most important) to 4 (least important) The result showed leadership first and then learning second followed by organization and technology as third and fourth. In addition the study revealed that the emphasis on technology had been dramatically reduced to the lowest ranking in the ensuing year.

2.2.3.1 The Knowledge Management Assessment Tools, APQC's Road Map

This assessment model is actually a systematic maturity level assessment. According to this model five levels are considered for organizational maturity, which contain the questions that we can only answer yes or no to them. In every part, when most of them are answers positive, the situation of knowledge management will be probably on that level. The KMAT the model encompasses the major KM activities and enablers together in a five section: KM process, KM measurement, KM leadership, KM culture and KM technology. The tool involves basic considerations in KM assessment and the result can direct institutions towards an area that required more attention and identify KM practice in which they excel (Martha, 1998).

2.2.3.2 The Know-All 10: The Quick Knowledge Management Assessment

A tool from the Know-all 10: A quick Knowledge Management Assessment will be adapted and incorporated into the questionnaires. In this assessment model 10 categories and five indexes for each category are brought up. For each category sets 10 questions that provide a quick check are posed to know to which category an organization is belonging. Those categories are: leadership, culture/structure, process, explicit knowledge, tacit knowledge, knowledge hub and centers, market leverage, measurement, people/skill and technology and infrastructure (citation). In addition, the instrument will be strengthened by review of relevant studies. For example, the work of Fathian et al., (2008) under a topic "How to Assess Knowledge Management: Developing a Quantitative Model" with the aim to introduce an assessment model which covers evaluation, and positioning the level of KM in enterprise in quantitative vision. As a result they came up with complete evaluating of finding a KM assessment model; develop a new model on the bases of "the know-all10" model. Accordingly, this model can show the weak and strong points of KM in the organization besides the complete analysis of the knowledge organization situation. So we can use this model and compare the situation of the organization against the successful organization and try to improve the organization.

2.3 Knowledge Management in Universities

Knowledge management as it evolved in the business sector is slowly gaining acceptance in the academic sector (Maponya, 2004). Oosterlink and Leuven (2002) pointed out that, "In our era of knowledge society and a knowledge economy, it is clear that universities have a major role to play". In other words, universities are faced with a challenge to better create and disseminate knowledge

to society. However, Reid (2000) argued the rapidly expanding use of technology in teaching and learning, and the transformed economic basis upon which universities are instituted, have caused universities to transform the ways in which knowledge is produced, stored, disseminated, and authorized. The author added, the use of internet technologies in particular have impacts upon academic knowledge in fundamental ways, breaking traditional knowledge linkages, creating new knowledge management practices and creating new teaching and learning cultures “traditionally, universities have been the sites of knowledge production, storage, dissemination and authorization”. The competitive pressure universities are now experiencing, resulting from the reduction in government financial support and the consequent need for enterprising approaches to income generation, bring a commercial orientation to the provision of teaching and students’ services. This causes universities to measure their teaching programs, at least to some extent, as a market commodity which is aimed to meet the needs of the customers. Why then should universities bother with knowledge management? There are a number of reasons. Firstly the nature of the knowledge with which they deal has changed, as has been described. The development of technology-based methods for the creation, storage and distribution of knowledge, coupled with the increasing emphasis in universities on business strategy, drive the creation of new knowledge management systems within them: Secondly and consequently, the nature of this competitive economic environment in which universities find themselves, the ‘knowledge economy’, requires graduates with information literacy skills.

According to Kidwell et al (2001) Using KM techniques and technologies in higher education is as vital as it is in the corporate sector. Due to the appearance of new knowledge producers in the education sector, more and more universities are looking into the possibility of applying corporate knowledge management systems (KMS) (Loh et al., 2003). These authors argued that KM practices and tools can support universities in addressing these demands. Institutions of higher education can benefit from KM by creating and maintaining relevant knowledge repositories, improving knowledge access, enhancing the knowledge environment, and valuing knowledge. Also, Rosenberg, (2006) pointed out that higher education institutions are faced with the challenges of constant changes and an insatiable need for knowledge, they embraced technology-enabled KM and learning as a way to keep up pace with emerging challenges by strategically integrating learning and performance architecture that significantly expands the set of tools, approaches and strategies for KM and learning in a modern and complex organization. On the other hand, the modernization

of higher education has forced the institution to store, manage and use existing information and knowledge in a better way in order to meet new accountability, effectiveness and efficiency requirement (Pircher & Pausits, 2011). Lubega et al., (2011) in their study of Knowledge Management Technologies and Higher Education Processes stated that, “To achieve their goals, higher education institutions must try to align operational processes and organizational learning with KM technology solutions to create a performance improvement environment that strategically leverages KM technologies with higher education processes”.

2.3.1. Knowledge Management Application in University

Universities seek to share information and knowledge among the community within and outside the institution. KM has become a key issue in universities due to changes in knowledge cultures. Oosterlink & Leuven (2002) argued that “Universities are no longer living in splendid isolation. They have their own place in the society, and they have a responsibility to the society, which expects something in return for privileges it has granted. In research inquiries of “are the concepts of KM applications to colleges and universities?” Kidwell et al., (2001) showed that although some examples of KM exist, but their practices are the exception rather than the rule. Moreover, if done effectively, it can lead to better decision-making capabilities, reduced “product” development cycle time (for example, curriculum development and research), improved academic and administrative services, and reduced costs. Kidwell et al. (2001), stated that relying on the institutional knowledge of unique individuals can hamper the flexibility and responsiveness of any organization. Accordingly, they believe, an institutional wide approach to KM can lead to exponential improvements in sharing both explicit and tacit knowledge and the subsequent surge benefits. Various researches illustrate how KM applications could benefit a number of universities process and service (Kidwell et al., (2001). For example the research process, curriculum development process, student and alumni services, administrative services, and strategic planning etc. Oosterlinck, & Leuven (2002) described modern university and the application of KM, accordingly modern university is characterized by the coexistence of a series of fundamental elements, which are as follows:

- The most important one, and the basis of everything, is knowledge creation. This is, obviously, the world of academic research.
- The second characteristic of a modern university is knowledge dissemination, which means that the knowledge created by research is spread among university students, together with a

modernized approach to the classics. Knowledge dissemination is the second characteristic of a modern university. This is not only meant in the narrow sense of the word, which is dissemination through regular classes, but also the whole complex of attitude formation, value transfer, skills training etc. - in other words: education in the sense of capacity building.

- And the third component of a modern university's profile can be found in academic service to society. In a way, the previous components, knowledge creation and knowledge dissemination, are also services to society. But here, something more specific is meant. Scientific service to society usually refers to the process of transferring university knowledge to society at large, including the economic world.

2.3.1.1 Community of Practice (CoP)

The education sector is beginning to explore the usefulness of building on this approach and connecting individuals with a common interest to create a Community of Practice (CoP) where knowledge is created, sustained and transformed (Witt, (2007)). Already familiar to many academics is the idea of working in groups such as project teams, programmer teams, special interest groups and forums to discuss, share and develop practice. Successful communities influence and change the way that members view their own identity both within and external to the community. Within universities knowledge is everywhere, there is a vast amount of knowledge and expertise held by a range of academics and support staff who are in different geographic locations and are disconnected from other practitioners. CoP facilitates effective knowledge sharing across the university member. According to Witt (2007) to facilitate effective CoP required a digital KM infrastructure; which would enable CoP members to share documentation and reference materials; share research outputs, membership and contact data; work to common standards to facilitate the dissemination, exchange and use of materials; and to develop a public face to assist with awareness, dissemination and recruitment of CoP members.

2.3.1.2. University Research Process

According to Loh et al. (2003), due to the appearance of new knowledge producers in the education sector, more and more universities are looking into the possibility of applying corporate KM systems. No matter how important education may be, it is clear that research is the very heart of a university. Speaking in terms of knowledge management, research could be called knowledge creation. It seems

obvious to regard research as the real contribution of a university to the knowledge society. (Oosterlinck, & Leuven (2002) In order for universities to achieve their institutional mission, that is, education, research and service to the community , they need to be conscious and explicitly managing the processes associated with the creation of knowledge. Academic institutions exist to create knowledge, and thus, they have a role to play (Maponya, 2004). Knowledge management is an appropriate discipline for enabling a smooth integration of these new needs that have arisen from the present economic, social and technological context, into higher education. The application of knowledge management should aim at both internal reorganization of resources and improving teaching and research (CRUE, 2002). The dynamics and conduct of university research, in particular, have correspondingly become more sensitive to industry collaboration opportunities, commercial exploitation, and is increasingly trans- disciplinary (Loh et al., 2003). Academic research, which aims to extend the frontiers of knowledge, has a very particular nature. (Oosterlinck, & Leuven (2002) point out some of the nature of research in university as:

- It is performed in an environment which supplies ‘academic freedom’, guaranteed by the tenured appointment.
- It includes high scientific or economic risks, and it even has ‘the right to fail
- Skills, attitude and motivation belong to the most important input of the process. For these reasons, quality management can’t be limited to a mathematical model. It should be performed through specialized committees.

The university’s research process represents a key area which can be enhanced through the application of knowledge management (Kidwell, 2000) (Table 2.2)

Table 2-2 Application and Benefits of KM for the Research Process (Source: Kidwell et al. 2000)

Knowledge Management Application	Benefits
<p>A repository of:</p> <ul style="list-style-type: none"> • Research interests within an institution or at affiliated institutions (potential subcontractors). • Research results (where possible) and funding organizations (federal agencies, foundations, and corporations) with easy search capabilities to facilitate interdisciplinary opportunities. • Commercial opportunities for research results. 	<ul style="list-style-type: none"> • Increased competitiveness and responsiveness for research grants, contracts, and commercial opportunities. • Reduced turnaround time for research.
<p>A portal for research administration procedures and best practices related to:</p> <ul style="list-style-type: none"> • Funding opportunities. • Pre-populated proposals, budgets, and protocols. • Proposal-routing policies and procedures. • Award notification, account setup, and negotiation policies and procedures. • Contract and grant management policies and procedures. • Technical and financial report templates and policies and procedures. • Overview of internal services, resources, and staff. 	<ul style="list-style-type: none"> • Minimized devotion of research resources to administrative tasks. • Facilitation of interdisciplinary research. • Leveraging of previous research and proposal efforts. • Improved internal and external services and effectiveness. • Reduced administrative costs.

2.3.1.3 Curriculum Development Process

The Curriculum Development process encompasses the design and development of integrated plans for learning, the design of implementation of the plans, and of the evaluation of the plans, their implementation and the outcomes of the learning experience. Curriculum development needs the coordination of various faculty or departments in a university. KM can benefit institutions reviewing the repository curricula during revising to new development. Kidwell et al. 2000 pointed out as shown in (table 2.3) the possible benefits of institutions can earn by implementing KM universities.

Table 2-3 Application and Benefits of KM for the Curriculum Development Process (source: Kidwell et al. 2000)

Knowledge Management Application	Benefits
<ul style="list-style-type: none"> • Repository of curriculum revision efforts that includes research conducted, effectiveness measures, best practices, lessons learned, and so forth. • Repository of content modularized and arranged to facilitate interdisciplinary curriculum design and development. • Portal of information related to teaching and learning with technology, including faculty development opportunities, outcomes tracking, lessons learned, best practices, technology overviews, and so forth. • “Hubs” of information in each disciplinary area, including updated materials, recent publications, applicable research, and so forth. • Repository of pedagogy and assessment techniques, including best practices, outcomes tracking, faculty development opportunities, and research. • Repository of analyzed student evaluations updated each semester for lessons learned and best practices for all faculty. • Portal for new faculty with guides for developing curriculum, working with senior faculty, establishing effective teaching styles, advising do’s and don’ts, supervising PhD students, and so forth. • Repository of corporate relationships to identify curriculum design advisory task forces, guest speakers, adjuncts, case study sites, and so forth. 	<ul style="list-style-type: none"> • Enhanced quality of curriculum and programs by identifying and leveraging best practices and monitoring outcomes. • Improved speed of curriculum revision and updating. • Enhanced faculty development efforts, especially for new faculty. • Improved administrative services related to teaching and learning with technology. • Improved responsiveness by monitoring and incorporating lessons learned from the experiences of colleagues, student evaluations, and corporate or other constituent input. • Interdisciplinary curriculum design and development facilitated by navigating across departmental boundaries.

2.3.1.4 Administrative Services

KM plays important roles in university administration. Each role serves specific constituencies and purposes and is implemented differently. Jointly, they build society’s intellectual capital (IC) to improve the effectiveness of public and private decision making and situation handling. Several researchers pointed out various role of KM in university applications, which are, enhance decision making, aid the employee to participate effectively in university decision making; build competitive societal IC capabilities; and develop knowledge competitive work force. Kidwell et al. 2000 demonstrated how KM can be implemented in universities administrative service and the benefits that can accrue in table 2.4.

Table 2-4 Application and Benefits of KM for Administrative Services (source: Kidwell et al.2000)

Knowledge Management Application	Benefits
<ul style="list-style-type: none"> • Portal for financial services (that is, budgeting and accounting) that includes FAQs, best practices, procedures, templates, and communities of interest to share information and serve as impetus for improvement efforts. • Portal for procurement (that is, purchasing, accounts payable, receiving, warehousing) that includes FAQs, best practices, procedures, templates, and communities of interest (for example, by commodity, purchasing vehicle, vendor, and so forth) to share information and serve as impetus for improvement efforts (for example, leverage lessons learned from others in the institution, design on-line vendor sites such as Web-based catalogs). • Portal for human resources (that is, vacancy-to-hire, payroll, affirmative action, and so forth) that includes FAQs, best practices, procedures, templates, and communities of interest to share information and serve as impetus for improvement efforts. 	<ul style="list-style-type: none"> • Improved effectiveness and efficiency of administrative services. • Enhanced ability to identify improvement efforts. • Improved ability to support the trend toward decentralization (for example, local business centers) by providing guidelines for consistency. • Improved compliance with administrative policies such as procurement, preferred vendors, procurement card policies, budgeting procedures, affirmative action guidelines, and so forth. • Improved responsiveness and communication capabilities.

2.4. Knowledge Management in Ethiopian Universities

According, Saint, (2004) Ethiopia is the only sub-Saharan country possessing an ancient written culture with its own alphabet. The country possesses a 1,700-year told traditional knowledge creation system that is embedded in their elite education linked to the Orthodox Church. Yigzaw & Boudreau (2010) point out, despite the existence of rich indigenous practices related to knowledge creation and sharing, like Qinea, modern Ethiopia faces three problems regarding its management of knowledge. First, Ethiopia has lost documented knowledge of what enabled its earlier civilization. Second, Ethiopia has not been able to develop a modern educational system that produces students who are able to solve problems and that enables the country to be competitive in the contemporary world. Third, there is little effort put forward by modern business organizations and educational institutions to foster knowledge management. Most Ethiopian businesses have neither a strategy for managing knowledge, nor initiatives to create or use knowledge management systems. Likewise, knowledge management has not yet gained much attention within academic institutions.

The 1994 Education policy of Ethiopia requires diploma, degree and graduate level education to be practice-oriented, enabling students to become problem solving professional leaders in their fields of study and in overall societal needs (UNESCO 2004). Recently in Ethiopia, the number of higher

institutions increased considerably to 31 universities (Ministry of education, 2011). The ultimate goal of increasing the number of education sector in general and higher education Subsector in particular is, to ensure the need for training and skilled manpower; to produce citizens who capable of competency in the knowledge base society, and to effectively transform technology.

In this regard, all universities need to be committed in collaborative research efforts, sharing of successful practices, joint community work across departments or with other universities and build themselves more in technology and human resource. Also, Ethiopian university needs to store, manage and use existing information and knowledge store in a better way in order to meet new accountability, effectiveness and efficiency requirement. In this regard, Initiating and/developing KM practice can help in identifying and utilizing the existing knowledge in a better way and facilitate in creating new knowledge and knowledge market (selling knowledge to industry). Rahel & Ermias (2011) study the prospects of knowledge sharing among Ethiopian institutions of higher learning, their findings with regard to awareness of knowledge sharing among staff indicate that, the respondent feels very strongly about the importance of, and motivated enough to, knowledge sharing in their work environment. In addition, the rating on knowledge sharing notice as a strong and knowledge hoarding as a weakness.

2.5 Knowledge Management Pillars

Knowledge management enables an organization to gain insight and understanding from its own experience and procedures. One of the key concerns that have emerged related to KM is how to accomplish it successfully. Thus, it is considered crucial to identify the factors that influence the success of knowledge management initiatives. KM enablers are the mechanism for the organization to develop its knowledge and also stimulate the creation of knowledge within the organization as well as the sharing and protection of it (Theriou et al., 2010). KM is a driving force of critical importance for business success or failure. KM is a new but complex process with many factors influencing its implementation. The KM pillars treat the necessary foundational building blocks in designing and implementing a successful KMS. Calabrese (2000) validated the four-pillar framework, suggesting key elements defining effective enterprise KM programs. His research is based primarily on reviewing and synthesizing the scholarly works and published practices of KM up to the year 2000. Accordingly, the finding indicated” KM requires the integration and balancing of leadership, organization, learning, and technology in an enterprise-wide setting.” Also, Bixler,

(2000) examined the drivers for, and value delivered from, KM to an enterprise. The result showed, KM must not only recognize requirements and conditions for success, but also support the desired benefits and expectations of the enterprise.

Regarding the framework, KM is very broad spectrum integrating business strategy and process, organizational community and culture, collaboration, learning, expertise, and technology (Haggie & Kingston, 2003). The KM strategy initiated with specific organizational goal and resource, still there is no widespread agreement on organizational KM framework. Various researchers proposed variety of KM framework, model and pillars. Those pillars are different in their focus, depth, and characterize the nature of KM phenomena (Holsapple & Joshi, 1999). According to Calabrese & Francesco, (2005) numerous KM models exist and continue to proliferate, but the problem is that they immediately focus on detailed mechanisms for identifying types and sources of knowledge and the means to capture, codify, and disseminate it. However, they did not address managing that knowledge across the full spectrum of organizational decision needs to achieve more efficient, effective and innovative results for the enterprise.

Likewise a single definition for the concept of a KM model, framework and pillar is also difficult to find. The term is often used arbitrarily in a variety of unrelated contexts without its basic forms or functions being defined (Jarrar, 2002). Various scholars defined in different form and concept. For example Harris & Varveris (2004) defended KM framework as a theoretical tool for understanding, capturing, categorizing, and employing the knowledge assets needed to define how various parts and processes of a system work together to efficiently and effectively achieve organizational objectives. Various researchers develop KM model or framework by considering and/or involving various component, enabler and analyzing the nature and structure of the organization. For example, Wiig's (1993) KM framework involves what he called the three KM pillars. These pillars represent the major functions needed to manage knowledge. The pillars are based on a broad understanding of knowledge creation, manifestation, use, and transfer. Pillar I is concerned with exploring knowledge and its adequacy. Pillar II involves appraising and evaluating the value of knowledge and knowledge-related activities. The third pillar focuses on governing knowledge management activity.

2.5.1. Four Knowledge Management Pillars: Learning, Technology, Organization and Leadership

Organizational knowledge process is a function and involvement of various components and enterprise unites. Also, managing organizational knowledge assets can be more effective if key elements of the organization are well integrated and involve and contribute to the enterprise practice of KM. Stankosky (2005) mentioned the successful and integrated KM enterprise learning is a function technology, learning, organization and Leadership pillars. Also, Park (2005) supported, managing an enterprise's knowledge assets can be more effectively achieved by creating KM programs using a defined framework of key elements (i.e. the four pillars of KM). Stankosky (1999), from the George Washington University, by examining the KM multidiscipline nature and categorized the key elements of KM into four groups and called them "The Four Pillars of KM".

According to, Stankosky (2005) to determine the critical element of KM and the formulations of KM, there were many statements gleamed from the KM works and writings, including a proliferation of definitions that sometimes disagreed with each other. Many attempts dealt with the definition of knowledge itself, a kind of epistemological approach. The later attempts never addressed the issue of managing these knowledge assets; they merely discussed the question of the definition. Other works dealt with learning and all its facets. According to this author, the operative work in KM was the management of these assets. He added the company already had these assets; it just did not know how to articulate them and, consequently, had little to no guidance on how to manage them. Regarding how to formulate, there were many formulations based on what everyone had as his or her favorite silver bullet or saying/taxonomy such as KM is all about people, and not technology. Communities of Practice were the main application for this group. For others, it was all about technology, such as a "portals and yellow pages" of knowledge workers. Some said it was about people, technology, and process.

According to Stankosky (2005) in laying out all the so-called models, elements, definitions, pronouncements, cautions, and approaches, it became apparent that there were four principal areas or groupings, each containing many elements and all the KM elements were grouped under the Leadership/Management, Organization, Technology, and Learning pillars (Figure 2.3).

- Leadership/management: Deals with the environmental, strategic, and enterprise-level decision-making processes involving the values, objectives, knowledge requirements,

knowledge sources, prioritization, and resource allocation of the organization's knowledge assets. It stresses the need for integrative management principles and techniques, primarily based on systems thinking and approaches.

- **Organization:** Deals with the operational aspects of knowledge assets, including functions, processes, formal and informal organizational structures, control measures and metrics, process improvement, and business process reengineering. Underlying this pillar are system engineering principles and techniques to ensure a flow down, tracking, and optimum utilization of all the organization's knowledge assets.
- **Learning:** Deals with organizational behavioral aspects and social engineering. The learning pillar focuses on the principles and practices to ensure that individuals collaborate and share knowledge to the maximum. Emphasis is given to identifying and applying the attributes necessary for a "learning organization."
- **Technology:** Deals with the various information technologies peculiar to supporting and/or enabling KM strategies and operations. One taxonomy use relates to technologies that support the collaboration and codification KM strategies and functions.

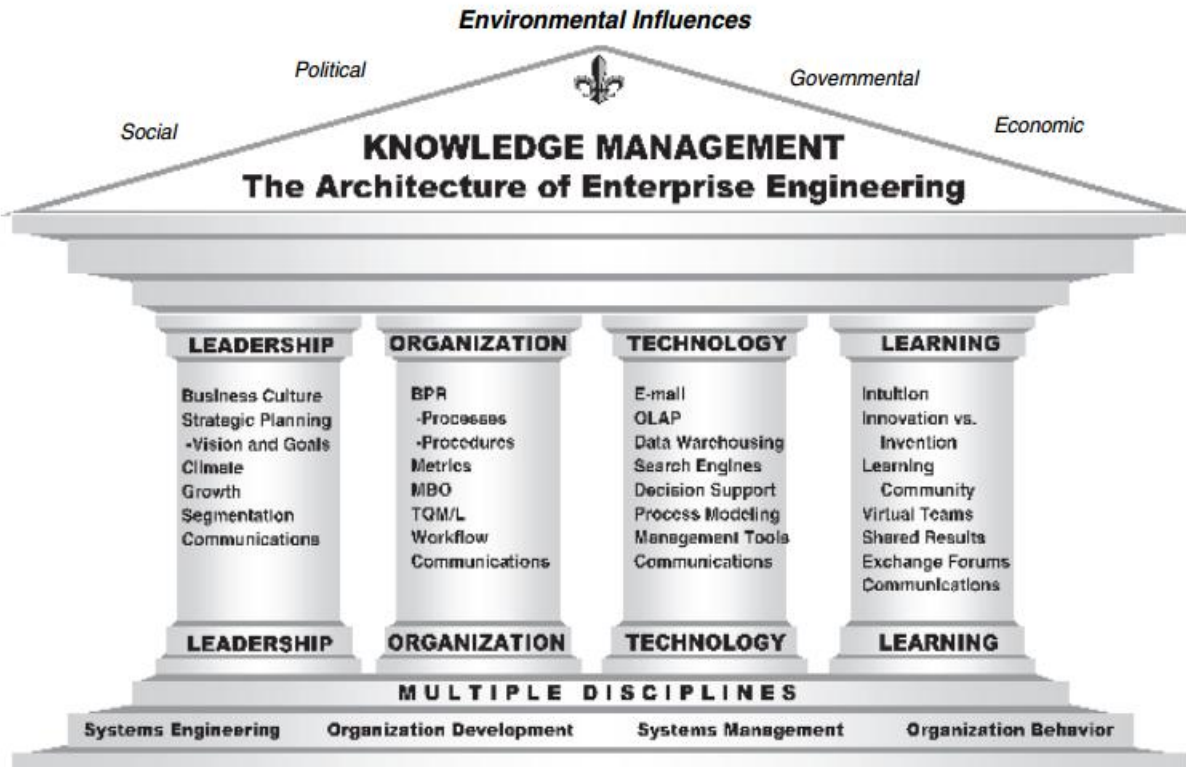


Figure 2.3: Four pillars of Knowledge Management (Source: Stankosky and Calabrese, 2005)

To validate and strengthen the pillars and elements in each pillar further researches were conducted. The research described about creating the building blocks for the design and implementation of KM. Moreover, each finding was codified and includes some additional insights by each author, based on their own experiences. For example; Frameworks, Learning/Culture, Technology/Environment, and Organization Metrics/Valuation researches are conducted.

The research finding conducted by Francesco & Calabrese, (2000) suggested framework of key elements defining effective enterprise knowledge management programs. Shows, “even though, the Four Stankosky’s KM pillars (leadership, learning, technology and organization) are accepted as critical for enterprise KM initiation and development, but the actual practice show strong imbalance among the four pillars, heavily weighted towards the availability and use of technology as equivalent of KM program and practice, with little regard for the postulated balance for pillar framework/architecture believed to be necessary for effectively managing an enterprise knowledge asset”. In application, the pillars represent critical success factors for KM implementation. KM requires the integration and balancing of leadership, organization, learning and technology in an enterprise-wide setting (Stankosky, 2005).

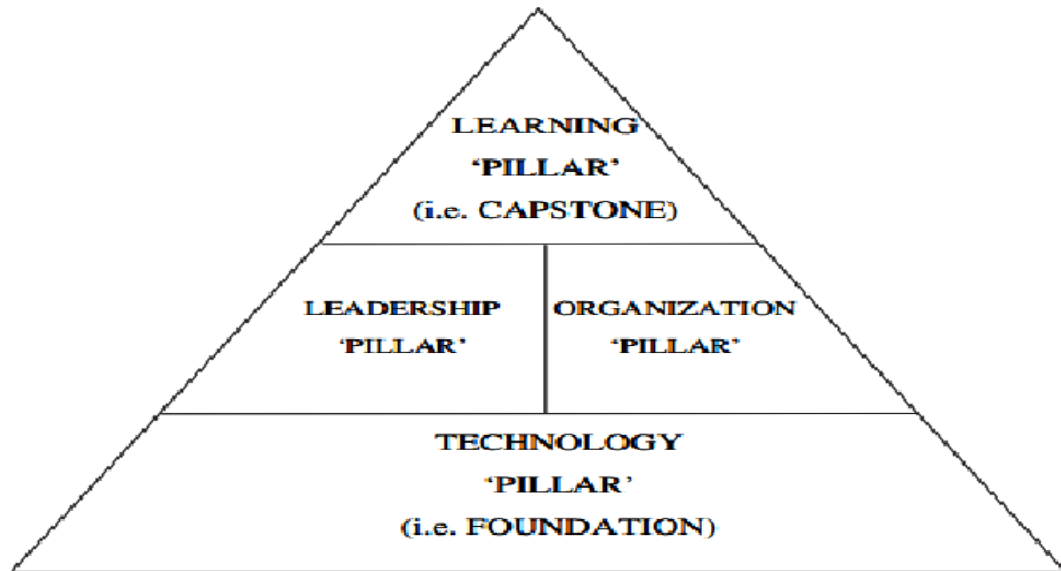


Figure 2.4: Knowledge Management architecture in harmony (Source: Calabrese Directed Research (1999))

2.5.1.1. Knowledge Management Leadership

Both practitioners and academics agree that leadership plays a major role in the creation and management of knowledge in the organization, therefore the organizational goal of KM for competitive advantage is facilitated by the practices that leadership implements (Singh, 2008). Leadership in respect to KM facilitates the KM practice by creating a climate that encourages the distribution of knowledge, so that people feel safe to contribute in every way, and the contributions are recognized by them. In addition, they should have the will to share and offer their knowledge to others in the organization, to learn constantly, and to seek new ideas and knowledge (Storey & Barnett, 2000). Leaders are responsible on how the companies should approach and deal with knowledge management processes as well as practices. The introduction of a knowledge management program can be a major organization change and for this reason the involvement of leadership is considered imperious (Davenport et al., 1998). In addition, they should have the will to share and offer their knowledge to others in the organization, to learn constantly, and to seek new ideas and knowledge (Storey & Barnett, 2000). According to Yaghoubi, & Maleki (2012), the importance of knowledge management in organizations is clear and it is seen as a competitive advantage. Organizational leaders are always looking for the reasons and main factors of success in devising a knowledge management system and to execute it in their organizations.

Regarding to the KM integration with business strategies, leadership play great role in developing business and operational strategies to survive and position for success in today's dynamic environment. Those strategies determine vision, and must align KM with business tactics to drive the value of KM throughout the enterprise. Focus must be placed on building executive support and KM champions. A successful implementation of a knowledge management system requires a champion or leader at or near the top of an organization who can provide the strong and dedicated leadership needed for cultural change. Top managers have to understand the importance of KM so as to support and play an aggressive role in decision making. Beckman (1999) argued that top managers should motivate employees, provide them with equal opportunities and development, measuring and rewarding the performance, behaviors, and attitude that is considered necessary for effective knowledge management. The effective KM begins with a proper strategy. There is a crucial matter that affects the successful implementation of knowledge management, and that is how companies can better evaluate and select a favorable knowledge management strategy. The selection of knowledge management strategy, which is a strategic issue, comprises subjective and qualitative judgment (Wei-Wen Wu, 2008).

2.5.1.2. Knowledge Management Organization Process

According to Lubega (2011), KM processes refer to the concept of taking data and turning it into useful and applicable knowledge in a higher education environment and include such processes as data capture, data storage, data organization, data analysis, and knowledge sharing. The entire point of gathering data, storing it, organizing, analyzing and sharing it is so that the institution can use vital higher education information/knowledge to see what needs to be done, what needs to be improved, what can be eliminated, what needs to be maximized and what's possible in the future. The value of knowledge creation and collaboration should be intertwined throughout an enterprise. Operational processes must align with the KM framework and strategy, including all performance metrics and objectives. While operational needs dictate organizational alignment, a KM system must be designed to facilitate KM throughout the organization.

Bixler (2000) pointed out; operational processes must be aligned with the new vision while redesigning the organization and identifying key levers of change, including roles and responsibilities. Introducing KM requires organizational change, and KM inevitably acts as a catalyst to transform the organization's culture. The increasing value placed on highly capable

people, rising job complexity and the universal availability of information on the Internet are fundamental changes contributing to the move by organizations to leverage KM solutions. In order to begin changing the organization, knowledge management must be integrated into business processes. Also, the value of knowledge creation and collaboration should be intertwined throughout an enterprise. Stankosky (2005) furthermore propose that in order to achieve corporate goals, sound KM frameworks successfully leverage the various networks of people and belief systems forming a company's social fabric. The Stankosky KM Framework (KMF) Organizational Pillar attempts to address the roles, structures (formal and informal), and socio-cultural factors affecting corporate KM frameworks.

2.5.1.3. Knowledge Management Technologies

KM technologies are an enabling tool in facilitating KM because they are capable of assisting knowledge seekers and experts engaged in different types of knowledge acquisition processes. Technology is a powerful enabler of KM success. It is generally accepted that databases, intranets, knowledge platforms and networks are the main blocks that support knowledge management. Information Technology facilitates quick search, access of information, cooperation and communication between organizational members (Yeh & Ho, 2006). Technology enables and provides the entire infrastructure and tools to support KM within an enterprise. While cultural and organizational changes are vital to achieving a KM strategy, a lack of the proper tools and technology infrastructure can lead to failure. Any technical solution must add value to the process and achieve measurable improvements. Properly assessing and defining IT capabilities is essential, as is identifying and deploying best-of-breed KM software and IT tools to match and align with the organization's requirements. The Gartner Group defines 10 technologies that collectively make up full function KM. According to Bixler (2000), the functional requirements that enterprises can select and use to build a KM solution include:

- Capture and store,
- Search and retrieve,
- Send critical information to individuals or groups,
- Structure and navigate,
- Share and collaborate,
- Synthesize,

- Profile and personalize,
- Solve or recommend,
- Integrate with business applications, and
- Maintenance.

Given that advances in information technology (IT) have made it easier to acquire, store, or disseminate knowledge than ever before, many organizations are employing IT to facilitate sharing and integration of knowledge. But considering the complexity of KM initiatives and the variety of IT solutions available on the market, executives must often confront the challenging task of deciding what type of IT solutions to deploy in support of their KM initiatives. This paper aims to shed light on the IT-KM match by investigating the role of IT in successful KM initiatives (Kankanhalli et.al, 2003). The main role of IT here is to help people share knowledge through common storage so as to achieve economic reuse of knowledge. An example of such IT tools is electronic knowledge repositories. With the personalization approach, more tacit and unstructured knowledge is shared largely through direct personal communication. The main role of IT here is to help people locate each other and communicate so as to achieve complex knowledge transfer. Examples of such IT tools are knowledge expert directories and video-conferencing tools. Both these KM approaches are fundamental to understanding the role of IT in KM.

According to, Hasanali (2002) without a solid IT infrastructure, an organization cannot enable its employees to share information on a large scale. However, the trap that most organizations fall into is not a lack of IT, but rather too much focus on IT. A KM initiative is not a software application; having a platform to share information and to communicate is only part of a KM initiative. Following are some KM success factors related to IT. Zack (2003) described successful KM practice is not only focus on how IT infrastructure is used for Knowledge process rather, how people change their attitude on organizational change and when and where to use technology base system to knowledge process. Supporting this position is who states that knowledge-based organizations recognize the importance of knowledge as a strategic resource and uses this perspective in determining how they will organize themselves in order to identify and resolve both internal and external “knowledge gaps.”

2.5.1.4 Knowledge Management Learning

Various researchers conceptualize learning and KM in various ways. Stankosky (2005) described learning as various aspects of how an organization addresses the dynamics of social relationships. Topics addressed include the impact of culture, both organizationally and geographically, on KMS; trust as a key ingredient for sharing knowledge; differences in the approach of government, nonprofit, and profit organizations to KM; and the impact of national culture on KM implementation.. Also, King, (2009) described the way to conceptualize the relationship between the two areas is to view Organizational Learning (OL) as the goal of KM. By motivating the creation, dissemination and application of knowledge, KM initiatives pay off by helping the organization that embed knowledge into organizational processes so that it can continuously improve its practices and behaviors and pursue the achievement of its goals. From this perspective, organizational learning is one of the important ways in which the organization can sustainably improve its utilization of knowledge. Learning organization here refers to organizations that are skilled at creating, acquiring and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights (Garvin, 1993). According to Lubega et al., (2011), to become learning organization is to accept a set of attitudes, values and practices that support the processes of continuous learning within the organization. The authors added, a true learning culture continuously challenges its own methods and ways of doing things. King (2009) mentioned that KM processes directly improve organizational processes, such as innovation, collaborative decision-making, and individual and collective learning. These improved organizational processes produce intermediate outcomes such as better decisions, organizational behaviors, products, services and relationships. These, in turn, lead to improved organizational performance.

However, the successful KM practices need to examine the enterprise learning culture. Roman and Juan (2004) examined the enterprise culture in government and nonprofit sectors vis-à-vis their strategic approaches for knowledge flows at the different hierarchical levels. They concluded that government and nonprofit organizations that implement KM in a “hierarchical” culture had the lowest chance of success. Added Streamlined organizational structure with strong cultures has a higher chance of KM success. An effective culture for knowledge management consists of norms and practices that promote the transfer of information between employees and across department lines (Yeh & Ho, 2006). Building an effective culture where people operate in an organization is a critical requirement for effective knowledge management (Gupta & Govindarahan, 2000). Culture

is a broad concept that consists of many aspects. One aspect which is considered important for knowledge management is collaboration. Goh (2002) highlighted that collaborative culture is significant for knowledge distribution among individuals and groups.

Another fundamental aspect of knowledge management is trust. Davenport & Prusak (1998) argued that without trust, knowledge initiatives will fail, regardless of how thoroughly they are supported by technology and rhetoric. The absence of mutual trust, will lead people to be skeptical about the intentions and behaviors of others and therefore they will possibly withhold their knowledge. Building a trust relationship among individuals and groups will facilitate knowledge sharing process, while the lack of trust can undoubtedly hinder the sharing of knowledge. Without trust, the knowledge management program will fail. The creation of new, useful, and lucrative knowledge is impossible without trust.

The best tools and processes alone will not achieve a working KM strategy. Ultimately, people are responsible for using the tools and performing the operations. Creating organizational behavior that supports a KM strategy will continue long after the system is established. Organizational learning must be addressed with approaches such as increasing internal communications, promoting cross-functional teams and creating a learning community. Learning is an integral part of knowledge management. In this context, learning can be described as the acquisition of knowledge or a skill through study, experience or instruction. Enterprises must recognize that people operate and communicate through learning that includes the social processes of collaborating, sharing knowledge and building on each other's ideas. Managers must recognize that knowledge resides in people, and knowledge creation occurs in the process of social interaction and learning.

It is evident that the need for knowledge management translates throughout the entire enterprise. It is not a separate function characterized by a separate KM department or a KM process; it must be embedded into all of the organization's business processes. Knowledge management is crucial to achieving permanent performance improvements and innovation. Efficient knowledge-intensive core processes and a fundamental architecture must be established to effectively initiate and implement KM. The four pillars clearly provide that fundamental architecture.

2.6. Conceptual Framework for the Study

KM is a discipline that promotes an integrated approach to identifying, managing and sharing an organization's information assets (Raghavendra, 2004). In this regard, KM practices require an involvement and integration of all enterprise units and KM enablers. Each KM enablers need to integrate in the practice. As a result assessment of the current organizational KM practice required a holistic looking of all the KM indicators and participants in the knowledge process. Various researchers uses varied KM pillar as a lens and develop conceptual framework depend on the indicator need to investigate related the current KM practice of a particular organization. In this study KM is all about people, technology and process having several sub processes and components. As a result, the study uses the Stankosky's four KM pillars for enterprise learning: leadership, learning, organization and technology as a base to investigate the KM practice in JU. The Stankosky's KM pillars discuss the overall basic concepts and indicators in KM process. Since, the four pillars encompasses the necessary KM enablers and necessary components in the practice, it can clearly show the level of KM practice, as well, to which pillar the university give more priority and help to understand the state of KM practice in the university. This is because each pillar can independently measure and valued the level of indication to the practice. Therefore, the conceptual framework for this study is adapted from Stankosky's (2005) KM pillars to enterprise learning. Generally, the conceptual framework (Figure 2.6) encompasses various components and concepts by considering the collective university process and structure.

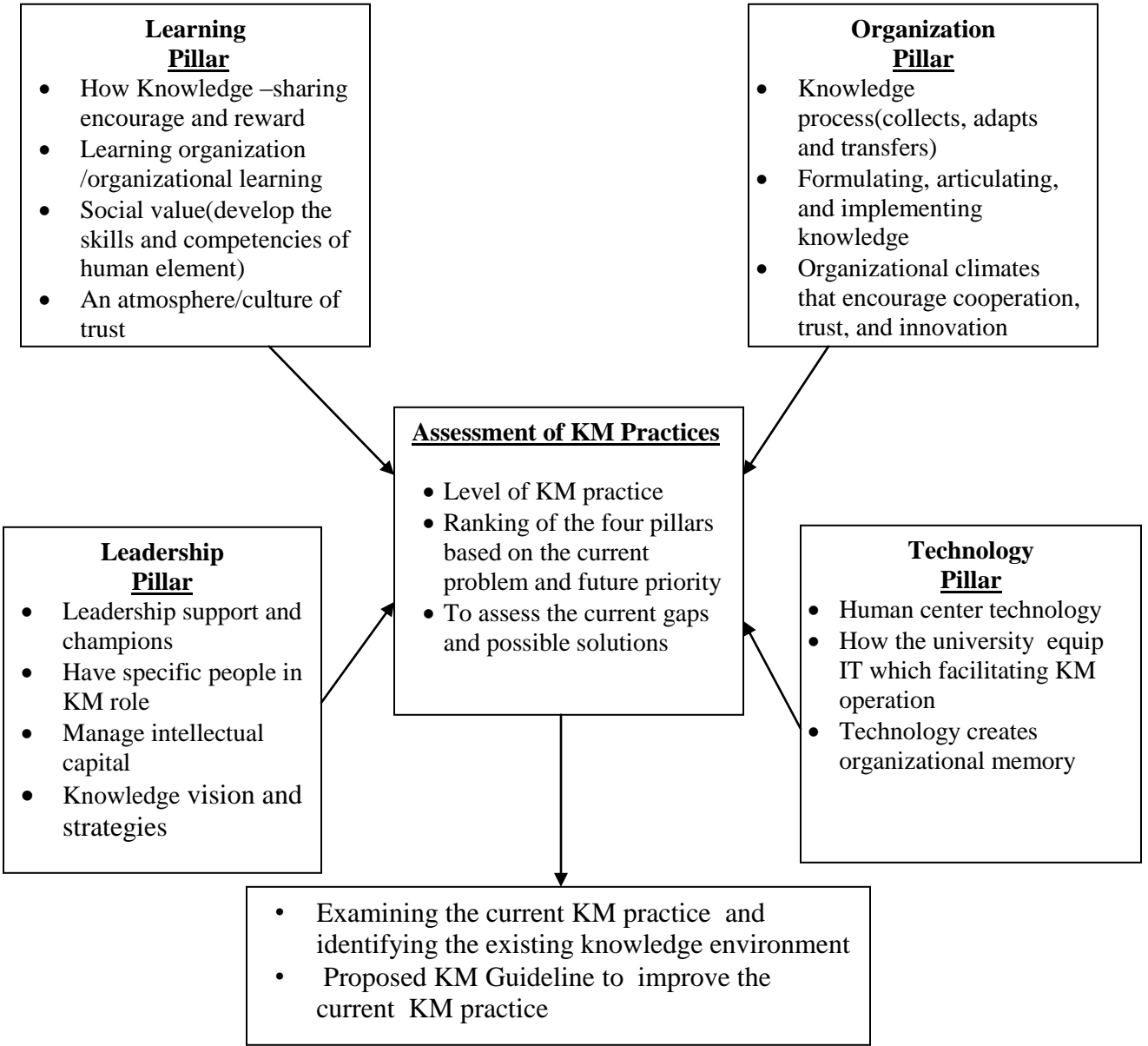


Figure 2.5 Conceptual framework

CHAPTER THREE: METHODOLOGY

3.1 Introduction

In selecting the assessment model for KM, we have considered various factors. According Fathian et al., (2008) for considering knowledge management assessment models some points must be noted: the assessment models must be complete and be able to evolve the whole dimensions of organizational KM indicators. Also, the categories of the assessment model of KM must be separated from each other. By considering such point the research was used the four KM pillars for enterprise learning: leadership, organization, technology and learning. This was developed by Michael Stankosky, D. Sc, to initiate Knowledge Management as an Academic Discipline in George Washington University. Each pillar contains key elements of KM. Stankosky, (2005) state that, KM requires the integration and balancing of leadership, organization, learning and technology in an enterprise-wide setting. According to, Park (2005) in his study of “Knowledge management technology and organizational culture” the finding showed that, these four elements are interconnected and built on each other. Added, the four Pillars can be used as a checklist when implementing a KM program, to avoid missing key elements and to maintain a right balance of elements among these four groups. Furthermore, Ternes (2011) in his study for the purpose of determining the validity of the four primary pillars of the Stankosky KMF as core components of modern-day KM frameworks.

3.2. Study area

JU was selected for the research because it the first university in initiating the postgraduate program in INKM program and follow the philosophy of Community based education (CBE). Community of practice (CoP) is one of the components of KM and it is being addressed in the unique philosophy. The availability of Information Technology infrastructure in university determines the practice of KM and currently JU is one of the Ethiopian universities with adequate technology, so, selecting JU as a study area can help to investigate the important KM technology in universities and capability to KM practice. In addition, like other Ethiopian universities, JU has a relation with a number of international universities and link to external databases (e-journal resources) and KM is not only gathering and disseminating of knowledge within the organization but also, acquiring, organizing and diffusion of knowledge from other organizations and institutions. Therefore, assessing the status of KM in the university can give good insights and valuable outcomes to other universities.

3.3. Study Design

Descriptive cross sectional survey study designs with quantitative and qualitative method of data collection were employed. The assessment model was designed to cover four key areas of KM practice indicators, which are: learning, organization, technology and leadership.

3.4. Population

3.4.1. Study Population

The population of the study was all academic and non-academic staffs in order to get the overall status of KM practices in the university. The study population was categorized into academic and non-academic staffs. Grouping the total population through stratified sampling help the researcher to identify sample populations which are not meeting the criteria and to get information either there is a significance difference or not in the KM perception. In JU there are a total of 4000 employees. Among the total staffs 2500 are non-academic staffs and the rest are academic staffs. Of the total population, 754 (non-academic staff) were excluded from the study population because university staff who are under diploma qualification and who are not office workers like, custody and manual service, trade and craft service was excluded from sample population and sample size calculation. Further, involving the two groups in the study can help to infer the status of the KM practice using the four KM pillars.

3.4.2 Sample Population

The study population was selected through proportionate stratified random sampling by grouping the source population into academic and non-academic staff. The sample population of the non-academic staff was determined by the categories of office workers like professional service, sub professional service, ICT, Library centers, clerical and financial service, office of registrar and administrative staffs were involved in to sample study and sample size calculation. Also, the sample population of academic staff was selected from all colleges and departments. The participants of the two groups were selected through simple random sampling, because it helps to minimize bias and all population has the same chance being involved in the study.

Inclusion criteria: JU office worker with minimum qualification diploma in any field of study with any year of experience.

Exclusion criteria: university staff who are not office workers like, custody and manual service, trade and craft service, etc.

Qualitative data were also collected using an in depth interview with 10 academic and non-academic staff of the university.

3.4.3 Sample Size

To ensure generalization of the study findings, the questionnaires were administered based on proportional stratified random sampling of JU academic and non-academic staffs. A total of 364 questionnaires were distributed to the staffs that fulfill the inclusion criteria. Of the total 168 questionnaires were distributed to academic and 196 to non-academic staff. A total of 331 (90.9 % response rate) usable questionnaires was returned from both group and used for analysis, out of which 164 (97.6% response rate) and 167 (85.2% response rate) were returned from academic and non-academic staffs respectively.

3.5. Data Collection Methods and Instruments

To meet the aim of the study, both secondary and primary data were used. The primary data collections was collected using a self-administered questionnaire and the secondary data was collected from, different offices of the University, the findings of prior studies, papers, articles, books and the World Wide Web.

3.5.1. Data Collection Instrument

For the study, self-administered questionnaires were adapted from “Knowledge Management Assessment Tool (KMAT)” designed by Arthur Andersen (Martha, 1998) and “The Know-all 10: A quick Knowledge Management Assessment” designed by David Skyrme Associates, (1999). Considering the four KM pillars dimensions, and modifying to the local situation and the objectives of the study, Five points based rating scale (strongly disagree, disagree, moderate, agree, and strongly agree) of self-administered questionnaires was designed and employed. Also, participants from both groups (academic and non-academic) who were not included in quantitative study were considered to conduct in-depth interview. The aim of the in-depth interview was to supplement and add further interpretation and meaning to the quantitative findings by discussing issues mentioned in the questionnaire in more detail.

3.5.2 Data Collection Procedure

Data collection for this study was begun at the end of March 2013 and finished at the end of April 2013. Since, the main objective of the study was to evaluate the current KM practice using the four KM pillars; the structure of the KM assessment was divided into two major parts: part one comprised questions eliciting demographic characteristics of respondents. Part two contains 53 questions designed to ascertain the perceptions of JU staffs on the KM learning, KM technology, KM organization and KM leadership and two ranking of the existing and desired condition among the four pillars. The questionnaires and statements are grouped and arranged according to the particular pillar. Further, each KM component contained separate statements. Each statement was rated by the respondent on the scale.

The questionnaire was pre-tested by circulating the questionnaire to 20 members of the both academic and non-academic staff of the University to determine the understandability of the items included in the questionnaire. Therefore, improvement and modification including rephrasing and rewording was made based on the feedback obtained. Then, the survey questionnaires were developed.

3.6 Validity and Reliability of Data

The internal consistency of the survey instrument was assessed by calculating Cronbach's alpha for all the 53 KM items and also separately for the items in each of the KM pillars in the theorized model. Cronbach's alpha was 0.96 for all 53 variables, 0.91 for the learning pillar variables, 0.85 for technology variables, 0.89 for organization pillar variables and 0.88 for leadership variables. Measures in this study are judged to be reliable if Cronbach's coefficient alpha is 0.7 or greater (Sekaran, 2000). The results in table show that, the Cronbach's coefficient for all the variables in the model were above the critical value of 0.7 (table 3.1). Thus, all the items had been appropriately assigned to each variable.

Table 3.1 Cronbach Alpha Instruments in Each Pillar

Pillars	No of items	Cronbach,s alpha
Learning	18	0.91
Technology	10	0.85
Organization	11	0.89
Leadership	14	0.88
KM total	53	0.96

3.7. Data Processing and Analysis

Once the qualitative data were collected, data cleaning, coding, checking for normality, completeness, inconsistencies, data entry and analysis was employed using SPSS version 17.0. Then, descriptive statistical methods such as mean and standard deviation were deployed. Also, the independent sample t-test to determine whether there is significant difference between the academic and non-academic staff in the perceptions of KM practice in the university. Moreover, correlation coefficient was applied to investigate the correlation and internal consistency of the instruments.

3.8. Ethical Considerations

Prior to data collection, ethical clearance was obtained from the ethical clearance committee of the College of Natural Science of JU and formal letters of permission was obtained from the department of information science. Thereafter, a detailed explanation was given to the respondents on the purpose of the study including the benefit of the study and notified that they have the right to refuse to participate in the study. Moreover, confidentiality was assured for the information provided by using a coding system.

CHAPTER FOUR: RESULT AND DISCUSSION

4. Result

4.1. Socio-demographic Characteristics of Respondents

From the total of 364 JU staffs sampled for this study, 331 participated in the study giving a response rate of 90.9%. One hundred and sixty-four (49.5%) of the study participants were academic staff of the University whereas the rest, 167 (50.5%) were working as non-academic staffs. About three-fourth (n=245) of the respondents were male. In terms of the educational qualification of the respondents, the majority (45.6%) had a second degree whereas the rest 128 (38.7%) 41 (12%) and 11 (3.3%) had first degree, diploma, and terminal degree respectively. Regarding respondents' work experience, the majority 220 (66.5%) had 1-5 service year in the University followed by 98 (29.6%) that had 5-10 years experience and the rest 13 (3.9) had more than 10 years work experience in the university (Table 4.1).

Table 4-1 Socio-demographic characteristics of study participants (n=331), JU, March –April 2013/ Details of respondents' demographic

Category Specification	Frequencies (%)
Job	
Academic	164 (49.5)
Non-academic	167 (50.5)
Sex	
Male	245 (74.0)
Female	86 (26.0)
Experience (yrs)	
1-5	220 (66.5)
5-10	98 (29.6)
>10	13 (3.9)

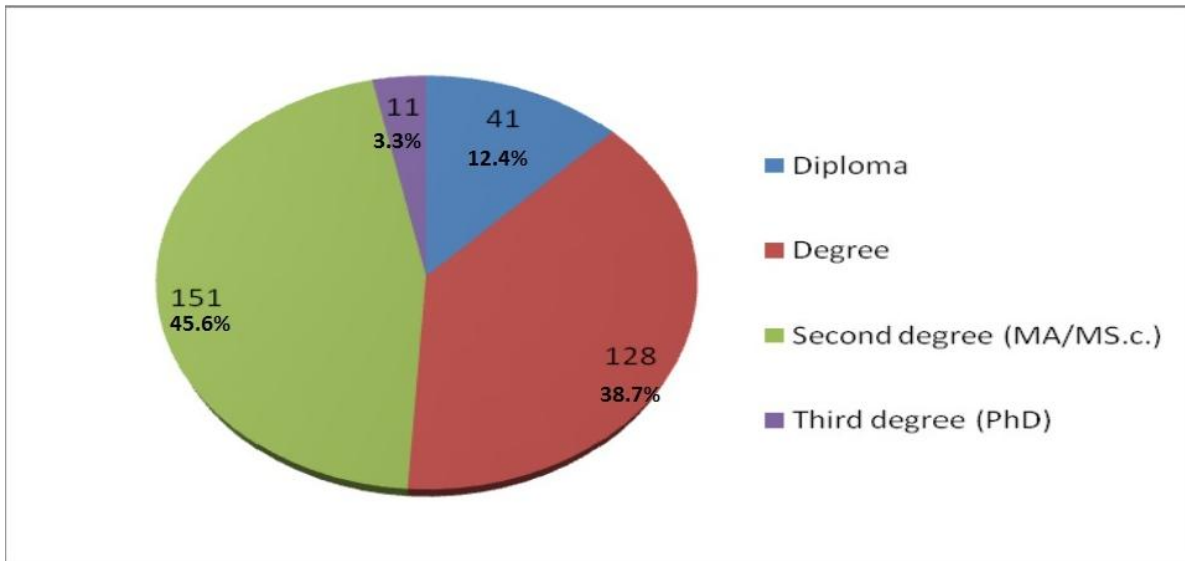


Figure 4-1 Characteristics of respondents according to educational qualification

4.2. Assessment of Knowledge Management Practices

One of the objectives of the study was to assess the perceptions of academic and non-academic staffs in the level of KM practices in JU. In this study, the assessment of KM practices was based on the staff's perception on the current KM practice (using a five point Likert's scale) for the four KM pillars; learning (18 items), technology (10 items), organization (11 items) leadership (14 items) and KM (53 items) with respect to the KM practice indicators. The level of each indicator was assessed using the mean average score and collectively to the whole KM practices.

4.2.1 Level of Knowledge Management Practice

Table 4.2 shows the perceptions of respondents in the level of KM practices in JU. The level of KM practices was assessed by the mean average value of the indicators. The result obtained revealed that the mean value and ranges of standard deviations of academic and non-academic participants vary and there is a significance difference in the perceptions of KM practice in the university. Similarly, perceived level of practices for all the four pillars was higher among the non-academic staff than the academic staff for learning was 61.6 (12.9) vs. 56.7 (12.1), for technology 38.1 (6.5) vs. 36.2 (7.1), for organization 37.0 (7.5) vs. 32.7 (8.4) and for leadership 46.6 (9.9) vs. 41.3 (12.3) were showed (Table 4.2).

Table 4.2: Level and Comparison of KM practice and KM pillars of JU, Standard Deviation within Parenthesis

Pillars	No of items	Mean (SD)			p-value
		Overall (n=331)	Academic (n= 164)	Non academic (n= 167)	
Learning	18	59.2 (12.7)	56.7 (12.1)	61.6 (12.8)	0.000
Technology	10	37.1 (6.9)	36.2 (7.1)	38.1 (6.5)	0.009
Organization	11	34.9 (8.2)	32.7 (8.4)	37.0 (7.5)	0.000
Leadership	14	43.9 (11.4)	41.3 (12.3)	46.6 (9.9)	0.000
KM –Total	53	175.2 (33.4)	166.9 (34.6)	183.3 (30.2)	0.000

Figure 4.2 showed, the total of 331 respondents, 233 (70.4%) respondents had total Likert’s scale score for overall KM practices (53 items) above average (sum of scores>159). Concerning total score for individual KM pillars, the total score for technology was above average (>30 points) in 284 (85.8%) of the respondents while 212 (64.0%), 201 (60.7%) and 185 (55.9%) of the respondents had above average total scores for organization (>33 points), learning (>54 points) and leadership (>42 points) pillars, respectively (figure 4.2).

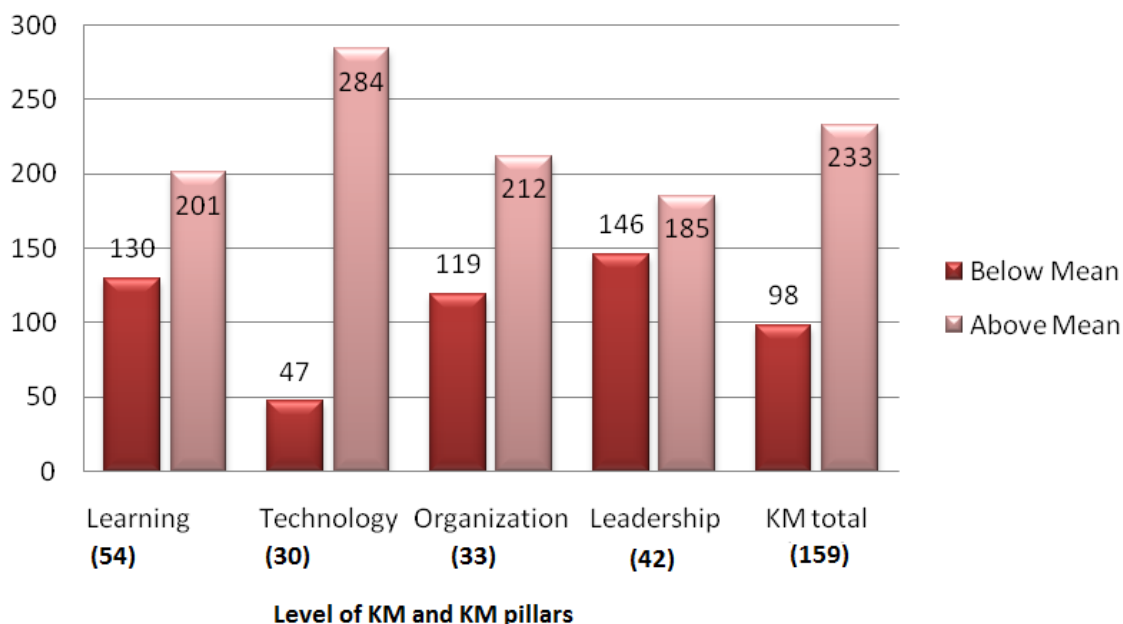


Figure 4-2 Level of KM pillars with Frequency and Percent scores of perceived overall KM practice of JU

With regard to differences in perception levels of KM practices by type of staff, the mean (SD) perceived level of overall KM practices were 183.31 (30.192) and 166.85 (34.571) among non-

academic staff and academic staffs, respectively, with statistically significant difference between the two groups $p < 0.01$). Similarly, there the difference between male and female employees in perceived overall KM practice with female employees has a higher perception of the current level of overall KM practice in the university. The mean (SD) perceived overall KM practice of female staffs was 181.4 (28.8) compared to males which was 173.0 (34.7). On the other hand, there was no significant difference in perceived overall KM practice among employees with different duration of work experience. The mean (SD) perceived overall KM practice were 174.7 (34.1), 174.8 (31.0) and 184.8 (40.0) among employees with work experience of 1-5 years, 6-10 years and above 10 years, respectively (ANOVA F-statistics=0.56; p-value=0.57) (Table 4.3).

Table 4-3 Comparison of perceived level of KM practice of characteristics of study participants by sex, education and year of experience in JU

Respondent characteristics	Mean (SD) KM score	p-value
Job group		
Academic	166.85 (34.6)	0.000*
Non-academic	183.31 (30.2)	
Sex		
Male (n= 245)	173.0 (34.7)	0.044*
Female (n=86)	181.4 (28.8)	
Education		
Diploma (n=41)	194.0 (22)	0.000**
First degree (n=128)	179.8 (29.0)	
Second degree (n=151)	167.0 (37.4)	
Third degree/PhD (n=11)	163.0 (19.4)	
Experience (yrs)		
1-5 (n= 220)	174.7 (34.1)	0.572**
5-10 (n=98)	174.8 (31.0)	
>10 (n=13)	184.8 (40.0)	

*: P-value for independent sample t-test between academic and non-academic staff

** : P-value for independent sample t-test/ANOVA among groups

4.2.2 Ranking of the Existing and Desired Condition of KM Pillars

In this study, from the simple ranking questions, the staff's perception on the four KM pillars was assessed. The analysis computed by means rank and SD. Table 4.4 shows, the comparison ranking of the four KM pillars from the most to the least (1 to 4) problematic in the current KM practices and the rank of the pillars participants desired the University should give future priority to improve KM practices in the University. From the overall study participants ranking of the pillars revealed that, leadership (the most problematic 1.8 (1.05)) was ranked first then learning, organization and technology (least problematic 3.3 (0.97)) were ranked as second, third and fourth respectively. On the other hand, among the four pillars learning (the most desired to future priority 2.2 (1.0)) were ranked first for future improvement, then leadership, technology and organization (least desired to future priority 2.9 (0.95)) were ranked from second to fourth respectively. The mean score among the pillars revealed significance difference with $p < 0.01$.

Table 4-4 Rank of KM pillars based on the level of problems and priority

Pillars	Current level of problem			Future priority for improvement		
	Mean (SD)	p-value	Rank	Mean (SD)	p-value	Rank
Learning	2.4 (1.02)	0.000	2	2.2 (1.0)	0.000	1
Technology	3.3 (0.97)		4	2.6 (1.3)		3
Organization	2.6 (0.89)		3	2.9 (0.95)		4
Leadership	1.8 (1.05)		1	2.3 (1.1)		2

4.2.2.1 Comparison Ranking of the Existing KM Pillars

The study also analysis the comparison of the academic (n=162) and non-academic (n=165) staff in the ranking of the four pillars from the most problematic to the least problematic (1 to 4). Figure 4.4 shows, the comparison of the two groups in relation to ranking of the existing KM pillars. The academic staff ranked leadership first 1.7 (0.90), followed by organization, learning and technology 3.2 (1.07). As to the non-academic staff for the same question ranking leadership 1.9 (1.2) first followed by learning, organization, and technology 3.4 (0.87). The illustration of the comparison ranking is depicted in figure. 4. 3.

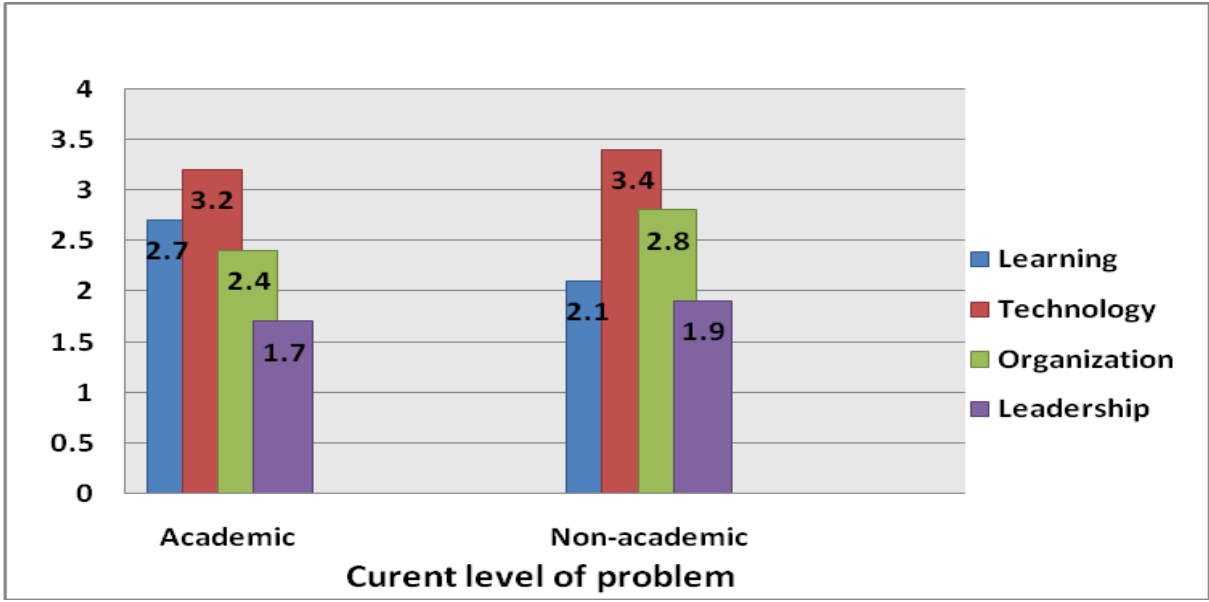


Figure 4-3 Comparison of level of the problem of the pillars means rank —academic versus non-academic staffs

4.2.2.2 Comparison Ranking of the Desired KM pillars

When both academic and non-academic participants were asked to rank the four KM pillars from the most to the least (1 to 4) for future priority to improve in the current KM practices of the University, *i.e.*, the desired KM pillars and the score was computed by mean rank and SD, the result given by academic staff participants ranked leadership first (score 2.0 (1.1)), learning second (score 2.2 (1.0)) organization third (score 2.7(1.0)) and technology fourth (score 3.1(1.1)). Whereas, the non-academic staff of the University, when asked the same question ranked technology first (score 2.2 (1.2)) learning second (score 2.3 (1.0)), leadership third (score 2.6 (1.1)) and organization fourth (score 3.0 (1.0)) (Figure 4.4).

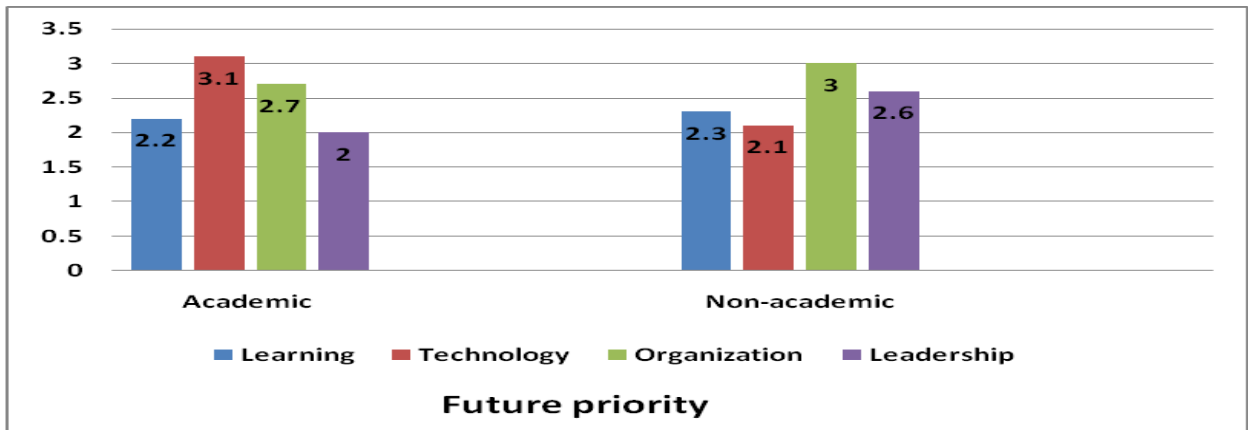


Figure 4-4 Comparison rankings of the desired future priority of KM pillars mean rank —academic versus non-academic staffs

4.3. Results Obtained from Qualitative Data

The result obtained by undertaking in depth interview was analyzed and presented under the following three thematic areas:

1. Staff awareness in relation to Knowledge sharing/Knowledge required/ access and use

The majority of the participants seem aware to have shared information or knowledge to accomplish and succeed in their work. However, during the discussion with participants, the extent and expectation required to share information/knowledge varied between academic and non-academic staff. Most of the non-academic participants agreed staff has to share information during work. A majority of respondents expect to share information or knowledge during their actual work. The majority of the non-academic participant expressed, they satisfy if procedural information or knowledge is shared. Also, they expect to access/share information from the same department or from staff in the same office. Most of the participants expect to build up their personal skill through trial and error, reading procedural manuals, attending conferences, workshop and training. On the other hand, the majority of the academic staff (lecturers) agreed information and knowledge sharing is beyond the sharing of lecture materials. The majority of the academic respondents expect to share best practices, new ideas, and research / project findings. One lecturer said, “Knowledge creation, share, use exists if staff participate in research in his/her department or across departments even across colleges”. Also, another participate stated “Majority of teachers believe to share new idea, research findings, participating in CoP But in reality this has not extensively existed”. Most of the participants agreed that, past best practices, research/project findings, were not adequately organized and documented so that they are easily located and accessed by the staff, lack of experience in information sharing on research findings and best practices across departments or colleges were an issue for not sharing. The majority of the academic participants expected to build their personal knowledge through participating in research, working with experts, attending conferences, workshop and training. Most of the participants agreed, working with experts can facilitate learning and minimize repeating the same mistake. However, expert profile/ locators are not yet built adequately. Also, research findings and CBE projects are not yet well documented and as a result tracing them and the reuse by the staffs and students is not an easy task.

2. Perception about importance of KM and application in university

As stated above between academic and non-academic seem not having the same requirement in information/knowledge sharing in their work place and expectation how to build their personal skill. But regarding the importance and which problem can save by implementing KM seems they have a similar understanding. The majority of respondents believe KM practice in the university can facilitate sharing of information and best practices. They also believe it can facilitate learning and minimize repeating mistakes and reduce cost. Most of the respondent's belief KM can be applied to university research, facilitate demand base research, curriculum development, community practice and exchange best practices. Also, one senior lecturer in the university said, KM can facilitate information or knowledge exchange through organizing, documenting and making available and easy access by the staff at the right time and place. Even though, the majority of respondents understood the benefits of KM, yet the practice is not well undertaken in the university. For example one participant said "yet KM hasn't official pattern in the university it seems the practice with ideally support by the management". The majority of the participants agreed that currently the university focuses on improving communication among staff through information communication technology. As stated by one of the interviewee "Implementation of KM in the university it seems mainly oriented towards technology".

3. Staff perception about the enablers, factors, facilitators of KM practices in the university

During the discussion, participants seem not to have a similar or equal level of awareness regarding the KM components, enablers, and factors that affect or facilitate KM practices in the university. Especially, the academic and non-academic participants seem to have a gap relating to the estimating the influence of KM practices in the university. The majorities of academic staff agreed that top management support was among the highest instrument for successfully implementing and apply KM practices in the university. One of the participants said "implementing or initiating one program needs promotion and support of top management and accountability" On the other hand, majorities of the non-academic staffs agreed technology was among the highest instruments for successful and implementing and apply KM practices in the university. Among the non-academic respondents one said "if a university builds good information technology infrastructure proportional KM practices improve in the university". Most of the participants agreed the university was more focus on building ICT infrastructures. Although it was thought that participants agreed the

university has better ICT infrastructure, but information contents were not completed and updated. One participant said” there is some available staff profile in the university website but the information is not complete and updated.” Majority of the participants agreed that providing information technology in the university can facilitate communication and sharing of information among community of the university.

Many participants expressed their opinion the factors that can influence the success of KM practice in the university. Majorities of respondents mentioned that, staff’s awareness about the knowledge resource, organizational culture, relay on technology and trust are among the major factors that negatively influence the success of KM practice in the university.

4.4 Discussion

The study utilized Stankosky’s Knowledge Management pillars, namely leadership, organization, technology and learning; using three point score (3=neutral) in the five point Likert’s scales as the cutoff point (average point) Moreover, from the simple ranking questions, the perceptions of staff in the current level of the problem and future priority for improvement among the four pillars was evaluated using the mean rank.

4.4.1 Evaluation of the Current KM Practices

The result of the present study revealed that the average score of the four pillars and the total KM in relation to the current level of KM practices in the university was above average (Figure 4.2). This indicates that the respondents believed the level of KM in relation to these criteria was above average. Among the four KM pillars, the mean score of leadership from the total study participant (N=331) a significant number of respondents (146 or 44.1%) the leadership indicator in the current KM practice shows below average. This indicates among the pillars, the perceptions of staff to the leadership pillar shows highest number response below the cutoff point (3=neutral). This indicates among the four KM pillars, leadership in respect to the current KM practice was shown a problematic area and need to more investigation on it. On the other side, from the total study participant’s only 47 or 14.2 % respondents perception to the technology pillars gives below average (below the cutoff point). Also this indicates the perception of staff to the current availability of technology infrastructure for KM practice based on the given technology indicator was better in the University.

Even though the overall KM practices in the university were above average, the result of the present study also revealed, the mean average score of academic and non-academic respondents to each pillar and the overall KM shows a significant difference. The perceptions of non-academic staff to each pillar and KM in general was above average, whereas, the average score of the academic staff in relation to organization and leadership with respect to KM practices in the university was found to be below average with 32.7 and 41.7 respectively (Table 4.2).

This is more or less comparable to the study done by Ejemeh & Gboge (2011) which assessed the level of application of KM principles and practices in Nigerian Universities using four assessment areas; Knowledge Awareness KM Tools, Knowledge Acquisition and Sharing and KM Audit), the discussion of the findings indicated that the University was at the Basic and Rudimentary level of Knowledge Management. Also the study conducted Anvari et al. (2011) in Firoozabad Islamic Azad University in Iran in assessing KM practices in the university considering the four pillars (information, skills, culture and technology) the findings indicated that there were some tokens of knowledge management that were ranked above the average level (culture, skills and technology); information was lower than average, but the overall score for KM as a whole was above average.

Furthermore, this study showed, respondent vary by job group (academic and non-academic), sex, and educational status were found difference in the perceptions of the overall KM practice in the University with significance difference. Whereas, the result shows there is no significance difference among respondents vary by years of experience (Table 4.3). A similar study conducted by Anvari et al. (2011) in Firoozabad Islamic Azad University in Iran, the study found there was a significant relationship between KM and the groups (lecturer/staff) and years of experience. However, the study found No significant relationship between KM and some variables such as age, gender and education. The difference of these studies finding might be due to the difference in the study population and used KM indicators.

Even though, the study need a more in-depth exploration for investigating the underlying causes of the difference in perception between the two group, the possible explanation for the variation is may be due to variation in understanding the KM principles, tools, techniques, approaches and challenges. Moreover, the variation might be due to the gap in understanding the advantage of KM approach to the university and the actual benefit. This may also indicate the difference between the two groups of respondents in the approach of KM practices in relation to learning, technology,

organization and leadership. Thus, the respondents from academic staff, with better educational qualification and years of experience assessments result is more reliable because they might have more information and a deeper and wider understanding about KM practices and its long term benefits.

4.4.2 Comparison Ranking of the KM pillars

The result from the overall study participant on the comparison ranking of the four KM pillars from the most to the least; current problematic and future priority was incoherent (Table 4.4). The finding showed leadership as the most problematic whereas, learning was ranked first by participants for future improvement. Furthermore, a comparative ranking (Figure 4.3 and Figure 4.4), the perceptions of the two groups in the current level of the problem and future priorities among the four KM pillars is also different. The finding showed the ranking of the pillars by non-academic study participants based on the existing problem and desired for future priority is controversial. On the other hand, in respect to academic staffs the ranking showed approximately similarity. Both group ranked leadership as the most problematic and technology as least problematic; but vary in the ranking of learning and organization pillars. This result is more comparable with the result obtained from the analysis of computing the frequency and percentage of participants perceived of each pillars indicators wither below or above mean by the given cutoff point. Regarding to the future priority among the four pillars, the academic participants ranked leadership as the first priority to improve the KM practices, whereas, the non-academic staff ranked technology as the first priority to improve the KM practices. The finding of ranking the desired condition by academic staff is in-line with a research done by Calabrese and Francesco (2005) to obtain each respondent preferred rank ordering on the importance of the four pillars. The finding showed leadership first and technology fourth. Also, the study conducted by Anvari et al. (2011) at Firoozabad Islamic Azad University in Iran, which ranked the level of existing and desired condition of the four pillars; information, technology, skills, and culture by lecturers and staff of the university; the finding showed, the rank by the two groups of respondents is dissimilar in both the current and desired condition. Also, the study finding lines with current study in respect to the academic staffs.

The analysis of the interviews showed that majority of the participants were aware about the need of sharing knowledge in order to accomplish and succeed in their work and to extend and sustained organizational development and competency. However, past best practices, research/project findings, were not adequately organized and documented so that they are easily

located and accessed by the staff. Also the study showed lack of experience in information sharing on research findings and best practices across departments or colleges were an issue for not sharing the information and knowledge.

Moreover, the analysis of the interviews showed a clear difference in the perceptions with respect to KM enablers between the two group. The non-academic staffs believe giving priority to technology with respect to KM is better to improve the current practices of KM in the university. Whereas, the academic staffs believe priority for leadership will bring better improvement in the current KM practices. More or less, the finding of the in-depth interview in the staff perception in the KM enablers, factors and facilitators showed compactable with ranking of the four pillars from the simple ranking question based on the desired priority among the pillars for future improvement to enhance the KM practice in the university.

Also, based on the analysis of the interview, awareness and approach to the knowledge resource, organizational culture, relay on technology and lack of trust and insufficient management support was among the major factors mentioned by participants that negatively influence the success of KM practices in the university. In addition, the participant agreed the university has better ICT and this helps in facilitate communication and sharing of information among the university community.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

The level of the KM practices in JU was assessed based on the four KM pillars, *i.e.*, leadership, technology, organization and learning. Based on the result of the present study, the overall KM practices in the university based on the given indicators (53items) computed from the four pillars was above average with the mean score of 175.2. The perception of KM practices between academic and non-academic staff has a variation with statistically significant difference. With respect to the non-academic participants, the four KM indicators was above average with the score of 61.6 for learning 38.1 for technology 37.0 for organization and 46.6 for leadership with respect to the current KM practices in the university. On the other hand, the result of the academic participant for learning and technology was above average with the mean score of 56.7 and 36.2 respectively. However, the result of organization and leadership was below average with a score of 32.7 and 41.3 respectively.

Both the academic and non-academic staffs have different perception at the level of the current problem (from the most problematic to least) among the four indicators in the current KM practices in the university. With respect to non-academic participants, the mean rank of the four pillars revealed that leadership, learning, organization and technology from the most problematic to least respectively. Whereas, the academic staff ranked leadership, organization, learning and technology as first, second, third and fourth from the most problematic to the least respectively. For both groups of participants, technology was ranked the least problematic pillar in respect to the current KM practices in the JU. From this it is possible to conclude that all the staff is comfortable with the technology provided by the university.

Furthermore, based on the study result, the perception of academic and non-academic when it comes to the desired condition to prioritize among the four pillars to improve future KM practices was quite different. The desired of academic participants seems logically similar. They Prioritized leadership first, followed by organization, learning and technology as second and third and fourth, which was their belief to improve the current KM practice in the university. However, the non-academic participants' belief was technology first, then learning, leadership and organization as second, third with respect to KM to improve KM practices in the university.

The study finding revealed a clear difference with respect to KM enabler perception. The non-academic participants believed technology to improve KM practices, whereas, academic believed top management's support to improve KM practices in the university.

5.2 Conclusion

KM is very important for organizations to enhance performance, Universities should give recognition to it, work intensively in creating common understanding among members on the KM principles, method, tool and enablers. Furthermore, the university should work to integrate the four KM pillars for effective KM practice and link it with the university strategies and other sub systems.

According to the findings of this study, it is possible to conclude that the level of KM practices based on the four KM practice indicator (learning, technology, organization and leadership) in the university was above average. While the study found, the perception of non-academic staff to each pillars and KM in general was above average level, whereas, the average score of the academic staff in (leadership and organization) pillars was found below average level. Moreover, the study found that the level of perceptions in the current KM practices was significantly varied among participants varied by job group (academic and non-academic), sex and level of education. However, there is no significance difference among participants varied by years of experience.

According to the finding of the study we can conclude that, technology was least problematic and leadership the most problematic among the four pillar in respect to the current KM practices in the University. This indicates that, the university has better facility and ICT infrastructure. Furthermore, from the result obtained, prioritized to learning pillar was the first desired condition to improve the current KM practice in the university. Moreover, from the result obtained, it is possible to conclude that a comparison ranking of the four pillars from the most problematic to least (leadership, learning, organization and technology) and desired condition to prioritize (learning, leadership, technology and organization) among the four pillars to improve future KM practices was not constant.

Likewise, from the study finding it is possible conclude that, there is a ground to implement KM practice with university process (facilitate demand base research, CBE, curriculum development, CoP, administration). However, the practice is not well undertaken in the University. Currently, the

practice of information organization and documentation (past best practices, research/project findings) were not adequately organized and documented so that they are easily located and accessed by the staff. Moreover, expert profile/ locators are not yet built adequately, (there is some staff profile in the official website under each department but not periodically updated)

5.3 Recommendation

Based on the findings, the following recommendations are forwarded to be considered in relation to the integration of the four pillars and KM practices to the university's practices, such as learning and teaching, research and innovation, community based education (CBE) and university management. Also, KM guideline was proffer to help in improve the current level of KM practice in the university. Moreover, future research area was recommended.

KM is not a single department and/or onetime practice, rather integration of various components (enablers, practices, methods and technologies) and gradual process. While, the study shows there are a ground and initiations to implement KM practices with University process; thus, the availability of KM guideline would increase the current level of the practice. Moreover, the availability of KM guideline can minimize the current problem and can help in creating better knowledge environment in the University. This can promote efficient organizing and capture of tacit and explicit knowledge, support efficient and effective knowledge sharing, making document and information accessible in the entire University and create opportunity for individual learning.

Considering such possible advantage from availability of KM, the following KM guideline was proposed the University to consider during developing KM strategies. However, the development of KM for enterprise learning needs systematic approach and inclusion and integration of stockholders the organization, the University should consider, other sub systems and all stockholders requirement during developing KM strategies.

KM Learning

To develop the attribute of learning organization and organizational learning, the university need to give due consideration in identifying the knowledge gap and follow a systematic way to solve the gap. To cultivate the culture of learning in the university the following activities should be considered;

- Creating a mechanism to connect people with people, through socialization like, training, workshop, facilitating across department research, making accessible of expert profile.
- Creating a mechanism in connecting people with knowledge source. This can be applied through developing knowledge center. KM Technologies

- **KM Technologies**

The selection and providing of technology to staffs should be based on the capacity and task oriented. KM technologies that are appropriate for a particular KM system and environment and complex social systems and their impact on technology choice should be clearly identified and examined. The university should focus on creating awareness and capacity building in the community parallel to developing ICT infrastructure on how technology can facilitate communication, information sharing and KM practices in general.

Relating with the assumption to enable the infrastructure and tools to support the implementation and to meet the goals, the university should consider technology for the knowledge capture and store, search and retrieve, structure and navigate, share and collaborate, profile and personalize, integrate with business application and maintenance. However, the sound KM framework is not only on technology, rather the integration of components. So, consider the other KM components during the integration of technology into required practices.

- **KM Organization process**

Regarding the organization process, the value of knowledge creation and collaboration should be intertwined throughout the university. Since knowledge is everywhere, the university operational process must align with the KM processes. For example, the operational process such as, training high caliber professionals, conducting problem solving or demand based research, Community Based Education (CBE), and management support (performance metrics) and other university objectives must align with the KM framework and strategy.

- **KM Leadership**

The university management should consider KM involves implementing changes that may not easily gain acceptance in organizations unless the leadership mobilizes the support of all knowledge users to provide suitable environment for widespread sharing of knowledge. Furthermore, the focus

must be placed on building executive support and KM champions. Considering the current problem the following suggestion can follow support for minimizing or solving the problem. Those are:

- Top management support and campaign for potential individual as well as organizational level learning
- Create mechanism in measuring and managing intellectual capital periodically (identified solutions by mapping existing tasks, procedures & processes.)
- Responsible body (Chief knowledge manager, knowledge editor, knowledge analyst etc.) should be appointed

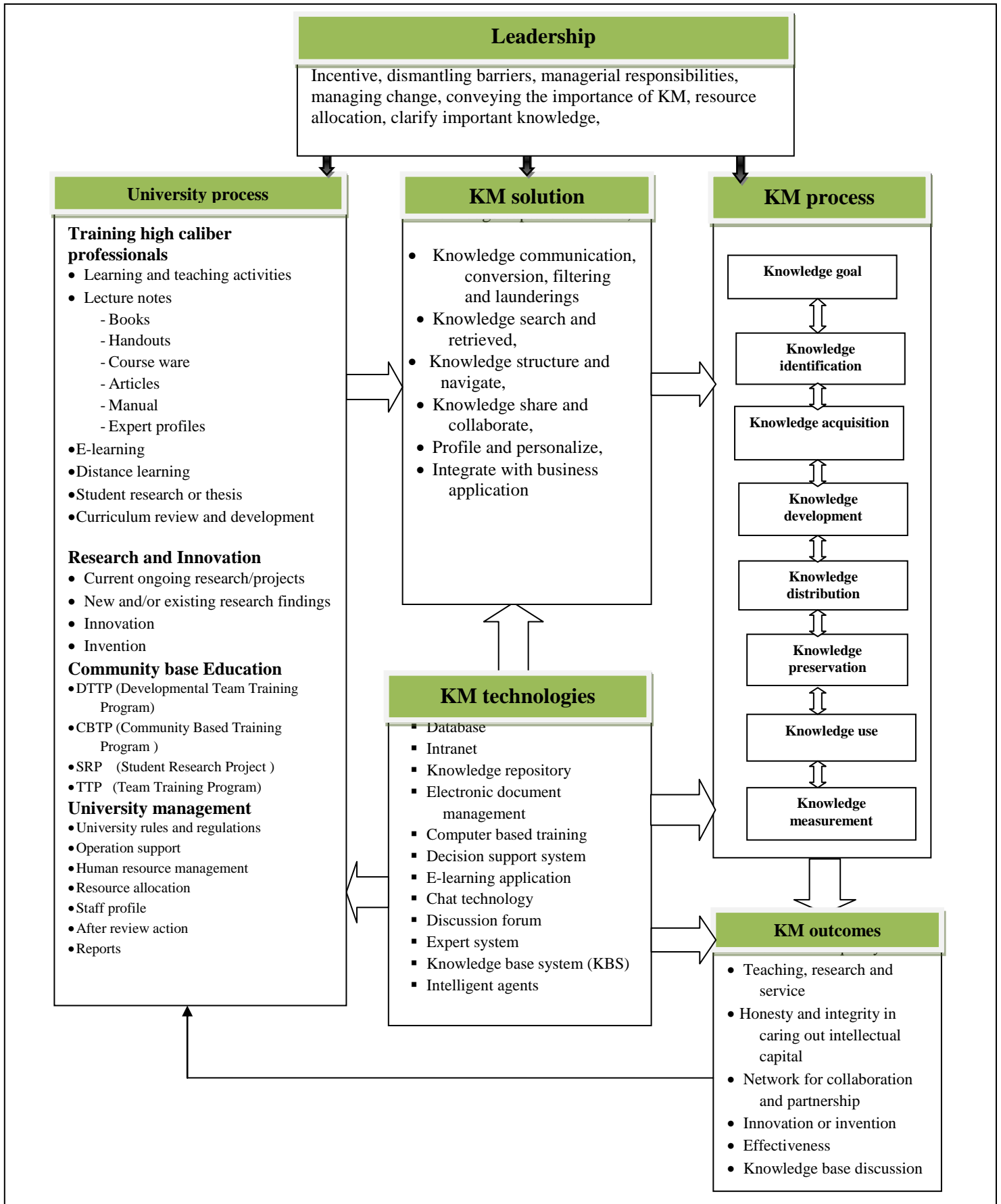


Figure 5.1 The Proposed Knowledge Management Guideline

In this study, a number of existing KM frameworks from the literature was reviewed and their capabilities were assessed upon their potential applicability to the university process and goal. Example Murray & Calabrese as cited in Stankoskys (2005), Lubega et al. (2011) and Probst (1998). Accordingly, the proposed KM guideline took into consideration the collective university knowledge resources (teachers, research and innovation, CoP and management support) in their day to day operation and integration of the four KM pillars. Moreover, the proposed guide attempt to consider and address the identified gaps.

Currently as per the knowledge of the researcher, there is no assessment tools and KM enabler factors and University performance designed to evaluate the HLI's in Ethiopian, the current study adapt the tool and enabler factors designed to business organizations and other institutions. However, if assessment tool and clearly identified the strong enabler factors where develop specifically to Ethiopian HLIs, the finding of the study would be more valuable and universities would help to facilitate to assess their intellectual capital and knowledge environment periodically. Thus, developing the assessment tool and clearly identifying the strong KM enabler factors to Ethiopian universities can be a future research area.

Moreover, the study finding showed only the extent and a significance difference between the academic and non academic study in the perceptions of the four KM pillars and KM practice in the university. Thus, the investigating the cause and effect can be a future research area by extending the inclusive criteria and including other subsystems and stakeholders of the universities.

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Appendix A: Self-administered Questionnaires

Jimma University

College of Natural Sciences

Department of information science

Questionnaire

I am Haftamu Ebuy, a post-graduate student at Information Science Department. Currently, I am doing my graduate thesis on assessment of Knowledge Management (KM) practice in Jimma University which will be an important input for organizational development of the University. I am requesting your kind cooperation to fill the self-administered questionnaire below as part of my research data collection. The questionnaire is designed to collect relevant information about your opinion (view) towards KM practice in your university. It is structured to assess KM practice using the four indicators of organizational KM practice which includes:

- **KM Learning:** issues related with how the organization views and facilitates both learning and innovation; the organizational behaviors and social engineering in relation to knowledge sharing.
- **KM Technology:** issues related with organizational infrastructures (information technologies and communication systems) that link staffs internally and to external knowledge sources; how the organization equips employees to communicate among each other and with external knowledge sources as well as the organizational system for the collection, storage and dissemination of information.
- **KM Organization process:** issues related with how the organization identifies and uses knowledge assets; the manner, in which the organization collects, adapts and transfers the necessary information and knowledge for its organizational operation.
- **KM leadership:** issues related with the potential and role of the leadership to achieve organizational success through improving organizational KM. It covers broad aspects of the role of the leadership for organizational KM including: KM strategy; how the organization defines its business, uses its knowledge assets, and quantifies its knowledge capital; and how resources are allocated to fuel organization's growth at environmental, strategic, and enterprise-level through decision-making processes.

Your responses will remain confidential and be used only for the purpose of the study. I highly appreciate your cooperation. I would also like to express my full confidence that you will take enough time & carefully complete this questionnaire which critical for validity and reliability of the study.

Thank you very much!

Part one: General Information

1. Job group	1= Academic <input type="checkbox"/> 2= Non-academic <input type="checkbox"/>
2. Sex:	1= Male <input type="checkbox"/> 2= Female <input type="checkbox"/>
3. Education Qualification	1= Diplôme <input type="checkbox"/> 2= BA/ B.Sc. MD <input type="checkbox"/> 3= MA/M.Sc. <input type="checkbox"/> 4= PhD <input type="checkbox"/> 5= Other <input type="checkbox"/> Specify-----
4. Years of experience at the university:	1=1-5 <input type="checkbox"/> 2= 5-10 <input type="checkbox"/> 3= >10 <input type="checkbox"/>

Direction: Read the statement below each part of the survey and evaluate according to your opinion. You can use “(√)” mark to indicate your argument for the statement or position from the alternative response. The scale is as follows with value and meaning assigned.

Scale	Value	Meaning Assigned
Strongly Agree	5	I strongly agree with the statement (position) to a very high extent
Agree	4	I agree with the statement (position) is true to some extent
Neutral	3	I don't have a position for the idea (the statement may or may not be true)
Disagree	2	I agree that the statement is not true to some extent
Strongly Disagree	1	I totally disagree with the statement

Part two:

I. Learning in KM Practice

Following are the statements that indicate the **learning in KM process**. According to your opinion please **PUT** (√) **symbol** in the suitable option.

5= strongly agree 4=Agree 3=Neutral 2=Disagree 1= strongly disagree

#	Statement/position	5	4	3	2	1
L1	Staff from all levels and in every position believes that they should share their knowledge and information for the success of knowledge exchange over the university.					
L2	Sharing of information and knowledge including personal best practices are common among the university staffs.					

L3	Staff encourages to publishing their knowledge on the university's database/website/intranet or other manual papers like best experience, technical procedures or manuals, project or research outcome, etc that others could access it.					
L4	Knowledge sharing across or within department in the university is actively encouraged and rewarded					
L5	There is an adequate sharing of experience, information, knowledge and working jointly across disciplines (among departments/colleges) in the university like, research, curriculum development, participating in a community of practice (a group of people who share a skill and/or a profession e.g. discussion board, newsgroup, project/research team).					
L6	The university is flexible regarding potential learning to answer internal and external environment requirements. (The university is open to adopt best practices of others)					
L7	The university continually facilitates means for new practices, and to change the previous practice, and re-learning for its staffs.					
L8	Staff directory and their academic and professional qualifications, skill & core competency levels and experience are organized and documented.					
L9	Expertise in department or college is easily located and easily accessed so as to connect staff in the university.					
L10	The university encourages individual experts to contribute time and expertise to support individual staffs and teams for purposes like consultation of research or project work, curriculum development, sharing best experience, etc.					
L11	The university has a program for keeping and transferring knowledge like, research conference, workshop, training, after project review, exit interview (staff interview when leaving from the university)					
L12	Setting workplace encourage interaction and free flow of information e.g. Informal meeting areas, open plan offices, project rooms					
L13	The university makeup is suitable in terms of hierarchy and communication flows that facilitate information and knowledge exchange.					
L14	Staff takes responsibility for their own learning like, trial and error and error (learning from mistake), through working with experts, attending conferences, workshop and training within or outside the university					
L15	The university facilitates knowledge sharing among experts and staffs through preparing experts profile and channels in relation to them, the meetings of argument, talking and exchanging ideas.					
L16	There are communities of practice within or outside the university and staffs are voluntarily participating in one of the community of practice with the same profession or across departments.					
L17	There is high interpersonal trust among the staff to share best practices, new ideas, research findings, etc.					
L18	Staffs adequately trust the institution (feeling of confidence and secure in institution e.g. Laws, regulation etc. are available to protect individuals right)					

II. Technology in KM process

Following are the statements that indicate the **technology in KM process**. According to your opinion please **PUT (√) symbol** in the suitable option.

5= strongly agree 4=Agree 3=Neutral 2=Disagree 1= strongly disagree

#	Statement/position	5	4	3	2	1
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T1	The university has an adequate Information Technology (IT) infrastructures which help the staff to organize, store and share information and knowledge like, intranet, institutional mail service, and database etc.					
T2	The existing technology can effectively link all members of the university to one another and to all relevant knowledge sources (to support staff's collaboration and facilitate communication and access information and knowledge).					
T3	The existing IT infrastructure can easily use and operated by the university staff. (The availability of technology promotes a blend of people orientation).					
T4	The university provides technology infrastructure based on the university staff skill and process point of reference (align with the university process).					
T5	The university has technology based central knowledge base (center) that is accessible to the entire staff of the university (to create, collaborate, develop and access information and knowledge)					
T6	There is enough sharing of readily available documents (e.g. Procedural manuals, rules and regulations, research and project findings etc.) and multimedia objects (e.g. Video clips) over the internal network or intranet					
T7	Staff adequately uses technology to share information and knowledge among or across department staffs (intranet, groupware, chat room, institutional website or mail etc.)					
T8	The existing technologies facilitate knowledge sharing and flow, and help to connect people within the university.					
T9	The university has user-friendly information technology systems which are used for knowledge sharing.					
T10	Staff easily access information and knowledge resources from the university repository (intranet, database, etc.).					

III. Organization in KM process

Following are the statements that indicate the **organization in KM process**. According to your opinion please **PUT (√) symbol** in the suitable option.

5= strongly agree 4=Agree 3=Neutral 2=Disagree 1= strongly disagree

#	Statement/position	5	4	3	2	1
O1	The university is concerned about creating, acquiring, and communicating knowledge and improving the re-utilization of knowledge.					
O2	There are well defined processes for the creation, capture, and acquisition of internal and external knowledge.					
O3	Information and knowledge are carefully codified and stored to make it available to those who can use it at a time and place that is appropriate for the staff (e.g. In databases, intranet documentation center like a library)					
O4	There is regularly updated and upgrade the content of the database, documentation center and intranet when new information and knowledge is added (e.g. New work procedure, research outcomes, best practices etc.)					
O5	There is a systematic way to guide staff to contact with experts or professionals and connect to the knowledge sources like database and documents in the university					
O6	Knowledge gaps are systematically identified and well-defined processes are used to close them.					
O7	The university has clear knowledge mapping assets and resources (the map shows what knowledge exists in the university and where it can be found e.g. knowledgeable persons/experts					

O8	There are formal and informal activities to encourage staff to share and document know how but not documented (knowledge of the individual acquired through experience and lessons learned)					
O9	Encouraging and guarantee the expertise to convert their know how (head knowledge) into written down and documented knowledge(explicit knowledge), e.g. via seminars (videoed),“how to” guides etc.					
O10	The organizational structure of the university is in-line with the university strategies, mission and vision and encourage learning					
O11	There is clear and defining the university’s position within the industry in terms of knowledge (produce manpower based on the industry demand)					

IV. leadership in KM process

Following are the statements that indicate the **leadership in KM process**. According to your opinion please **PUT (√) symbol** in the suitable option.

5= strongly agree 4=Agree 3=Neutral 2=Disagree 1= strongly disagree

#	Statement/position	5	4	3	2	1
LD1	The university has a clear convincing Knowledge vision that is actively followed					
LD2	The university top management believes knowledge management as a main skill which is needed for all managers at all levels					
LD3	A cohering and powerful vision of the university is shared across the colleges, departments and all levels of staffs to promote the need for strategic thinking at all levels.					
LD4	Individuals are hired, evaluated and compensated for their contributions to the development of organizational knowledge.					
LD5	The university follows the systematic management of organizational knowledge, e.g. new idea, innovation, invention, patent, best practice, research outcomes and community of practice.					
LD6	The university has the special person (e.g. Chief knowledge manager, knowledge editor, knowledge analyst etc.) to facilitate in establishing an environment in which staffs are encouraged to create, learn, share and use knowledge.					
LD7	The university management allocates resources toward efforts that measurably increase its knowledge base.					
LD8	Actively and effectively managing and measuring organizational structure and knowledge resource is central to the university strategy.					
LD9	Top management support and campaign for potential individual as well as organizational level learning (knowledge sharing among staff, across departments and between institutions)					
LD10	The university understands the revenue-generating potential of its knowledge assets and develops strategies for marketing and selling them (creates links with industries and communities outside the university to facilitate demand based research and innovation)					
LD11	The university is adequately using knowledge as source for increasing outcome through product or lateral service. (Selling of research and project outcome to industry or community as a service.)					
LD12	The university management support and encourage community of practice and informal association when it exists (by resource, recognition etc.)					
LD13	The university has a clear policy in controlling staff retain (proportional contractual argument after capacity building like training, continuous education)					
LD14	All levels of managers and other staffs will be responsible for learning the principle of knowledge management techniques and developing those techniques.					

Ranking of the existing and desired condition of KM

1. In the current KM practice of Jimma University which aspect (indicator) has gaps (problems)? (Rank from the most problematic ‘1’ to the least’4’).

Indicator	Rank
Learning	_____
Technology	_____
Organization	_____
Leadership	_____

2. Of the four indicators of organizational KM, which on should be more prioritized to improve KM practice of Jimma University in the future (Rank them from the most priority ‘1’ to the least’4’).

Indicator	Rank
Learning	_____
Technology	_____
Organization	_____
Leadership	_____

Appendix B: In-depth Interview Guide

Jimma University

College of Natural Sciences

Department of information science

In-depth interview guide

1. Does the university have systematic processes for gathering, organizing, exploiting, storing and protecting key knowledge assets? E.g. research or/and project finding, new idea, innovation, learning and community of practice
2. Does the university have expert profile (expert directory) to locate expertise and professionals to facilitate communication and sharing of information and knowledge across the university through socialization.
3. Is knowledge sharing across departmental boundaries actively encouraged and rewarded? E.g. cross department sharing,
4. How does the university staff conduct research or project and communicate the finding
 - Are there research collaborations among department or colleges?
 - How the university facilitates and incentive researchers towards result-oriented research to investigate or find tangible research outcomes?
 - How research findings and innovations are communicating across the university
5. Does the university measure and manage its intellectual capital (IC)?
6. Does the university have IT-based KM tools such as: knowledge repositories, decision support and expert systems, e-learning applications, chat technologies, data mining, database, intranet) which facilitates knowledge process in the university?
 - Technology for capturing and storing, searching and retrieving, send critical information to individuals or groups and share and collaborate knowledge process across the university.
 - Why staffs need to have organizational email? What users can got advantage having the institutional mail

Thank you very much!

Appendix C: Sample Size Determination

Sample size determination

The sample size were calculated using Ann Cochran’s sample size formula. To determine the sample size the researcher set .05 the alpha level plans to use a proportional variable, has set the level of acceptable error at 5% and has estimated the standard deviation of the scale at 0.5.

$$n_0 = \frac{(t)^2 * (p) (q)}{(d_0)^2}$$

Where:

t= 1.96 value for the selected alpha level of .025 in each tail
(95% confidence level)

(p) (q) = estimate of variance = .25.

(Maximum possible proportion (.5) * 1-maximum possible proportion (.5) produces maximum possible sample size).

d= acceptable margin of error for proportion being estimated = .05
(Error researcher is willing to accept).

Therefore, the value of n_0 were calculated as follows

$$n_0 = \frac{(1.96)^2 * (0.50) (.50)}{(0.05)^2} = 384$$

However, since the sample size exceeds of 5% of the population ($3246 * .05 = 162$), Cochran’s (1977) correction formula should be used to calculate the final sample size. The calculation is as follows.

n_0

$$n_1 = \frac{n_0}{(1 + n_0 / \text{population})}$$

Where

Population size = 3246

n_0 = required return sample size according to Cochran’s formula = 384

n_1 = required sample size because sample > 5% of the population

Therefore n_1 calculated as follows:

$$n_1 = \frac{384}{(1+384/3246)} = 343.456$$

The researcher assumes a response rate of 95%, a minimum drawn sample size will be calculated as follows:

$$n_2 = \frac{n_1}{\text{Anticipated return rate}}$$

$$n_2 = \frac{344}{.95} = 362.1052$$

Therefore, the sample population to study is 363. While, the population will group into academic and non-academic staffs; also, the sample population of each group was calculated through proportional sampling technique, so, 168 and 196 sample population was taken from academic and non-academic staffs respectively.