The Practices and Prospects of Knowledge Management in Ethiopian Knowledge-Intensive Organizations:

The Case of Ethiopian Civil Service College and Ethiopian Management Institute

A Thesis Submitted to the College of Graduate Studies

Addis Ababa University

In Partial Fulfillment of the Requirements for the Degree of Master of Arts

in Human Resource and Organizational Development in Education

By

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May 2011

Addis Ababa University

College of Graduate Studies

The Practices and Prospects of Knowledge Management in Ethiopian Knowledge-Intensive Organizations: *The Case of Ethiopian Civil Service College and Ethiopian Management Institute*

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Acknowledgments

My deepest gratitude is extended to my advisor Dr. Zenebe Baraki for providing me with valuable and timely advice and encouragement in this endeavor. His kindness and thoughtful critiques were paramount and made the breadth and depth of the research. I'm sincerely thankful for that.

A special thanks goes to my organization, Ethiopian Management Institute for allowing me pursue this master program. The institute was a good learning place and had always been helping whenever I need assistance. The support and understanding of all my colleagues and supervisors was also an asset throughout this research work.

This paper could not have been materialized without the cooperation of both Ethiopian Management Institute and Ethiopian Civil Service College management and employees. Besides, all individuals who were willing to participate in the study have made contribution for its success. Their willingness, enthusiasm, and cooperation were also invaluable and will always be remembered. I am especially thankful to Hanna, for giving me all relevant information about the ECSC's current reality.

Finally, I truly appreciated the loving support and understanding of all my family and friends. Their sympathy and encouragement have given me the strength and perseverance to complete this study.

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Acronyms

APQC:	The American Productivity and Quality Centre
BPR:	Business Process Reengineering
CMM:	Capability Maturity Model
DLC:	Development Learning Center
ECA:	Economic Commission for Africa
ECSC:	Ethiopian Civil Service College
EMI:	Ethiopian Management Institute
G-KMMM:	General Knowledge Management Maturity Model
HRD:	Human Resource Development
HRM:	Human Resource Management
IPMDS:	Institute of Public Management and Development Studies
IT:	Information Technology
KIM:	Knowledge and Information Management
KM:	Knowledge Management
KMAT:	Knowledge Management Assessment Tool
KMC:	Knowledge Management Culture
KMD:	Knowledge Management Documentation Methods, Procedures and Processes
KML:	Knowledge Management Leadership
KMM:	Knowledge Management Measurement
KMP:	Knowledge Management Process
KMS:	Knowledge Management Strategies/Policies
KMT:	Knowledge Management Technology
KMTD:	Knowledge Management Training and Development
KPA:	Key Performance Areas
MD:	Management Development
MKMAT:	Modified Knowledge Management Assessment Tool
RPCO:	Research Publication and Consultancy Office
SPSS:	Statistical Package for Social Sciences

Abstract

This comparative evaluation study has been planned to assess the practices and prospects of KM in Ethiopian knowledge-intensive organizations at specific research area of ECSC and EMI. Both primary and secondary sources of data were gathered through questionnaire, interview, document analysis, and observation. 80 EMI and 194 ECSC knowledge workers were selected through stratified sampling technique to fill the questionnaire while 4 EMI's and 6 ECSC's higher officials were purposefully chosen as interviewees. Percentage distribution, standard deviation and mean score descriptive, and one sample t-test, independent sample t-test and regression analysis inferential statistics were used to deal with quantitative data. Qualitative information were also narrated and thematically presented through the three step analysis process to triangulate the overall result. Officials and majority of respondents, i.e. 64.8% agreed that the two organizations have no integrated KM practices though there are little initiatives for different reasons. Meanwhile, participants (77.2% of ECSC and 80% of EMI) have aspired to have a KM system in the future. The two organizations have no significantly different practice in KMP, KMM, KMTD and KMD KM perspectives. Comparatively better KMC and KMS are found in EMI while KML and KMT are being well practiced in ECSC. Both organizations have no written KM policy and strategy though EMI has KM work unit and a planned knowledge bank system. Regarding their KM maturity as per the G-KMMM, ECSC is at the second, awareness stage both in people/organization and management system/process dimension, while at the fourth, managed level, in the technology perspective. On the other hand, EMI is in the third, defined stage both in people/organization and technology dimensions while it's at the second, awareness stage in management process/strategy aspect. The total picture of the two entities is manifested by the second, awareness stage of KM maturity. Besides, the eight KM dimensions have significant positive relations with the current maturity levels as per their related key maturity areas in G-KMM model. Regarding the knowledge sharing practices, EMI and ECSC have been using different interventions procuring both pull and push strategies. Majority of the respondents (47.8% of ECSC and 47.5% of EMI) are not agreed with the existence of resistance for KM initiative in both institutions, however problems related with culture, leadership, capacity development, absence of motivational tools, employees' attitudinal problem and inconsistency of KM tasks are raised as a major impediments. Generally one can conclude that KMP, KML, KMM, KMTD and KMD areas are developmental and needs improvement in the future while the rest can be taken as strong KM perspectives. Exploitation KM strategies of explicit intellects has characterized the current practices with realistic implication for other similar organizations. Thus the organizations need to plan long, intermediate and short term interventions to improve their KM practices. Maintaining strong and developing weak areas towards solving challenging situations can give a bright prospect for the next KM activities.

Chapter I
Introduction

1.1 Background of the Study

The landmark of modernization and advancement, industrial revolution, has played a dominant role in the scientific and technological developments of the globe. As the time goes on, its derivative innovations have apparently transformed countries to the new paradigm of politics, leadership and management. Meanwhile success gained in the effort has unavoidably brought civilization into live with variety of life changing technological resources and scientific findings.

This remarkable turning curve in humans' history has also put an implicit demanding rule on organizations to pursue better ways of achieving results than ever before. Different management thoughts and practices have then been developed at different times to ensure success based primarily on the finite resources available. As the development hassled, the earlier manufacturing/product lead economy has started to let space for recent technology driven thoughts. It is thus the shift in the current market characterized by increased business competitiveness, learner organizations, vast products and services, convergence, and huge deployment of technology (Davenport & Prusak, 1998).

In this new knowledge economy, everyone put its faith at the verdict of intellectual capital and the knowledge power it has to win over the competitive environment. According to Leonard (as cited in Binney, 2001), Firms are knowledge as well as financial institutions. They are repositories and wellsprings of knowledge. Consequently the future organizations will hinge on prior information and knowledge to beat their challenges and fulfill customers' demand.

Many have written on the secrets of managing intellectual resources besides to the number of researches made on the subject matter. Previous works had a tendency of emphasizing the technical aspect of knowledge management (Robertson & Hammersley, 2000). That is why several knowledge management concepts exist as part of information management literatures. Recent endeavors however have mitigated such views with stressed balance on the people dimension.

For most of the writers, knowledge management is the collection of tools, techniques, and strategies to retain, analyze, organize, improve and share organizational expertise (Groff & Jones, as cited in Dalkir, 2005). But some says that Knowledge management is not really about managing knowledge, but rather managing and creating a corporate culture that facilitates and encourages the sharing, appropriate utilization, and creation of knowledge that enables a corporate strategic competitive advantage (Steven, 2005).

In Ethiopian context, despite of its strategic importance, knowledge management is one of the most neglected management concepts with limited level of implementation. It might even be a new notion for some of our organizations. Absence of vast research works in the field is part of the manifestations of this little concern. However the fact is that both public and private entities have to have a room for their collective knowledge and a means to purposefully managing it. Particularly knowledge-intensive institutions with a prime duty of creating, storing, and transferring knowledge have the potential to play metaphorical role for other organizations. In this regard, Ethiopian Management Institute (EMI) and Ethiopian Civil Service College (ECSC) are one of the promising capacity building centers of the country with a mandate of transforming the management system of the civil service and pubic organizations through need based problem solving interventions.

Specifically, ECSC has started operation in 1995 and has envisioned for excellence in public sector capacity building. Its mission is capacitating the public sector through education, training, research, consultancy and professional certification services. Relatively with longer age, the history of EMI goes back to the 1950s where by the need to introduce modern management systems were recognized. The institute aspires to be a world class center for management development that flourishes the efficient and effective services delivery of clients. It has also a mission of supporting public and other institution to provide sustained, efficient and effective services by rendering state-of-the-art training, research and consultancy.

Apart from other organizations, knowledge management endeavors are expected to be well established in such institutions given their academic work environment and area of responsibility. Hence assessing the practice they have in the field and show the prospect that

knowledge management has for future engagements is important to share experience and advocate its basic essence for the rest firms of the nation.

1.2 Statement of the Problem

Survival and what is more challenging the future requires organizations to possess special resources and capabilities which are inimitable, scarce, non-substitutable, and can add value to their basic operation (Pena, 2002). The current ever changing organizational landscape and globalization demands particularly knowledge-intensive institutions to give attention for what has already been ignored in the past, the knowledge found in their every employee's mind.

There are a lot to be dealt with regarding knowledge management in Ethiopian organizations' context. Little consideration for the knowledge and intellectual capital they have is the prime fact exist along with the inappropriate way of creating, storing and sharing knowledge with the intent of forming learning organization. As Workineh et al. (2010), affirmed, most of the Ethiopian organizations don't have a well articulated KM system and documented strategy to facilitate the process. The awareness level of some managers and employees can also be put in question since information technology and automation will cross many minds when the idea of knowledge management raise.

Strategies are required to make a wise move in any of organizational engagements. According to Soliman and Spooner (2000), intellectual assets and resources can be utilized much more efficiently and effectively if organizations apply knowledge management techniques for leveraging their human resources and enhancing their personnel management. Formulation and implementation of knowledge management strategies at its different developmental stages requires firm focus and rational insight for both internal and external situations. Absence of a strategy, as Workineh et al. (2010) said, in most of Ethiopian organizations, can be one area of restraint to fully exercise knowledge management.

Conducive work environment and organizational culture is important to gain the result we aspire in KM efforts. Organizational culture is particularly formed and reinforced through the interrelated elements of strategy, structure, people and process (Sanchez, 2004). Poor setup and hindrance in the societal values, norms and collective assumption could adversely affect the

process. Along with this, the leadership paradigm has a major impact on KM practices. As Chawla and Joshi (2010) said, the achievement level attained by organization's KM endeavor is highly related with their effectiveness in the leadership aspect. Revealing the state of Ethiopian knowledge-intensive organizations in these two perspectives is thus the other important concern for future remedies.

Integrated practices of KM are expected to focus on the intellect found in humans' mind and support its management through technological tools (Robertson & Hammersley, 2000). This magnifies the contribution of training and development either for capacitating peoples in new areas or for enhancing their previous knowledge to make them better suppliers of intellectual assets. Thereafter measuring the process, individuals' performance and make adjustment both in hard and soft metrics becomes crucial dimension of KM (Arora, as cited in Chong et al., 2006). Incentive and motivational tools available to boost employees' moral for their effort of facilitating knowledge is also critical instrument to immerse professionals/knowledge workers in the system. Thus the three components, technology, training and development, and measurement have to be in place for successful KM in Ethiopian knowledge-intensive entities.

Maturity levels of organizations have also an impact on the success level of knowledge management. Kulkarni and Louis (2003) suggested that it is one success factor for organizations knowledge management with a quantifiable tool to clearly identify the real picture of where organizations are in the maturity level and to which extreme side that they should head in the future. Organizations have to know their levels to prescribe the correct approach as per their scenario.

Finally, being at its infancy stage of development in Ethiopian context could bring additional problems to obstruct KM applications for better result. Besides, the little number of studies conducted on the subject matter has not been enough to see its practice as per the countries' prevailing facts. Here was thus the reason for conducting the paper, to watch for the practices that our professionally knowledge-intensive institutions have in the aforementioned issues and their prospects in the future.

Accordingly, knowledge management perspectives, organizations' maturity level, challenges and obstructions with different mechanisms of knowledge sharing, as indicators of the current practice and the future trend, was important concerns of the study. Given these facts, the study has answered the following basic research questions regarding the selected institutions.

1. Is there an integrated and well established KM practices in EMI and ECSC? If so what were the rationales for implementing KM?
2. What are the prospective/strong and developmental/weak areas of KM in EMI and ECSC?
3. At which level of knowledge management maturity do the two organizations currently exist? To what extent do the practices in different KM areas predicate the organizations' current KM maturity level?
4. What are the methods and strategies currently being advocated to facilitate knowledge sharing in the two organizations?
5. What are the major challenges and impediments in the current knowledge management practices of EMI and ECSC?

1.3 Objective of the Study

The general objective of this research was to examine the practices and prospects of knowledge management in Ethiopian knowledge-intensive professional institutions at a specific research area of Ethiopian Management Institute and Ethiopian Civil Service College. Specifically the study has tried to:

- Explore the rationales for implementing knowledge management and result gained in the process.
- Locate strategically prospective and development areas of knowledge management for future engagements.
- Determine the knowledge management maturity level of the two organizations and where they are heading for the future.
- Assess the systems established and used to foster knowledge sharing.
- Pinpoint existing problems and challenging situations in relation with knowledge management.

1.4 Significance of the Study

It will not be as such a surprise to say knowledge management is a fresh notion presented for most of Ethiopian organizations. Though the practice had been undertaken in some engagements, it might not have been part of the organizations deliberate move to take advantage on taking care of their intellectual asset.

Thus the research will primarily give first hand information on the status of those selected organizations in managing their knowledge. Specifically the strategic strength and weak sides, the knowledge sharing mechanisms, maturity level and current problems will confer valuable insight on the internal knowledge management practice of the institutions. Such contribution will also open the gate for further investigation to smooth the existing system and create optimistic future by the institutions.

Furthermore, the novelty of the research in its kind will add fresh insight and share experiences of knowledge management from the Ethiopian real managerial context. Academician in this regard will be benefited and can draw live issues of the current practices directly from the paper. Finally, the findings will attract individuals especially educators, program designers, organizational administrators, and others to conduct further study on the subject matter.

1.5 Delimitation of the Study

Due to limited resources, shortage of time and other factors the research has mainly focused on assessing the current practices and the future fate of knowledge management in two selected Ethiopian knowledge-intensive professional organizations. Thus further investigation might be required to verify the conclusiveness of the findings in other similar institutions. Besides, the study has set first priority for the people dimension and related success factors. Some crucial elements like, culture, leadership, and technological concerns are treated separately as important perspectives of the broad knowledge management.

1.6 Limitations of the Study

There have been a lot challenges while conducting this study. Above all winning the consent of individuals to be a respondent was difficult since there is engraved hate for filling questionnaires

regardless of their purposes. Returning correctly filled questionnaires back to the study consumption was also demanding and took more time than what it should take in positive circumstances for research. The deep rooted poor practice of Ethiopian organizations towards maintaining documents safely for long has also been the main challenge that the researcher faces while searching for early attempts and decisions made on KM. in this regard only one documented forum has been found in EMI. Lastly those expected time and financial problems have put their own pressure on the research.

In order to maintain the quality of the findings and achieve concrete result however, the researcher has taken measures to overcome the limitations. Passing through officials and some cooperative people is the strategy used to get the free will of employees to participate in the study. Unremitted effort has also been exerted to collect all the questionnaires back to the study on time. Looking for personal financial sources and spending more time on the endeavor has also been a strategy to overcome other challenges and finalize the research without compromising the central theme, quality.

1.7 Operational Definition of Terms

The following terms and concepts concerning KM are defined operationally as they have been used throughout the paper.

1. **Balanced Score Card:** A measurement and management system that enables organizations to clarify their vision and strategy and translate them into action. It provides feedback around both the internal business processes and external outcomes in order to continuously improve strategic performances and results.
2. **Culture:** A people's ways of being, knowing, and doing; all the accumulated habits, attitudes, and beliefs, knowledge, behavior characteristic and values shared by a cohesive group or organization.
3. **Knowledge Management Maturity:** The state of being developed; attainment of a desired KM goal when growth and progress toward that goal have been successfully completed in.

4. **Knowledge:** Subjective and valuable information that has been validated and that has been organized; used to make sense of our world; typically originates from accumulated experience; incorporates perceptions, beliefs, and values.
5. **Knowledge Management:** The deliberate and systematic coordination of an organization's people, technology, processes, and structure in order to add value through the promotion of creating, sharing, and applying knowledge.
6. **Knowledge Worker:** Professionals who are relatively well educated and who create, modify, and/or synthesize knowledge as a fundamental part of their jobs.
7. **Knowledge-Intensive Organizations:** Organizations that operate with the power of intellectual capital gather and apply new information and knowledge to guarantee success both for their internal operation or their client institutions.
8. **Incentive/Reward:** The act of giving compensation, money or anything else of value, in recognition of someone's behavior or actions to reinforce good behavior.

1.8 Organization of the Thesis

The paper is comprised of five chapters in order for the researcher to structure the study in a comprehensive and logical manner. Accordingly, the first chapter is the introductory section to give a background, research objective, significance and other related facts of the study. In the second chapter, past literatures related to knowledge management are reviewed to acquaint readers with previous works and laid a logical foundation for the study carried out. The research design and methodology is the title of the third chapter with the intent of giving information on how the research has been designed and the data collected, analyzed and presented to finally forward reliable and valid result. The fourth chapter is the presentation and analysis of data in order to let the readers know how respondents reflect on the problem and the inference that could be made on it. The last and fifth chapter of the study, conclusion and recommendation, has summarized the result, forwarded conclusion and recommendation and finally culminated the study.

Chapter II
Review of Related Literature

Knowledge driven economy and an increased priority of intellectual asset for organizational performance has triggered many to further explore, scrutinize and write on the secrets of knowledge management. Assessing the practice, testing its strategic importance, leveling firms based on some standard, and tracing around side issues like culture, leadership, and technology were some of the focal points for knowledge management researchers. Many of these frameworks vary in scope and goal; however have contributed a lot for the conceptualization and increased role of knowledge on nations' economy and organizational operations.

Prominent works made by Dalkir (2005), Nonaka and Takeuchi (1995), Soliman and Spooner (2000) Walczak (2003), Walczak (2005), Purcidonio et al.(2006), and Hovland (2003), have sensible input while evaluating knowledge management practices of professional organizations. Probing recent papers have also revealed remarkable insight on the current performance with great magnitude of important findings of knowledge management. Reviewing thus, these and some other prior works made is a milestone to trace previous findings and base the research on relevant theoretical and scientific concerns to finally pass sound judgment. Accordingly, literatures pertinent to the problem at hand are presented in this chapter.

2.1 Basics of Knowledge Management

2.1.1 What Is Knowledge?

Many have described this buzz word, knowledge, in their own terms since long ago. One of the writers, Sveiby (2001), in this regard has placed it into two extreme polar, object and process. The object view take knowledge as investment in technology and the process side concerns on investment on people and their intellectual competency. As Sveiby said, however the existing implicit paradigm is that knowledge is some kind of advanced information found in organizational routine.

Knowledge can also be taken as a stage in the information lifecycle continuum stretched from data to wisdom (Purcidonio et al, 2006). Edwards (as cited in Purcidonio et al., 2006) strengthen

this point by distinguishing raw information from knowledge as an introductory step to clutch the concept at a grass root level. For Nonaka and Takeuchi (1995), information prevail new point of view for the interpretation of events, provide visible meanings out of the raw fact, data and is the base for extraction and building of knowledge.

Knowledge on the other hand is defined as a mixture of condensed experience, values and information which makes a structure for evaluation and judgment (Davenport, 1999). According to Sanchez, Heene, and Thomas (as cited in Soliman & Spooner, 2000), knowledge is the ability to sustain the coordinated deployment of assets and capabilities in a way that promises to help the firm achieve its goals. For Marchand (1998), knowledge is personal and resides in people, and information is embodied in written documents and verbal messages. It is through information that we develop new knowledge. As per the Marchand's explanation, the processes of conversion from information to knowledge and vice versa ought to be a key part of any business strategy. Walczak (2005) has also said knowledge is any data, skill, context, or information that enables high quality decision making and problem solving to occur.

Similarly, Nonaka and Takeuchi (1995) has said, Knowledge is a dynamic, ever-changing human process to justify the personal belief regarding to the truth. There are two types of knowledge highlighted by Nonaka and Takeuchi (1995): The explicit knowledge can be expressed in words and numbers, and easily communicated and shared under the form of raw data, scientific formulas, codified procedures or universal principles, and the tacit knowledge is highly personal and difficult to be formalized, transmitted and shared with others. The tacit knowledge is deeply rooted in the actions and experiences of an individual, as well as in their emotions, values or ideas. As the authors said, discovering and using tacit knowledge is very challenging and demands open culture and good rapport among organizational members.

However as said by Pena (2002), there is no such a thing as the organizational knowledge by itself, for this knowledge is the addition of knowledge of the individuals that take part in the organization, being result of a continuous and dynamic interaction between the tacit knowledge and the explicit knowledge, still, with the inclusion of technology to make its allotment easier and not to replacing its human origins. Hence, as per these views knowledge could be regarded

as one could have while understand the pattern and structure of certain information and experience evaluation and judgment basing the facts.

2.1.2 Knowledge Management

This is the era of knowledge, in which the creation and management of it have become the central aspect of decisions and economic growth (Purcidonio et al., 1998). As many authors agreed, knowledge management is a relatively new concept in the literature of management research. However, an increasing number of organizations are now viewing management of the collective knowledge they have as a key competitive tool from which innovation can emerge, and encouraging, supporting and rewarding collaboration between people can settle (Soliman & Spooner, 2000). As Hovland (2003) states also, many organizations in the corporate sector look to knowledge management as a solution to the new challenges of the information age and it is becoming core assets for businesses for being successful.

There are likely different distinct perspectives on KM, and each leads to a different extrapolation and definition (Dalkir, 2005). From the business perspective, Knowledge management is a collaborative and integrated approach to the creation, capture, organization, access and use of an organization's intellectual assets (Grey, as cited in Dalkir, 2005). On the other hand from the process/technology point of view, Knowledge management is the concept under which information is turned into actionable knowledge and made available effortlessly in a usable form to the people who can apply it (*Information Week*, as cited in Dalkir, 2005).

Though critical issues have been inculcated in the two definitions, the blend of ideas and research findings have lead others also to see the concept from different perspective. For Walczak (2003) for instance, Knowledge management is any process (either formal policy or informal personal methods) that facilitates the capture, distribution, creation and application of knowledge for decision making. This decision making may be at the tactical level of day-to-day operations performed by an employee or at a more strategic level of developing organizational strategy by top level management and every level of decision-making in between. Effective knowledge management ensures that every employee has access to appropriate and the highest quality of information available at the time when a decision needs to be made (Walczak, 2003).

According to Davenport and Prusak (1998), knowledge management is systematic, explicit, and deliberate building, renewal and application of knowledge to maximize knowledge-related effectiveness of an organization and return from its knowledge assets. It is also a process of capturing collective expertise wherever it resides and distributing to wherever it can provide to performance enhancements (Wiig, 1997). Moreover, knowledge management is a systematic management of organizational knowledge which involves the processes of creating, gathering, organizing, storing, diffusing, using and exploitation of knowledge for creating business value and generating competitive advantage (Chong et al., 2006).

For Gouvinhas (as cited in Purcidonio et al., 1998), Knowledge management is the process through which the generation, storage and sharing of valuable information, insights and experience is supported, inside and between communities of people and organizations with similar interests and necessities. Similarly, Terra (as cited in Dalkir, 2005), said KM must be related to seven dimensions that evaluate the existence of action, values, rules and compatible mechanisms with the implantation of management systems that involve three different levels of the managerial practice: the strategic, the organizational and the structural ones.

These definitions have shared some common fact about KM, it's a source of competitive advantage in the new knowledge driven economy and relies on the people dimension of the organization and their intellectual asset with lower attention for automation and technological implementation of Knowledge management.

2.1.3 Knowledge Management Frameworks

Soliman et al. (as cited in Soliman & Spooner, 2000) described the processes of managing the human resources knowledge in organizations as the means by which value is added to raw facts (input) in order to create processed knowledge (outputs). Hence, Knowledge management activities should result in improving productivity, enhancing the business environment and increasing levels of innovation (Soliman & Spooner, 2000). These activities may also assist organizations to address management problems on local and global levels, and transform managers into knowledge practitioners or facilitators, with responsibility for developing employee competence (Gustafson & Kleiner, 1994).

Vincenti; Faulkner; and Coombs and Hull (as cited in Soliman and Spooner, 2000) classified these knowledge management activities and associated practices under the three headings: knowledge processing; knowledge domains; and knowledge formality. On the other hand, according to The ECA report (2001), Knowledge activities can be divided into two broad classic categories: process-oriented and practice-oriented. Process-oriented practitioners posit that tacit knowledge can be downloaded from the brains of people through formal interviews and meetings, codified, stored and reused profitably. Under this paradigm, knowledge management takes the top-down, technology-focused approach.

When the report continues, individually insignificant best practices scattered around an organization or nation, add up to an enormous amount of knowledge, and therefore posit that knowledge management must be bottom up and must foster knowledge by responding to the inventive, improvisational ways people actually get things done. The emphasis here is on practice rather than process. Holsapple and Singh (2003) identifies primary knowledge manipulation activities (e.g. knowledge acquisition and knowledge selection), and secondary managerial activities (e.g. knowledge leadership and knowledge coordination). Wiig (as cited in Dalkir, 2005) proposes also the three KM pillars which represent the major functions needed to manage knowledge. The pillars are based on a broad understanding of knowledge creation, manifestation, use, and transfer. Meanwhile, the Barton-Leonard (as cited in Dalkir, 2005) model highlighted a KM framework which comprised of four core capabilities and four knowledge building activities which are crucial to a knowledge-based organization. Arthur Andersen and APQC (as cited in Dalkir, 2005) have advanced a model comprised of seven KM processes that can operate on an organization's knowledge: create, identify, collect, adapt, organize, apply, and share.

2.2 Knowledge Management Perspectives

Different authors have identified various but related KM dimensions for its successful result. As to Anantatmula and Kanungo (2010), the relations between what KM can influence and the aspects that influence KM are numerous and complex. Accordingly, they highlight factors as important determinants of KM: leadership, technology, culture, and measurement. Leadership is one of the most important one among the four enablers.

Another study (Elliott and O'Dell, as cited in Anantatmula and Kanungo, 2010) considered culture, technology, infrastructure, and measurement as four key enablers of KM, and maintained that each is essential and they work together to yield the sustainable success of KM. The study by Yu et al. (as cited in Chog et al., 2006) found that KM drivers such as learning orientation, knowledge-sharing intention, knowledge management system quality, reward, and knowledge management team activity are significantly related to the organizational knowledge management performance. Hariharan (as cited in Alavi & Leidner, 2001) proposed also seven enablers of KM: strategic focus, alignment with objectives, KM organization and roles, standard KM processes, culture and people engagement, content under scrutiny, and technology enablement. The following key dimensions are selected and further explored.

2.2.1 Knowledge Management Processes

In general, most organizations would utilize five processes for knowledge management in order to: create; capture; organize; access; and use knowledge (Soliman et al., as cited in Soliman & Spooner, 2000). Similarly, Hooff et al. (as cited in Anantatmula & Kanungo, 2010) identify processes that KM should focus upon, i.e. determining what knowledge is needed and how that knowledge is developed, accessed, shared, applied, and evaluated. O'Dell and Grayson (2003) illustrate a comprehensive framework that includes the knowledge life cycle and the cultural and structural environment necessary for effective and successful KM processes. As part of this framework, they identify using; creating; identifying; collecting; organizing; sharing; and adapting knowledge management processes.

On the other hand, there are five steps process of knowledge creation: socialization, creating tacit knowledge through interactions, externalization, articulating tacit into explicit knowledge, combination, assembling explicit knowledge into systemic knowledge and internalization converts explicit into tacit knowledge (Serrat, 2008; Nonaka & Takeuchi, 1995). In an alternative framework, Biloslavo and Trnavcevic (2007) propose generation; storage; transfer; and usage processes. In a third framework, Burnett et al. (2004) suggests: knowledge acquisition and learning; storage and maintenance; application and exploitation; dissemination and transfer; knowledge creation; and performance measurement. The above processes represent different terminologies, and at times somewhat diverse perspectives. But the major work considered here

is the Dalkir (2005), found in his book *Knowledge Management in Theory and Practice*. As per his explanation, the process of knowledge management can be separated into two major parts: the co-ordination processes and the operational processes.

The co-ordination of KM activities is the very centre of all other activities as everything is initiated and controlled from here (Dalkir, (2005). The first step is *analysis* of the current state comprising scope definition, generation of knowledge maps, and analysis of culture specific tasks. Thereafter, *defining* the desired state, and *planning* how the defined goals are going to be reached will follow. In the last *effect* step, piloting, measurement, monitoring, feedback evaluation and updating will be done. Similarly, operations process of KM starts on *Identification of Need for Knowledge* to allow an accurate search for knowledge or a need-driven creation of new knowledge. *Creation of Knowledge, Knowledge Collection and Storage, Sharing and transfer* through either the active pull and/or the passive push strategies, *Learning and Knowledge Update* are also the rest components.

2.2.2 Cultural Dimension

Culture appears to be a common enabler of KM in several research studies. Hofstede (1994), defines culture as the collective programming of the human mind that distinguishes the members of one human group from another as system of collectively held values. Similarly, the GLOBE study (Global Leadership and Organizational Behavior Effectiveness Research Program) describes culture as "*shared motives, values, beliefs, identities, and interpretations of meanings of significant events that result from common experiences of members of collectives and are transmitted across age generation*" (House et al., 2004, p. 57). Organizational culture has also been characterized as the glue that holds organization together (Balthazard & Cook, 2004).

Gold et al. (2001) identify culture as an important infrastructure component that positively influences organizational effectiveness. A knowledge-friendly organizational culture is one of the most important conditions leading to successful KM initiatives in organizations (Davenport & Prusak, 1998). The presence of a "knowledge culture" is critical to the success of knowledge management within an organization (DeLong & Fahey, 2000; Nahm et al., 2004) as it signals a managerial commitment to knowledge management initiatives and promotes sharing of tacit knowledge for higher quality decision-making. Organizational culture is formed and reinforced

through the interrelated elements of strategy, structure, people and process (Sanchez, 2004). Culture is also accepted as a fact of organizational life by managers and has become an integral aspect of many organizational development programs. As of Balthazard and Cook (2004) certain types of organizational cultures have been associated with either positive or negative outcomes for both the effectiveness of the organization and for individual employees within the organization. Positive outcomes for individuals might include motivation and satisfaction while negative outcomes for individuals might include job insecurity and stress.

All in all, the need for developing a "knowledge culture" is obvious for most service organizations like that of the product of a consulting firm is knowledge (Walczak, 2003). As of him, achieving a "knowledge culture" requires managerial focus in three areas: preparing the organization, managing knowledge assets, and leveraging knowledge for competitive advantage. In addition, Hooff et al. (as cited in Anantatmula & Kanungo, 2010) argues that openness, respect and communication climate are preconditions for a culture in which mutual trust is created and new ideas and experiments are encouraged.

2.2.3 Knowledge Management Strategies

According to Hovland (2003), raw information may be widely available to a number of agencies, but only some organizations will be able to convert the information into relevant knowledge and to use this knowledge to achieve their aims. The processes by which they do this are known as knowledge management strategies. As (McElroy, 2000) explain, there is a distinction between first and second generation knowledge management strategies. The first generation focused on systematizing and controlling existing knowledge and knowledge sharing within an organization. This generation is supply driven and fosters more efficient coordination for the organization with much focus on information technology and systems (McElroy, 2000).

The second generation KM strategies have shifted towards enhancing the conditions for innovation and knowledge creation. This is demand driven with a primary focus on human connection, organizational processes and the creation of new knowledge (McElroy, 2000). As of Hovland (2003) view, the two KM strategies are related with the first and second order strategies of organizational learning by Argyris 1992.

On the other hand, organization might have exploitation strategies which involve the use of past knowledge, and/or exploration strategies which aim to develop new knowledge (March, 1991). Any organization, according to the writer, must choose how to balance the need for exploitation versus the need for exploration. He further argues that organizations will become increasingly more skillful at developing exploitation strategies as their understanding of the changing nature of their environment, along with the direction and rate of the change improves.

On the other view, the most successful organizations are shifting from strategies based on prediction to strategies and anticipation of surprises (Charles, as cited in Binney, 2001). They are shifting from management based on compliance to management based on self-control and self-organization. They are also shifting from utilization of already known knowledge to the creation of new knowledge, from pure 'technology' KM applications to include 'process' applications (Binney, 2001).

When and how these shifts should be undertaken depends on the type of organization in question. As cited in Hovland (2003), Accenture's presentation of a typology of work settings distinguishes between four different types of organizations based on the different levels of interdependence and complexity that are required in different work situations. These are 'process', 'systems', 'network' and 'competence'. For example, the 'competence' model describes a workplace that is highly reliant on individual expertise to carry out evaluation and judgment-oriented work (high level of interpretation). The 'network' model denotes a workplace that depends on fluid deployment of flexible teams to improve and meet new challenges as they arise (high level of interpretation). Different work settings require different ways of handling and processing information to create the necessary knowledge (Hovland, 2003).

Some authors have written on the important considerations of KM strategy. As per Hansen et al. (1999), and Soliman and Spooner (2003) view, Alignment of knowledge management with business directions, Identification of the benefits of knowledge management efforts, choosing the appropriate knowledge management program, creating supportive environments for knowledge management, use of enabling technologies for the knowledge management program, creating the knowledge management team, and creating knowledge management leadership are critical for KM success. As Soliman and Spooner (2003) dictates, knowledge management efforts should

be part of the organizations' strategic orientation. Strengthening the point, Hansen et al. (1999) argue that attempts to focus equally on managing both tacit and explicit knowledge may quickly undermine operations. Thus organizations must decide the best approach to manage their knowledge as investing on technology for their explicit and hiring the best mind for the tacit one.

2.2.4 Leadership

Chawla and Joshi (2010) said, to effectively manage competitive priorities, the top management plays a crucial role. Besides, organizational ability and approach to deal with knowledge related issues can be highly influenced by leadership practices. As cited in Chawla and Joshi (2010), Singh said, consulting and delegating styles of leadership are positively related with KM whereas directive and supportive styles of leadership are negatively associated with such practices. Like almost every other type of change program, KM projects benefited from senior management support (Davenport & Prusak, 1998). Leadership is responsible for setting up clear objectives, prioritizing knowledge projects, formulating knowledge strategies, building knowledge-oriented culture and supporting changes in performance measurement (Davenport & Prusak, 1998).

When planning implementation of a KM program, *creating knowledge management leadership* is what the organization needs to consider (Soliman & Spooner, 2003). According to Lloyd (as cited in Soliman & Spooner, 2003), knowledge management leaders, as like that of other position holders, needs to have interpersonal/communication skills; passionate visionary leadership; business insight; strategic thinking skills; championship of change with the ability to withstand ambiguity and uncertainty; and collaborative skills. However Nonaka (as cited in Chawla & Joshi, 2010) affirmed, No one department or group of experts has the exclusive responsibility for creating new knowledge and senior management, middle managers and frontline employees play a part; in fact creating new knowledge is the product of dynamic interaction among the three roles.

Top managers should define clear objectives and rules to support KM activities. KM strategy should be developed based on organizational strategy to confirm that KM goals are congruent with the strategic goals of the firm (Kazemi & Allahyari, 2010). Soliman and Spooner (2000) indicate inclusion of top management in KM efforts provides additional motivation for staff to share knowledge and increase the chance of success of KM implementation. Akhavan et al. (as

cited in Kazemi & Allahyari, 2010), further asserted that, KM leaders, at executive level have responsibilities to manage and implement KM strategies and programs within the organization. O'Dell and Grayson (1999) believe that in addition to top management support, KM champions or sponsors have to be identified throughout the organization to be a change agent and role models within the program. Success of every program and planning in the organization, including KM efforts, depends directly on leaders support and commitment in design and implemention phases (Plessis, as cited in Kazemi & Allahyari, 2010).

As part of the leadership task, communication would play a vital role in establishing KM as a strategic focus area in the organization. Employees should be informed about benefits and advantages of sharing knowledge and results of KM projects. Some communication channels used in an organization to convey achievements of KM projects are internal magazines, journals, meetings, etc. (Plessis, as cited in Kazemi & Allahyari, 2010).

2.2.5 Technology

Information technology is the other important dimension of KM which helps organization in leveraging knowledge. It can support and enable KM in two main ways: provide the means for people to organize, store and access explicit knowledge and information, and connect people with people so that they can share tacit knowledge (Dalkir, 2005). Davenport et al. (as cited in Chawla & Joshi, 2010) point out two critical factors for the successful KM project, one is the establishment of a broad information systems infrastructure, and the second is the utilization of the network technology infrastructure such as the internet, Lotus Notes and global communication systems for effective transfer of knowledge. Any technical solution must add value to the KM processes and achieve measurable improvement (Davenport & Prusak, 1998). A justification for the technology should be given to ensure that it is aligned to the goals of the KM project at large (Soliman & Spooner, 2000).

According to Kazemi and Allahyari (2010) technical infrastructure enables rapid search, access and retrieval of information and can support collaboration and communication among organization's employees. Bixler (as cited in Kazemi & Allahyari, 2010) points also out that, it is necessary to review exiting architecture, infrastructures and IT systems for KM applicability to avoid unnecessary costs. Besides, KM technologies and a software application provide the right

information to the right people at the right time. Thus organizations can be able to design dynamic operational processes, make right decisions on time, enhance communications and participation among staff, solve problems efficiently, and improve financial performance (Kazemi & Allahyari, 2010).

However, Chawla and Joshi (2010) said, while IT plays an important role in realizing the benefits of Knowledge Management, it itself cannot make KM a reality. The difficulty in most KM efforts lies in changing organizational culture and people work habits; however, most KM efforts treat these cultural issues as secondary implementation issues (McDermott, as cited in Chawla & Joshi, 2010). Many analysts believe that the emergence of technologies such as the Internet, mobile telephones and knowledge-based systems will facilitate the sharing of knowledge and assist in the implementation of knowledge management programs (Kruger & Snyman, 2005). According to (Soliman & Spooner, 2003) the sign of a real knowledge management system is a process and infrastructure aimed at supporting the creation, harvesting, assimilation and leverage of knowledge.

2.2.6 Measurement

A measurement system also appears to be crucial factor for KM success. Measures associated with KM can be used as one of the means to understand how it should be developed and implemented (Arora, 2002). Regardless of whether the knowledge is tacit or explicit, firms are beginning to investigate how these intangible assets serve as the basis for competitive advantage (Stewart, as cited in Chong et al., 2006). As of the explanation, market values of many companies are higher than their accounting values due to the increased contribution of intangible assets such as knowledge. All these imply that, said Chong et al., (2006), the value of an organization in the knowledge economy has to be based on intellectual capital, and thus, using financial measures alone cannot measure intellectual capital adequately (Chong et al., 2006).

Knowledge is considered as a core competence of organizations which cannot be captured by balance sheets and as such, to measure the core competencies and distinctive abilities of employees would require the removal of traditional means of quantification (Arora, 2002). Researchers try to adopt an approach that focuses on hard financial outcomes (e.g. cost, profit, etc.) to evaluate KM, while ignoring soft non-financial outcomes such as learning, creativity,

new production introduction, etc. (Arora, 2002). According to Ellis (as cited in Arora, 2002), traditional measurement techniques that emphasize solely on financial performance can be misleading and counterproductive in a development environment. Hence, it is essential to adopt a measurement approach that can holistically evaluate the outcomes and benefits of KM. Carneiro (as cited in Chong et al., 2006) suggested that besides using financial indicators, organizations can adopt non-financial ones to measure the outcomes of KM.

2.2.7 Training and Development

Capacity development is the other important concern of knowledge managers. As Chong et al., (2006) affirms an effective management of knowledge benefits organizational members as far as their current jobs and future developments are concerned. Accordingly, with an effective knowledge process, communication is improved between employees and knowledge can be effectively transferred to and among employees. This improves employees learning and enhances their skills. All these lead to improved innovation and creativity among the employees. Employees are not only performing meaningful tasks with adequate knowledge in hand, they are also able to work effectively in teams and empowered to make decisions on their daily tasks (Chong et al., 2006).

According to Robertson and Hammersley (2000), Continuous professional development is considered to be particularly important to professionals and knowledge workers. In order to stay at the forefront of their professional fields, they must be constantly aware of any developments within their particular disciplines and professions and they need to participate in activities that offer the opportunity to further their own professional development. According to Binney, (2001) the focus of organizations and KM application is on providing an environment in which knowledge workers of various disciplines can come together and create new knowledge.

Intellectual capital focuses more on capturing the best judgment and experiences of today's employees, termed as knowledge workers (Chong et al., 2006). It is a composite of knowledge, information, intellectual property and experience possessed by the organizational members, who come to work in the morning and go home at the end of the day. When these employees leave an organization for good, they bring valuable knowledge and experience with them, leaving their previous organizations at the losing end. Problems faced by organizations can be resolved

through KM where employee involvement and commitment are emphasized. Brand (as cited in Chong et al., 2006) proposed that people have to be motivated to access and share information and to convert that information into knowledge. Employees are required to collaborate with others to share their knowledge and expertise. By agreeing on common presumptions and analytical frameworks, employee can co-ordinate diverse sets of activities and solve organization-wide complex problems (Bhatt, 2000).

In addition, a better on-the-job training program can be developed based on the mission-critical skills needed by an organization and the available knowledge, skills and abilities of the employees. Proper utilization of knowledge also enables employees to identify new products and services in which the organization has the potential to offer to its customers, thus resulting in the development of a knowledge culture for organizational growth and success. All these results in better stimulation and motivation among the employees and thus, an organization can better retain its employees. Furthermore, this also serves as an attraction to outside candidates to join the organization (Chong et al., 2006).

2.2.8 Documentation Methods, Procedures & Processes

As part of the measurement effort, said Chawla and Joshi (2010) to remain competitive, it is important for organizations to benchmark its internal knowledge management processes to estimate the knowledge gaps pertaining to customers, suppliers, investors etc. Beside, organizations should have a comprehensive methodology that addresses learning from experience. As Dalkir (2005) said, regular and continuous assessment is critical to find out the way for improvement. Knowledge acquisition, collaboration and Technological tools are to be considered both for facilitating external benchmarking, feedback mechanisms, informal gatherings and other related important mechanisms to enhance part of the KM aspect, knowledge sharing (Dalkir, 2005).

The development of knowledge teams composed of knowledge workers based on their tacit knowledge and skills from cross-functional areas of the organization, is the first step towards developing a fully distributed knowledge transfer system (both vertical and horizontal) within the organization (Walczak, 2003). On the other hand, Communities of practice, as a strategy to improve organizational performance through enhanced knowledge sharing (Lesser and Storck,

2001), related to functional interests/areas should still be promoted within the new knowledge organization to further promote inter-group knowledge sharing (Walczak, 2003).

Caroline (July 2005) said, collecting knowledge involves linking people with information. It relates to the capturing and disseminating of explicit knowledge through information and communication technologies aimed at codifying, storing and retrieving content, which in principle is continuously updated through computer networks. Through such collections of content, what is learned is made readily accessible to future users. Thus all work activities should be placed in both manual and technological sources in such a way that knowledge can be effectively retrieved, shared and utilized timely when it is needed.

2.3 Knowledge Sharing Strategies

Organizations that have successfully encouraged knowledge sharing among employees have exhibited improved organizational performance (Argote & Ingram, 2000; Epple et al., 1996). Many organizations have implemented knowledge management systems to promote knowledge sharing (Iyer & Ravindran, 2009). The success of knowledge management systems is contingent not only on knowledge contribution but also on how well (or often) such knowledge is used or applied for the benefit of the organization.

According to Dalkir, (2005), there are two knowledge sharing strategies: the active knowledge pull and the passive knowledge push. In the first one, the knowledge is searched for, retrieved if available, and then adopted. Knowledge can be pulled by either direct communication between people or by utilizing IT systems. The activities include, Establishment of Search Criteria, Search for Candidates, Evaluation of Candidates, Selection of Candidates, and Adaptation of Candidates. Knowledge Push is the reverse of knowledge pull. It is the important variant of transfer of knowledge to people known to need it. These processes include, Announcement of Knowledge and Knowledge Sharing Occasions.

On the other hand, a good knowledge strategy needs to delineate clearly the resources to be dedicated to tacit and explicit knowledge management and should include strategies to improve knowledge sharing (Soliman & Spooner, 2000). According to Hansen et al. (1999), there are three approaches for encouraging knowledge sharing: forceful, recognition, and pay. Selecting an

appropriate program may involve negotiation with employees plus review of their remuneration and performance. The human resources department plays a key role in this strategy (Soliman &Spooner 2003).

Social exchange theory Blau, 1964; Roloff, 1981 (as cited in Iyer & Ravindran, 2009), suggests that people interact socially in order to obtain rewards such as enhancement of status, reputation, approval and respect. Thus, the same principles can be applied in the context of knowledge workers in an organization who interact with each other, albeit through the use of a knowledge management systems, to contribute what they know or to seek and retrieve knowledge objects that may be helpful in carrying out assigned tasks.

Such exchange theorists identify four social exchange contexts: negotiated, reciprocal, generalized and productive (Iyer & Ravindran, 2009). Reciprocal exchange involves two players mutually exchanging items of interest with each other during one or more interactions over a period of time. This form of exchange involves bilateral relationships. Generalized exchange takes place among groups of more than two agents; in such relationships, the giver and the receiver may not be matched pairs as agent 1 may provide an input to agent 2 who provides another input to agent 3 who gives to agent 1.

According to Iyer and Ravindran (2009), the knowledge sharing scenarios that typically occur in business organizations are the reciprocal and generalized exchange varieties, which may take place, respectively, during the transfer of tacit knowledge (expertise) or the sharing followed by retrieval and use of explicit documented knowledge from a repository. Besides, sharing knowledge or using shared knowledge will occur when the employees concerned believe that this will result in creating value for the others in the firm, and when they can expect to retain some of the value for themselves (Nahapiet & Ghosal, 1998).

Malhotra (2001) argue that 'knowledge management' is seen too often as a way to control the knowledge sharing behavior of the organization's staff, and that when this happens, effective KM is severely constrained. Malhotra (2001) suggests that the most successful knowledge management systems are those that encourage the autonomy and self-control of organization members, instead of attempting to impose procedures that aim to modify or constrain their

behavior. He argues that Staff becomes more able to deal with ongoing changes when they are allowed room to act on incomplete information, trust their own judgments, and take decisive action to capture opportunities.

For knowledge management efforts and systems to be successful, it is important that individuals within an organization both contribute knowledge to the knowledge repository, and search for and use knowledge that others have contributed to the repository (Iyer & Ravindran, 2009). According to the authors, incentives and usefulness are perhaps the most common mechanisms for promoting knowledge sharing.

Markus (2001) discovered here the provision of appropriate incentives was insufficient to fully overcome the inertia of the participants. Likewise, while incentives may be important in encouraging contribution and re-use, incentives alone may not be able to significantly further KM sharing efforts. As the finding of Iyer and Ravindran (2009), incentives for reuse may only be important during the beginning phases of implementation when the knowledge management system is not perceived as being useful, whereas incentives for contribution may continue to be important even after the system has been in place for some time. More specifically, individuals attempt to maximize their net gains (benefits less costs) from exchange relations. Rewards can be monetary (extrinsic incentives) or non-monetary (trust, kinship, reputation, reciprocity, mutual cooperation etc.), thus social exchange goes well beyond simple economic exchange.

Iyer and Ravindran (2009) said, employees bring their own experiences and prejudices in judging the usefulness of a system and their perceptions are often colored by what has happened in the past in the same company. Thus, usefulness, what others believes that the KM sharing repository will actually return useful and usable knowledge objects, is a critical factor that determines whether an implementation effort such as a KM sharing is likely to succeed or not.

2.4 Knowledge Management Maturity Level of Organizations

2.4.1 Contemporary Thoughts

Kazimi et al. (2004) argued that, today there is a growing realization that organizations can attain maturity in KM through a healthy coexistence of technology, processes and people, thereby paving the way for knowledge management successes in the years to come. As Kruger and

Snyman (2005), said Maturity models seldom address the managerial interdependency between ICT, information management and KM. This, as Kazimi et al. (2004) explains, is primarily due to the fact that most maturity models are being derived from the Software Engineering Institute's Capability Maturity Model (CMM).

Kulkarni and Louis (2003), built KM maturity model to measure the level of adherence to a standard set of KM processes. The framework was applied into two different features, perceptual and infrastructural; at a broad level to define the KM maturity model into 5 qualitatively different levels of KM maturity (Level 0 denotes complete lack of knowledge management). As kruger and jhonson(2007), there are differences in knowledge maturity level between small, medium, large and extra-large organizations. Similarly, senior, middle and operational personnel differ primarily on their evaluation of assessing organizational knowledge management maturity level. Similarly, growth in KM changed vastly between different industry groupings, with construction, building materials and mining companies achieving high growth, consumer goods and utilities, banks and insurance, automotive and transport, government and ICT companies, moderate growth, and educational institutions, low growth.

Viewed holistically, as said by kruger and jhonson (2007), there could be a "breakeven point" between resources available and KM growth. Though organizational size and the availability of resources influence the successful institutionalization of KM, in a practical sense growth in KM might be more dependent on a deliberate, conscious and calculated managerial effort, than on factors such as organizational size and the competing industries.

2.4.2 The General Knowledge Management Maturity Model (G-KMMM)

The General Knowledge Management Maturity Model (G-KMMM) is the other model which is descriptive in that it describes the essential attributes that characterize an organization at a particular KM maturity level (Gallagher & Altalib 2008). It is also a normative model in that the key practices characterize the ideal types of behavior that would be expected in an organization implementing KM. According to the writers, the G- KMMM follows a staged-structure and has three main components, namely maturity levels, key performance areas (KPAs) and common characteristics. Each maturity level is composed of several KPAs, and each KPA is described by

a set of common characteristics. These characteristics specify the key practices that, when collectively addressed, help to accomplish the goals of a KPA.

There are five levels of maturity: initial, aware /repeatable, defined, managed, and established/optimizing (Gallagher & Altalib 2008). The G-KMMM dictates that organizations should progress from one maturity level to the next without skipping any level. In practice, organizations may beneficially employ key practices described at a higher maturity level than they are. However, until a proper foundation is laid, these practices are unlikely to attain their full potential. As maturity levels describe the issues that predominate at a level, skipping levels can be counter-productive because each level forms a necessary foundation from which to achieve the next. Hence, the ability to implement practices from higher maturity levels does not imply that maturity levels can be skipped.

As Gallagher and Altalib (2008) further stated the majority of the maturity models currently in practice identify people-related, process-related and technology-related KPAs. It is expected that these KPAs, when used in conjunction, can provide a comprehensive assessment of an organization's KM maturity. In view of their observation, most knowledge management maturity models combine people and organization into a single KPA, this framework thus defines three KPAs, namely people, process and technology.

These KPAs concur with suggestions of Pee et al. that KM needs to consider organizational, human (i.e. psychological and sociological) and technological aspects in order to deliver thorough and successful organizational support. The people KPA includes aspects related to culture and organization's strategies and policies; the process KPA refers to aspects concerning KM processes; and technology relates to aspects about KM technology and infrastructure (Pee et al., as cited in Gallagher & Altalib, 2008).

2.5 Knowledge Management in Practice

As different research findings support the idea, organizations now days are thriving to pin point their core areas of competency and manage the collective knowledge they have towards adaptability and better organizational performance. In most cases, as ECA (2001) reported, such knowledge management initiatives are elements of strategic concerns for which the highest level

of management is responsible. According to Snowden (2002), organizations are now entering into the third generation of knowledge management, one devoted to context, narrative, and content management. In the first generation, the emphasis was placed on containers of knowledge or information technologies in which knowledge management systems leaned heavily toward a top-down information technology approach (O'Dell & Grayson, 1998). The second generation swung to the opposite end of the spectrum to focus on people with a growing importance of human and cultural dimensions of knowledge management. The third stage of KM brought about an awareness of the importance of shared context, describe and organize knowledge so that intended end users are aware it exists and can easily access and apply it.

2.5.1 Rationales for Knowledge Management

There could be many reasons for striking knowledge management related strategic move of the 21st century firms. As to Binney (2001) explanation, many organizations hearing such statements and reading the myriad of KM literature are considering KM-related investments to transform their companies into learning or knowledge-based one. The basic impetus of early knowledge management efforts is the realization of efficiency and effectiveness to be result in badly management of knowledge assets (aiai.ed., as cited in Walczak, 2003). Above all effectively implementing a sound knowledge management strategy and becoming a knowledge-based company is seen as a mandatory condition of success for organizations as they enter the era of the knowledge economy (Binney, 2001).

On the other hand, the need for increased efficiency and productivity twisted by the downsizing trends in organizations during the downward trend in the recent economy is emphasizing the need for knowledge management, or a "knowledge culture" (Walczak, 2003). As he said, another motivation for examining the knowledge management methodology at an organization is the effect of corporate culture on new strategic initiatives. With the continuing globalization of the economy, organizations are facing increasing pressure to effectively manage their intellectual capital.

According to the ECA (2001) report, it is generally accepted that the modern economy of a typical developed country is knowledge based, and globalization is becoming the norm in all sections of the world. According to the report, the rise of knowledge management is therefore

due to upsurge in value being placed on what people know. There is also the realization that performance and competitive strength have become dependent on, quality of knowledge applied in organizational operations; value created for clients and customers; world class quality products and services; operational leverage achieved by the use of ICTs; the effectiveness of an organization's system of harnessing its knowledge base; and The ability to reduce the adverse impact of high turnover of corporate memory.

As to looking the rationales of some knowledge management initiatives, Davenport et al. (1998) identified four broad types of objectives for the thirty-one KM projects that they have studied and presented in the ECA report (2001): the Creation of Knowledge repositories, Improvement of Knowledge Access and Transfer, Enhanced Knowledge Environment, and Management of Knowledge as an asset. Though these and other factors are triggering organizations, as Soliman and Spooner (2003) said, Implementing knowledge management programs within an organization can be very costly, especially during the start-up phase. Therefore, looking at the business case for knowledge management is essential to ensure that the organization has in place a set of strategies suitable for the implementation of the knowledge management effort.

2.5.2 Lessons from Pioneer Knowledge-Intensive Institutions

As said by Jillinda et al. (as cited in Sveiby, 2001) there is a significant opportunity to Colleges and universities to apply knowledge management practices and supports every part of their mission. Using knowledge management techniques and technologies in knowledge-intensive institutions, particularly in higher education is as vital as it is in the corporate sector. According to the authors, 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.

According to the intensive research work made in consulting firms by Ambos and Schlegelmilch (2009), consulting firms were widely viewed as the undisputed champions of the discipline. They were the ones that pioneered the development of innovative knowledge management systems, they were at the forefront of creating knowledge management cultures and they recognized the productive potential of knowledge workers. However, the results of knowledge

management can only be realized if people are open to change business processes and adopt new ways of thinking.

Sveiby (2001), in his article, knowledge management practices in professional institutions, has put a lesson from organizations who started early with little or no consulting support in the pitch of knowledge management that other similar institutions would learn from it. Presence of enthusiastic champions, building of km efforts on existing core competence, addressing an urgent strategic imperative and securing commitment from the top are some of the successful strategic moves made in those pioneer organizations.

2.5.3 Challenges of Knowledge Management

Knowledge management challenges might be emanated from different factors. As of Smith and Lumba (2008), once knowledge has been determined to be useful, its manageability must be determined, i.e., how it should be dispensed, who should be the recipients, what effects it will have and the like. Besides, synthesizing the information processing technologies in the organization and the unique abilities of the people to building a culture that values face-to-face human relationships, reflection, and sharing is challenging in knowledge management.

According to Grant (as cited in Alavi & Leidner, 2001), the major challenge of knowledge management is in the process of capture and integration. In order to be successful, an organization must first concentrate on changing the mindset of its followers. The goal in using knowledge management is to aid them in the performance of their duties. Developing a culture that embraces learning, sharing, changing, and improving through the collective intelligence and knowledge of people could also be the other area of concern. Knowledge is not something that can be quantified and it is far more complex since it is derived out of human relationships. The organization's ability to embrace, grow, and attend to the human dimension and experiences, then becomes the greatest challenge of Knowledge Management (Smith and Lumba, 2008).

One of the greatest challenges of knowledge management is the prevalence of shared leadership and flexibility to external developments (Nina, as cited in Caroline, 2005). As Caroline (2005) said, knowledge management challenges could also be taken as people or technology focused one. In the people dimension, Prejudices for different technologies, fear and/or uncertainty

caused by not-knowing the future, different kinds of teams and demands, attitude problems towards change and a new technology, and lack of time for training and experimenting would be cited. Usability and exploitability of the technology, how to find a viable technology for the future, lack of competence for a new chosen technology, component interfaces that are general enough are also the technology oriented challenges.

A knowledge-friendly organizational culture is one of the most important conditions leading to successful KM initiatives in organizations (Davenport & Prusak, 1998). Alavi and Leidner (2001) claim that there are cultural barriers with regard to KM that prevent employees from sharing knowledge through artifacts, teaching and mentoring others, using their expertise to innovate, and improve productivity. As Levy et al, (2010) said, another barrier for KM is that people may not realize what aspects of their knowledge ought to be shared. Without a systematic routine for knowledge capturing, an organization might not benefit from its accumulative knowledge. In many organizations, the authors continues, a major cultural shift is required to change employees' attitudes and behavior, so that they would willingly and consistently share their knowledge and insights. In addition formalization and standard operating procedures may hinder KM initiatives (Hargadon, 1998; Von Krogh, 1998; Huber, 1991, as cited in Levy et al., 2010).

2.6 Knowledge Management in Ethiopia

The search for relevant literature both in the web and library sources has revealed the fact that intensive research and organizational works have not been done in Ethiopian KM practices. Particularly the initiatives in professional institutions are difficult to find even in well organized libraries. According to Workineh et al. (2010), although there is a lack of deliberate knowledge management and creation efforts in modern Ethiopia, the country possesses 1,700-year old indigenous practices of knowledge creation.

As Ermias (2006) in his work Knowledge Management in Ethiopian Agriculture said, Leveraging knowledge is a critical input in the transformation of Ethiopian agriculture from subsistence to market-oriented economic sector. A demand-driven knowledge management system facilitates access to and adoption of appropriate technologies and processes from research and development institutions based in Ethiopia and elsewhere. According to his explanation KM

is important for Ethiopian organizations particularly agricultural ones for being adaptive to changes, Addressing inertia due to lack of information, Developing a loyal and capable workforce, Creating a stable technology infrastructure, and for Creating a capable agricultural management.

There might be a lot to be mentioned as a reason for the current weak practice of KM in the country. The first problem to manage knowledge is that Ethiopia has lost documented knowledge of what enabled its earlier civilization (Nkrumah, as cited in Workineh et al., 2010). Secondly, 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 (Workineh et al., 2010). 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 (Workineh et al., 2010).

As Workineh et al. (2010) further affirmed, when the time comes to undertake knowledge management in Ethiopia and similar countries, organizations have two choices: either they implement the best world practices in knowledge management without customization, or they adapt such best practices to work within their culture. The first choice is ill-advised, as it ignores the socio-cultural value of a country. The writers suggest that the second option, where best practices are combined with traditional practices, is more likely to be successful. Indeed, many believe that world best practices must embrace local technologies, local systems of knowledge, and the local environments in order to be successful (Grenier 1998 as cited in Workineh et al., 2010). Therefore, for a country to advance in the knowledge economy, it must learn to adapt world best practices regarding knowledge management to the traditional practices that have been effective in its culture. However, the traditional practices have been understudied and largely undocumented; making it difficult to combine them with modern knowledge management practices (Workineh et al., 2010). Here is the need; therefore, to examine the practical knowledge-intensive organizations' scenarios and their prospective arenas for better organizational performance.

Chapter III
Research Design and Methodology

A number of design options, including in the broad arena of knowledge management, are available given the research problems and the results aspired to be attained at the end of the day. Hence, so as to base the research in a convincing methodological foundations, and forward valid and reliable information to the recipients, the following design alternatives, instruments, and procedures are employed throughout the endeavor.

3.1 Research Method

Based on the study problems and stated objectives, comparative evaluation research design is selected to examine the knowledge management practices and prospects of the two organizations and compare their strength and KM maturity level in running their intellectual assets. As Best and Kahn, (1995) said such kind of research design is appropriate where determining the effectiveness of a program is necessary. The research has also both qualitative and quantitative nature to fully address its aims and secure valid and reliable result.

The study can be partitioned into two major themes. The first section encompasses the comparative evaluation of the two organizations KM strength and development areas in eight different perspectives/variables. These includes, *knowledge management process (KMP), leadership (KML), culture (KMC), technology (KMT), measurement (KMM), policies and strategies (KMS), training and development (KMTD),* and *documentation processes (KMD).* The second phase on the other hand analyzes KM maturity levels, as per the G-KMM model, in three broad dimensions: *people/organization, management system, and technology.* These variables are compared with the practices found in the two institutions based on the information gained from different sources. Rationales of knowledge management, employees' awareness level on the basic concept, and problems faced in the process are also surveyed in order to successfully appraise the current practices and make expertise judgments on the coming prospects.

3.2 Source of Data

Both primary and secondary sources of data are employed to fully answer the research questions. Higher officials, professional and support staff of the two institutes were valid primary sources of information. Moreover, documents with enormous valuable information regarding the KM practices of the institutes are consulted. Strategic plans, policy documents, organizational structure, business process reengineering (BPR) reports and other written information are utilized with the permission of the organizations' responsible organ. Majority of these documents were posted in ECSC's web portal and have not been a problem for collection. In the EMI's regard, the Human Resource Development (HRD), Management Development (MD) and Knowledge and Information Management (KIM) directorates' directors were cooperate to show these official papers. In addition, the two organizations' strategic plans and BPR reports were found in their libraries. Institutional web sites, information systems, and databases seen in collaboration with officials can also be taken in this category.

Prior research papers, books of knowledge management, research methodology, and statistics, study handouts of the course KM, analyzed documents like articles found in Addis Ababa University, Ethiopian Civil Service College and Ethiopian Management Institute libraries were pertinent secondary sources. Web resources like www.4shared.com, www.emeraldinsight.com and other important sites were also parts of the secondary sources of information used while conducting this paper.

3.3 Participants of the Study

The study has aimed at evaluating the current practices and prospects of knowledge management in Ethiopian knowledge-intensive organizations. Among these entities, Ethiopian Management Institute and Ethiopian Civil Service College are selected having the fact that both are highly engaged in activities of capacitating others and introducing modern management thoughts through education, training, consultancy, research and other interventions. Here the assumption is that both institutes have certain level of knowledge management practices.

The total number of employees found in EMI and ECSC was 246 and 898 respectively. This number however includes all types of workers, including foreigners, irrespective of their

educational background and working environment. It's thus appropriate to delimit the population size into those who are directly engaged in either of knowledge creation, storage and/or application activities. As a demarcating point, it was assumed that employees beyond diploma level of education have better understanding about the subject matter and certain role of involvement in knowledge management efforts. Hence the entire core staffs of the two intuitions (those who are engaged in providing education, consultancy, research, and training services) and support members who have a role in knowledge management tasks like accountants, human resource personnel, IT experts, librarians, project coordinators and other similar position holders with a level of education beyond diploma are considered. Given these two groups of employees therefore, 101 of Ethiopian management institute and 390 Ethiopian civil service college knowledge workers have formed the total population size of the study in both institutions. These figures didn't include higher officials of the institutions who actually are considered as professional employees.

3.4 Sampling Techniques

To make the research manageable and achieve the desired result, the researcher has used different sampling techniques for the various grouping of study participants. The first method used was purposeful sampling to get the opinion and responses of higher officials concerning the practice of knowledge management in their respective organization. These officials are deliberately contacted with the assumption that they have the information pertinent to the study and had the chance to fully observe what was going on from the management side in their organization. Besides, their response can represent the organization's thinking since they have the responsibility and the authority rank to do so. Thus the owners of the EMI's KIM, HRD, and MD processes and the Library's section head have been sampled for the interview.

Similarly purposeful sampling method is employed to select higher officials of ECSC though it's huge in number of employees and working departments. Given resource and time limitations, it was not possible to interview the entire academic and support units' leaders. Therefore, those with direct responsibility and better revelation for the concept are selected as a sample. Accordingly, the consent and heartfelt collaboration of Developmental Learning Center (DLC), Information Technology (IT) section, Institute of Public Administration and Development

Studies (IPADS), Human Resource Management (HRM), Research Publication and Consultancy Office (RPCO), and Library heads was gained to be part of the study participants. All in all nine interview sessions were conducted with higher officials and the resulting information are employed for qualitative analysis and triangulation of other data sources.

Employee participants were the other major building blocks of the study. As a matter of fact, the two institutes have different grouping of staff in terms of working position, fields of study, and responsibility rank. For instance EMI broadly classifies its employees as a core, which is comprised of a pool of consultants under the MD process, and support staff, the rest members of other departments. ECSC likewise uses the same pattern of core and support kind of classification. However, unlike to EMI, its support staff is classified as administrative support and management support, as well as its professional staff is further classified in different academic departments and institutions as consultants, and lecturers with respective title ranks and level of responsibility based on their own work nature.

Hence, stratified sampling technique was used to select sample employee respondents both in the pilot and main endeavor to make sure that all kinds of staff are fully take part in the study. Accordingly employees both in the two institutions are stratified into professional/academic and support/administrative staffs' stratum for the sake of avoiding confusion and maintain uniformity of analysis. Then simple random sampling method has been used to select sample respondents from each stratum in both institutions. Proportional number of employees from each stratum has been taken as per their population size. Besides, different age group, sex, working position and educational background were taken into consideration while selecting respondents from each stratum to increase the representativeness of the samples.

One way of determining the size of a sample is by exercising carful mathematical calculations (tables) and ensuring that the sample represents the wider features of the population under consideration (Morrison, as cited in Cohen et al., 2000). According to Krejcie and Morgan (as cited in Cohen et al., 2000), also as the population increases the sample size will increases but at a diminishing rate and remains constant at slightly more than 380 cases. Thus taking these theoretical explanations into account, the number of employee respondents to participate in the study has been determined.

ording to Cohen et al (2000), Determining sample size is critical step in research endeavors l has to take attrition and respondent mortality, i.e. some participants will leave the research or il to return questionnaires, into account. Therefore greater number of samples should primarily ɔe included to maintain the research reliability in such circumstances. Basing the Krejcie and Morgan tabular suggestion for appropriate sample size then, with sampling error of 5% and 95% confidence interval, some portion of employees have taken part in the study as a sample.

Table 1: Sample Size Determination

No.	Employee's Stratum	EMI			ECSC		
		Population	Sample Size	%	Population	Sample Size	%
1	Core staff	44	35	43.8	208	103	53.1
2	Support staff	57	45	56.3	182	91	46.9
Total		*101*	*80*	*100*	*390*	*194*	*100*

N.B: Adopted from Krejcie and Morgan, 1970

As the table shows, 80 and 194 employees were taken as a sample from 101 and 390 total population size of EMI and ECSC respectively. As per their proportion in the sampling frame, 56.3% support staff and 43.8% of professional employees of EMI have been included in the study. Similarly, 46.9% of support and 53.1% of core staff have been taken as participants considering their share out of the total accessible population size of ECSC. All in all, 274 employees were sampled from both institutions.

There is discrepancy however concerning the response rate of participants. Out of the questionnaires distributed for the samples, 100% response rate was gained in EMI while 96% was the figure in ECSC. Specifically, 84 (45.7%) support members and 100 (54.3%) academicians, totally 184 participants of the college have willingly responded for the study.

3.5 Instruments

Different instruments are used to collect relevant information for the research. Mainly interview, questionnaire, document analysis and non-participant observation have been used in the process.

The major instrument employed in the study is a hybrid of standard questionnaires. The five section *Knowledge Management Assessment Tools* (KMAT) developed by American

Productivity & Quality Center and Arthur Andersen (1995), the *Modified Knowledge Management Assessment Tools* (MKMAT) adopted from KMAT and developed for nuclear operating organizations, and the *Knowledge Management Practices* questionnaire of the science, innovation, and electronic information division of statistics, Canada (2001) are blended up together to finally form a five level Likert scale questionnaire stretched from very high to high, medium, low and very low response metrics. Moreover, the General Knowledge Management Maturity Model (G-KMMM) by Gallagher and Altalib (2008) has been adapted to craft a five level Likert scale stretched from strongly agree to agree, neutral, disagree and strongly disagree response metrics to level organizational KM maturity level of the two institutions.

These assessment tools are selected and tied up together because of the fact that they are holistic, and can measure study variables with standard parameters. Moreover, they have reliably been used in other research endeavors across the globe. Thus the questions found in these instruments are carefully selected, adapted and encapsulated to finally craft a questionnaire with five subsequent sections (background information, general questions, strategic strength and development areas, organization's maturity level and problems in knowledge management). The issues raised are finally presented in a Dichotomous, Likert scale, Open and Closed ended questioning format.

Testing the questionnaires' reliability is crucial for valid explanations. Concerning the major instrument employed in the study, KMAT, its internal consistency was measured and as a result the value of Cronbach's alpha varied from 0.755 to 0.940 indicating a high degree of reliability (Chawla and Joshi, 2010). Accordingly, a confirmatory factor analysis was also conducted for each dimensions of KMAT instrument separately, said Chawla and Joshi (2010). The test indicated that each of the dimension resulted in only one factors with variation being explained ranging from 51.95% to 70.99%. This shows that the variables chosen in any dimension belong to that particular factor only.

As mentioned earlier however, the final questionnaire is a merge of different instruments. The reliability test for some of them was found and it was financially demanding for the others. Richardson (as cited in Byren et al., 1999), affirms that using a research instruments in a situation which is different from the original intention requires further analysis to check that the

initial consistency can be reconstructed in the new context. Thus to make sure that the issues raised were internally consistent and the reliability found in each separate tool were not changed, the test was conducted again on each of the eight dimensions and the entire forty two items included in the instrument using a coefficient (Cronbach alpha) before administration. Twenty questionnaires were distributed (10 for each organizations) based on the sampling procedure stated above. Fortunately, all pieces of paper were collected successfully and employed in the analysis. As per the result the value of Cronbach's alpha varied from 0.697 to 0.909 indicating a considerable degree of reliability between the items (see appendix 4 for the detail). Thus only minor editorial errors are corrected to finally draft the final instrument for the study.

Document analysis is the other methods used in the study. Strategic plan documents were reviewed to reveal the organization's major focuses and distinguish knowledge management strategies (if any) of the two institutions. BPR reports have also been examined to see the emphasis given for knowledge management in the new organizational setup. The place of knowledge management function in the organizational hierarchy has been grasped from the structural document. There was also the chance to have a look on operational documents (policies, procedures, reports) of EMI and they have contributed to see whether knowledge management is considered and fully integrated with the daily routine of the organization. Finally web and other technological resources of the institutions were assessed to observe the level of knowledge management automation and/or computerization.

In addition, interviews with higher officials (process owners and/or department heads) were conducted to have the required information regarding the practices, prospects, and impediments of knowledge management. The interview was semi structured to raise relevant side issues and grab unforeseen information before hand. The issues and questions in the sessions have been developed after taking samples and best practices of questioning and styles of asking from different studies. Two knowledge management expertise found in EMI was contacted to evaluate the interview questions and validate the issues to be raised in the interview. Their view and expertise opinion has been inculcated to finally have a well crafted interview questions. Generally, the interviews' outputs have been used to triangulate the results found from other sources and check whether the strategic moves made on knowledge management were fruitful or futile from the management's point of view.

Observation was the last tool available to collect the necessary information for the study. Semi structured, non-participant observation was appropriate to scrutinize the knowledge management processes and particularly review the knowledge sharing practice of the institutions. Four weeks of visit for about one to three hours of daily stay was exerted to find tangible and observable facts about the physical, human and interactional settings of the organizations. Much emphasis was given for the professional nature of the work routine besides to the IT infrastructure and system implementations to enable the knowledge management processes. Like the interview, triangulating the information from other sources was the primary concern of the observation.

3.6 Data Analysis and Presentation

To come across suitable presentation of the knowledge management information and valid generalization of findings, the researcher used both qualitative and quantitative mechanisms of data analysis.

3.6.1 Quantitative Data Analysis and Presentation

Regarding the quantitative methods, the researcher has employed both descriptive and inferential statistical tools to analyze and present numerical data. Frequency distribution, Percentages, Standard deviations and Mean scores have been used as appropriate descriptive statistical tools for presentation. Particularly, a comparative picture of the mean scores of both the strategic strength and development areas and the knowledge management maturity dimensions are calculated.

Inferring possible source of divergent views on the organizations' KM efforts and the magnitude they have was important while analyzing current practices and future outlooks. Two statistical tools were an option in this regard, Independent sample t-test and one way analysis of variance (ANOVA). The results gained in both tests were almost similar. However it's important to use the appropriate tool based on theoretical explanations. According to Gravetter and Wallnau (2000), ANOVA is appropriate to test the difference in means between categorical independent (with two or more categories) variable and normally distributed interval dependent variable. Besides, independent sample t-test is good when comparison is to be made on the means of a normally distributed interval dependent variable for two independent groups.

Hence, as the study aims at comparing the KM practices (the dependent variables) resembled in eight dimensions in the two intuitions (the independent groups), the second option, i.e. independent sample t-test was selected for analysis. It has been then carried out to test whether there is a difference in the mean scores of the KM perspectives transversely between the two organizations. Depending of the difference on the staff awareness level on KM, the core and support staff classification of employees were not taking into account while evaluating the two organizations' practice (see the detail in the next chapter).

Regarding the KM maturity level, the G-KMM model and its measuring rules have been taken in to consideration. As Gallagher and Altalib (2008) stated, there are five stages in the maturity ladder, *initial, repeated/aware, defined, managed and established*, to rank organizational KM practices. Accordingly, the maturity assessment has been done on three perspectives (maturity variables) called *people/organization, management system/process and technology* and for the overall organization. To say the practice is at specific level, there should be more than 60% (m=3.00) of agreement from respondents side at particular maturity feature. Therefore one sample t-test has been used to check whether the responses given are significantly different from the testing value (m=3.00). Significantly lower value is aspired in stage one while greater than the test figure is expected in other stages. The overall maturity is determined by summing the results found at each stage of the three maturity perspectives. The final maturity level determination was guided by the G-KMM model principle says, each of the previous stages has to be fulfilled before passing to the next level in the continuum (Gallagher and Altalib, 2008).

The researcher assumed the performance in different elements of KM has a direct effect on its maturity level. Triangulating the previously discussed strong and development areas with the organization's maturity level achieved was also critical to make acceptable judgment. Given these facts, both linear and multiple regression analysis has been performed to trace the strength of the existing relationship between the maturity levels and the KM elements and to determine which KM elements (independent variables) better predicts the organizations' maturity level at the three maturity perspectives (dependent variables) as perceived by employee respondents.

To run the multiple regression analysis, forced variable entry mechanism was used to examine the entire effect of the independent variables selected in that specific maturity level. The

coefficient of multiple determinations between the independent variables was also done to investigate how much of the variability was explained by them and to compare the net effect of each independent variable on that specific maturity level.

According to Gravetter and Wallnau (2000), there has to be two or more independent and one dependent variable to conduct multiple regression analysis. Thus as per their linkage and similarity of questions raised, the eight KM dimensions are classified into three groups: people/organization maturity predictors, management system/process predictors and technology predictors. As Pee et al. (as cited in Gallagher & Altalib, 2008) asserted, the people performance area of KM includes aspects related to culture and organization's strategies and policies; the process/organization dimension refers to aspects concerning KM processes; and the technology dimension relates to aspects about KM technology and infrastructure. Basing this fact, KMC, KML, and KMS are included in the first category while KMM, KMTD, KMP and KMD are done with the management system/process maturity perspective to conduct the multiple regression analysis. KMT is the only variable found with relation to the technology maturity perspective, hence linear regression has been performed with it to see the strength of the linear relationship found between the two items. Lastly multiple regression analysis has been performed to see which maturity dimension among the three has more prediction power of the overall maturity level of the organization. Here the independent variables are the maturity levels where the organizations fall in the three perspectives, and the dependent one is overall maturity level.

The variables were entered once at a time since it was assumed that they don't have justifiable difference to affect the maturity level which they are set to be a predictor. The interpretation included the multiple regression indices such as R and R^2. The correlation coefficient (R) value ranges from 0 to 1. A value 0 indicates absence of linear relationship between the dependent and independent variables while a value of 1 show the independent variable is a perfect predictor of the independent one. The value of R (0 to 1) is squared and multiplied by 100 to yield R^2 which denotes the percentage of variance accounted for by the linear combination of predictors. Furthermore, the net effect of each independent variable were computed and compared to denote their relative importance for variation of maturity levels.

Test of significant in all tests are set to be 0.05 and two-tailed with 95% confidence interval. Besides, the quantitative analysis, mainly those inferential and some complex descriptive statistics, like mean score and frequency calculations, are done with the help of Statistical Package for Social Sciences (SPSS) version 15.0. Ms Excel was also used to edit tabular presentation and conduct minor spread sheet computations in the analysis process.

3.6.2 Qualitative Data Analysis and Presentation

Likewise, data collected through interview, document analysis and observation are analyzed qualitatively under uniform thematic areas and narrating techniques. Generally, to discover patterns, ideas and explanations, three step analysis processes have been employed.

Data organization: collected data were categorized into the following workable units: current strength and development areas, problems of knowledge management, the reasons for managing knowledge, and the aspired future state. Along with this, the researcher comment and interpretation on what is collected directly from study participants were part of the data organization phase of analysis to further extend thematic explanation of the information.

Data summary: the organized data were further narrated into smaller explanations and number of categories or themes to facilitate the interpretation phase. Document reviews and observed facts were also summarized and put into their categories for the next step.

Data interpretation: the researcher took a close look on variables and relationships of categories via the summarized information to grasp generalizable fact in relation with the quantitative information. What higher officials have said was summarized to discover what they really mean to the current practice. For each major findings and interpretations, the actual quotes from the participants' direct interview notes were used to illustrate the interpretation and enliven the result. Subsuming, combining, and creating new categories of information were made appropriately to come across new interpretation. Particularly in identifying problems and challenging circumstances phase, logically sensible findings are grabbed and explained through this point of qualitative data analysis.

Generally, the collected and analyzed information via different tools were presented by using of tables, graphs, text and figures. The triangulation of facts from different sources (especially of qualitative and quantitative) has also been carefully checked to maintain the reliability of the paper and produce concrete result.

3.7 Research Procedure

Collecting the right information was the first thing adhered to achieve tangible result in this research endeavor. At the initial step, much time and effort have been devoted on preparing the research proposal, reviewing related literatures and deciding on the methodology of the paper. Then development and validation of data gathering instruments, questionnaire and interviews, was carried out. Pilot test has then been conducted on 20 employees of the two institutes, i.e.10 from EMI and 10 from ECSC. These respondents are not considered in the actual data gathering phase. The reliability test of the instrument has then been conducted and adjustments are made to finally craft the main questionnaire.

The interview questions were also given for the two EMI's professionals and their expertise comments are included on the issues raised. Thereafter, the questionnaires have been distributed for both professional and support staffs of the two institutions while higher officials were invited for the interview. Observation has also been done in parallel with the other data collection efforts. A total of four weeks time was spent to fully securing the desired data for analysis. Finally, relevant documents have been borrowed and gathered with the permission of the institutes, directly from their web sites and higher officials. .

All the collected information in their respective categories has then been used in the systematic analysis and presentation of facts. Finally the summary, conclusion and recommendations drawn from the findings were end up the whole study.

Chapter IV
Data Presentation, Analysis, and Interpretation

Pertinent information, based on the stated research objectives and study problems, were gathered through those questionnaires distributed to the staff and the interview sessions run with higher officials of the two institutions. Reviewed documents and the continuous observation made have also revealed relevant input for this study endeavor.

Hence, presenting, analyzing and interpreting these facts that have been systematized to get valid and reliable meaning out of them is the prime target of this chapter. Two main pillars have constructed it, the general characteristics of respondents and the major findings of the study. All the information grasped is included to fully show how knowledge management is being practiced and what prospective scenarios are there in the two organizations.

4.1 Characteristics of Respondents

4.1.1 Demographic Characteristics

Participants of the study are comprised of employees with diverse demographic background and areas of responsibility in their work routine. The intent was for reflecting all the concerned bodies view in the research. Accordingly, as table 2 indicates, majority of study participants, 133 (72.28.4%) of ECSC and 49 (61.25%) of EMI, are males and the rest are females comprises the respondents group with a total share of 82(31.1%) from both institutions. In their age composition, 96(52.17%) of ECSC and, with a bit lower share, 38(47.5%) EMI's mass of the respondents are in the range of 25-35 young group. Less than 25 and greater 56 years of age individuals are not involved in the study from EMI. In ECSC also these age groups have scored the lowest figure i.e. 15(8.15%) and 4(2.17%) respectively.

Regarding respondents' educational status, most of ECSC representatives, which are around 71 (38.6%), have achieved first degree level. Contrary with almost the same percentage majority of EMI's respondents are diploma holders. 13 (7.07%) of ECSC samples are from PhD level of education while no one is represented with this educational background from EMI. All in all 66.3% of ECSC and 61.25% of EMI respondents are from the highest education level of MA and BA degrees.

Table 2: Respondents Demographic Background

Items	Categories	ECSC		EMI		Total	
		N	%	N	%	N	%
Sex	Female	51	27.72	31	38.75	82	31.06
	Male	133	72.28	49	61.25	182	68.94
	Total	184	100.00	80	100.00	264	100.00
Age	<25	15	8.15	0	0.00	15	5.68
	25-35	96	52.17	38	47.50	134	50.76
	36-45	44	23.91	26	32.50	70	26.52
	46-55	25	13.59	16	20.00	41	15.53
	>56	4	2.17	0	0.00	4	1.52
	Total	184	100.00	80	100.00	264	100.00
Education	Diploma	49	26.63	31	38.75	80	30.30
	BA/Bsc	71	38.59	26	32.50	97	36.74
	MA/MSC	51	27.72	23	28.75	74	28.03
	Phd	13	7.07	0	0.00	13	4.92
	Total	184	100.00	80	100.00	264	100.00
Experience	Below 2 Years	31	16.85	3	3.75	34	12.88
	2-6 Years	99	53.80	41	51.25	140	53.03
	7-10 Years	24	13.04	14	17.50	38	14.39
	11-15 Years	10	5.43	6	7.50	16	6.06
	16-20 Years	11	5.98	9	11.25	20	7.58
	Above 20 Years	9	4.89	7	8.75	16	6.06
	Total	184	100.00	80	100.00	264	100.00
Working Position	Administrative Staff	84	45.65	45	56.25	129	48.86
	Academic Staff	100	54.35	35	43.75	135	51.14
	Total	184	100.00	80	100.00	264	100

Source: survey result (Annex 1)

Regarding their working position, 99(53.85%) and 41(51.25%) of respondents both from ECSC and EMI have worked in their respective organization for about 2 to 6 years, which is the range where majority of participants comes from. On the other hand the smallest portion 9(4.89%) and 3 (3.75%) of the study samples have a work experience of beyond 20 years and below 2 years in ECSC and EMI respectively.

The major grouping made in the sampling frame is a categorization of employees based on their working position. In this respect, 84(45.65%) of administrative and 100 (54.35%) of academic staff have participated from ECSC while, with a different pattern 45(56.25%) of support and

35(43.75%) of core staff are formed the sampling portion of EMI. The difference is emanated from diverge total number of employees worked in both categories in the two institutions.

4.1.2 Employees' Awareness Level on Knowledge Management

The concept of knowledge management is a recent development and employees might not have a good revelation on the subject matter. Thus respondents' level of expertise was examined in both institutions. Accordingly, EMI staff have better awareness on knowledge management (m=3.58) when they compared to the ECSC members (m=3.53). However, the independent sample t-test with the assumption of no difference has revealed that, the two organizations have no significantly different level of awareness at df=197, t(264) = 0.425, and p>0.05(0.672) on KM.

Similarly, further analysis is made on support and core staffs' level of awareness of the two institutions on the subject matter. In both organizations academic/core staff have seems to have better expertise (m=3.95 in ECSC and m=3.89 in EMI) than that of administrative or support staff (m=3.24 in ECSC and m=3.33 in EMI). This difference is statistically significant (p>o.o5) in both organizations, as the independent sample t-test showed, where the employees level of awareness on knowledge management is remarkably different as per the position where they are working in (Table 3).

Table 3: Employees' Level of Awareness on Knowledge Management

Organizations		Administrative		Academic		t	p	Total organization		t	p
		Mean	SD	Mean	SD			Mean	SD		
ECSC		3.24	1.199	3.95	0.783	-4.670	0.001	3.53	1.054	0.425	0.672
EMI		3.33	0.707	3.89	0.796	-3.280	0.001	3.58	0.792		
difference b/n core and support	t	-0.567		0.461							
	p	0.572		0.678							

Source: survey result (Appendix 1)

The other concern was to check whether there is justifiable difference between the KM awareness level of administrative and academic staffs of the two institutions. An assumption, there is no difference, has been made and independent sample t-test was conducted. As a result, the two organizations administrative staff at df=127, t(129) = -0.567, and p>0.05(0.461) and

academic staffs at df=133, t(135) = 0.572, and p>0.05(0.678) have no significantly different level of awareness on the subject matter. Hence, it's possible to say that there is parallel level of expertise on KM among the study group and there might not be considerable difference on employees' level of understanding on each questionnaire item. Therefore, no need of classifying the major analysis among the two employees group since there is no justifiable difference between the two organizations academic as well as administrative staff in statistical terms.

As it has been mentioned earlier the academic and administrative staff in both institutions have different level of awareness in KM. thus, it seems important to find out the relationship and the role that employees' working position would play in their revelation for KM. To do this, linear regression analysis was carried out with the assumption that employees' working position doesn't have impact on their expertise level of KM.

Table 4: The Linear Relationship between Working Position and KM Awareness Level

No.	Organization	R	R2	Source of variation	SS	df	MS	F	p
1	ECSC	0.337	0.114	Regression	23.137	1	23.137	23.396	0.001
				Residual	179.988	182	0.989		
				Total	203.125	183			
2	EMI	0.348	0.121	Regression	6.007	1	6.007	10.761	0.002
				Residual	43.543	78	0.558		
				Total	49.550	79			

Source: survey result (Appendix 1)

As table 4 shows, respondents' working position and their awareness level on KM management has considerable positive linear relationship(R=0.33) in ECSC and (R=0.348) in EMI. Besides, the coefficient of determination (R^2) was found to be 0.11 and 0.12 in ECSC and EMI respectively. That is 11.4% of ECSC and 12.1% of EMI employees' KM awareness level variation is determined by their current working position. All in all the regression analysis, predicting employees' awareness from their working position is statistically significant, F (1,182), p<0.05(0.01) in ECSC and F (1.78), p<0.05(0.02).

4.2 Major Findings of the Study

As the research approaches to the ground, different perspectives, with much emphasis for strategic and organizational concerns, were selected to see the current initiatives in the multifaceted practical environment. The information gathered are blended and presented in such a manner to show important findings regarding the routine knowledge management practices in the two organizations.

4.2.1 Rationales of Knowledge Management

The level of employees' awareness on the existence of well organized KM practice in their respective organization was asked by the questionnaire. As a result (table 5), only 36(45%) and 57(31%) of EMI and ECSC members are fully confident to say yes on the realistic practice of KM in their respective organization. Comparatively, EMI members are greater in number to claim the existence of such initiative in their institute. On the other hand, equal number of respondents, 27.5%, has said no and I don't know on whether there is KM practices in EMI. In the ECSC regard also, 67(36.4%) and 60(32.6%) respondents have opted for these alternatives respectively. As it is clearly indicated, majority of the study participants i.e. 64.8% are in doubt on their organization's current state of KM.

Table 5: Employees' Perception on the Practicality of KM

Parameters		EMI		ECSC		Total	
		No.	%	No.	%	No.	%
1	Yes	36	45.0	57	31.0	93	35.2
2	No	22	27.5	67	36.4	89	33.7
3	I Don't Know	22	27.5	60	32.6	82	31.1
	Total	80	100.0	184	184	264	100.0

Source: survey result (Appendix 1)

Interviewees were also asked whether there is KM practices in their organization. Generally, as both intuitions' leaders revealed, there is the intention and of course the practice of KM though it's at its infant stage. All the tiny knowledge creation and sharing efforts are being done under either the routine human resource development or information management themes. Particularly, as the head Institute of Public Administration and Development Studies (IPADS) of ECSC said,

the college's effort on paving various routs of knowledge sharing, supporting individuals learning, and inculcating the concern in the Balanced Score Card (BSC), learning and growth perspective, shows the intention to manage its knowledge.

Similarly the Human Resource Development (HRD) section head of EMI agreed on the point that his institute has appreciated the importance of KM and been doing a lot on its practicality. The institute has also dedicated a unit, though it has its own problems, to manage the routine works of KM. As the head concludes, the foundation is under preparation however a lot should be done to create a knowledge driven organization which is truly professional. Given these facts one can say that formal and integrated KM is not there in the two institutions though some level of trial practices and initiatives are being exerted.

Back to the questionnaire, those who claims the current state of their organization as revealed was further asked to reflect on the reasons why their organization is practicing KM. Among the reasons, to help integrate knowledge within the organization and increase efficiency by using knowledge and to improve working processes are the major once cited by a total of 74(80%) and 70(76.1%) of study participants respectively. Remarkably, overall percentages (58.7% and 55.4%) of responses have also been registered for promoting knowledge transfer and sharing with clients and protecting organizations from loss of knowledge due to workers' departures. On the other hand only 25.5% and 10.9% of respondents from both institutions select improving worker retention and enhancing the competitive advantage of organization factors to stick on KM practices (Table 6).

As the HRD manager of EMI said, knowledge sharing efforts were regularly done for strengthening internal relationship of the staff and creating learning climate. Similarly, the Knowledge and Information Management (KIM) process owner said, the current little practice of KM is being undertaken primarily for two major reasons: to capacitate employees through diverse interventions, and to exercise the effort and laid the foundation towards learning organization. The Development Learning Center (DLC) head of ECSC on the other hand said, the college's practice of knowledge sharing is either for training reason or it definitely is a research publication workshop. As of the Research Publication and Consultancy Office (RPCO)

representative, his department facilitates knowledge imparting sessions for development and academic reasons.

The observation made for weeks also supports this finding. Particularly, the two institutions have no direct market competition where they are to focus on. Besides capacitating the civil service organizations with little concern for the private sector is their mandate and could be the only reason to initiate any change management or transformational projects including knowledge management. The table below shows the respondents opinion on the basic reason of why their organization is currently practicing knowledge management.

Table 6: Employees' Perception of the Rationales of KM

NO.	Rationales for KM		ECSC		EMI		Total	
			N	%	N	%	N	%
1	Employees Retention	NS	44	75.9	26	72.2	70	74.5
		Selected	14	24.1	10	27.8	24	25.5
2	Sharing knowledge	NS	21	36.2	17	50.0	38	41.3
		Selected	37	63.8	17	50.0	54	58.7
3	Train workers	NS	35	60.3	21	61.8	56	60.9
		Selected	23	39.7	13	38.2	36	39.1
4	Protect lose of knowledge	NS	27	46.6	14	41.2	41	44.6
		Selected	31	53.4	20	58.8	51	55.4
5	Improve Efficiency	NS	10	17.2	12	35.3	22	23.9
		Selected	48	82.8	22	64.7	70	76.1
6	Develop Competitiveness	NS	51	87.9	31	91.2	82	89.1
		Selected	7	12.1	3	8.8	10	10.9
7	Integrate KM in the organization	NS	11	19.0	7	20.6	18	19.6
		Selected	47	81.0	27	79.4	74	80.4

Source: survey result (Appendix 1)

Note: NS: - Not Selected

Concerning the future trend of KM, participants were asked about their perception on its importance and the prospect that it will have in their organization. Accordingly, (142)77.2% of ECSC and (64)80% of EMI respondents are positive and can think of the crucial role that KM can play in their organizations' future improvement (Table 5). The rest 22.8% of ECSC and 20.1% EMI has no clear picture on its bright prospect.

Table 7: Participants' View on the Future Importance of KM

Parameters		ECSC		EMI		Total	
1	Yes	142	77.2	64	80.0	206	78.0
2	No	7	3.8	1	1.3	8	3.0
3	I don't know	35	19.0	15	18.8	50	18.9
	Total	184	100.0	80	100.0	264	100.0

Source: survey result (Appendix 1)

Further question was posed for those who said KM can contribute for their organization's future improvement. As mainly said, all the constructive consequences might be result in if successful implementation of the concept can be carried out in their work place. Among all 97.6%, 94.2% and 93.7% of respondents agreed that, Improved corporate or organizational memory, Increased flexibility and innovation, and Improved skills and knowledge of workers are the major results that could be achieved through knowledge management (table 8). With a relatively reduced percentage level, the other results have also been selected as a major outcome if their respective organization start the practice in the neer future.

As of interviewees view also KM shall be part of their daily routine. According to the IPMDS head of ECSC, a lot has to be done to routinize the practice and make everyone involved in the effort. As he further said, the technology shall also be there to support the manual work and transform the knowledge adminstration practice of the college to the better level. The Information Tecnology (IT) section head also support the idea and said the top management should give much emphasis for the unnoticed issue, KM.

All interviewees of EMI was agreed on its importance and has also put their own justification. Apparently, the HRD, KIM and Management Development (MD) processes heads of EMI agreed that, accomplishemnt in KM is meant to be success in terms of efficiency, capacity development, continous learning and better organizatinal performance. Along with the basic mission of the institute, KM has a lot to contribute for both internal operatioin and external clients.

Table 8: Participants' Perception of the Future Importance of KM

No.	Future Importance of KM		ECSC		EMI		Total	
			N	%	N	%	N	%
1	Horizontal Knowledge Sharing	NS	26	18.3	8	12.5	34	16.5
		Selected	116	81.7	56	87.5	172	83.5
2	Vertical knowledge Sharing	NS	20	14.1	6	9.4	26	12.6
		Selected	122	85.9	58	90.6	180	87.4
3	Increased Productivity	NS	21	14.8	4	6.3	25	12.1
		Selected	121	85.2	60	93.8	181	87.9
4	Improved Skill	NS	9	6.3	3	4.7	12	5.8
		Selected	133	93.7	61	95.3	194	94.2
5	Improved Relations	NS	22	15.5	8	12.5	30	14.6
		Selected	120	84.5	56	87.5	176	85.4
6	Enhanced organizational Memory	NS	2	1.4	3	4.7	5	2.4
		Selected	140	98.6	61	95.3	201	97.6
7	Increased Flexibility	NS	10	7.0	3	4.7	13	6.3
		Selected	132	93.0	61	95.3	193	93.7
8	Increased Involvement	NS	8	5.6	9	14.1	17	8.3
		Selected	134	94.4	55	85.9	189	91.7

Source: survey result (Appendix 1)

Note: NS-Not Selected

4.2.2 Strategic Strength and Development Areas KM

Organizational knowledge management initiative is wide in nature and has multiple layers in it. The current strategic strength and future development areas of KM were seen using, the eight KM dimensions which are more or less inclusive to comprehend the existing reality and indicate future prospects from different angles. Hence, participants of the study were asked to genuinely reflect on these perspectives from their experience. As it is mentioned earlier, the organizational comparison is made without considering employees working position since there is no justifiable difference between the two organizations academic as well as administrative staff level of KM expertise in statistical terms ($p<0.05$).

The decision rule is <3.00 mean score denotes developmental areas, =3.00 score takes as average and >3.00 takes as indication of good/strong sides. m=3.00 is taken as it is the mean as well as the median value of 5 level rating scale, i.e. the lowest possible mean score is 1 and the highest will be 5 (Best and Khan, 1995). Thus each of the eight dimensions is compared between the two organizations to show their current level of practice and future prospects.

4.2.2.1 Knowledge Management Process

As participants' response shows (table 9), ECSC and EMI don't have such a different practice with almost similar mean score of 2.71 and 2.70 respectively. Likewise identification of knowledge gaps (m=2.76), and valuation and transfer of tacit knowledge (m=2.52 in ECSC and m=2.51in EMI) variables have comparative image in the two institutions. In other parameters however, this trend will have a different visage. EMI for instance shows a little better effort on securing all staffs' involvement in looking for best practices in human and technological sources (m=3.41). Similarly a little better level of excellence have been seen in ECSC with regard to the existence of integrated knowledge creation, storage, dissemination, use and updating process (m=2.41), and formalization of transferring best practices (m=2.67).

Table 9: Participants' View on Knowledge Management Process

No.	Items	ECSC N=184		EMI N=80		t	p
		Mean	SD	Mean	SD		
P1	integrated KM process	2.41	0.959	2.34	1.018	0.536	0.593
P2	Identification and filling of Knowledge Gaps	2.76	0.993	2.76	1.046	-0.022	0.983
P3	All staffs involvement	3.28	1.028	3.41	0.951	-0.965	0.335
P4	Formalization of transferring best practices	2.67	1.036	2.54	0.927	1.014	0.311
P5	Valuation and transfer of Tacit knowledge	2.52	0.857	2.51	0.841	0.098	0.922
P6	Existence of ethical knowledge gathering mechanism	2.60	1.023	2.63	1.106	-0.168	0.867
	Overall KM Process	2.71	0.608	2.70	0.586	0.094	0.925

Source: survey result (Appendix 1)

To show the implication of the mean difference found in the two organizations, further statistical tool, Independent sample t-test, was carried on each KM process parameters with the assumption of there is no statistically significant difference. As the result shows, of course the two organizations have no a remarkably different practice at df =262, $t(264)=0.094$, $p>0.05(0.925)$ on KM process. Likewise, though different mean scores have been seen, there is no significant variation in each individual predictor variables. Besides, with the exception of securing staffs'

involvement, respondents have rated the current KM processes practice of the two organizations below average (m=3.00) as a developmental area.

IPADS head said in the interview session that though the practice is there, it is not being undertaken by the name of KM. All the formal knowledge imparting gatherings like workshops and seminars are not performed with KM brand. Similar view has been shared by the MD director of EMI. As he said, particularly knowledge sharing is part of the daily routine but not recognized, organized and integrated as one basic component of KM. All the fruitful moves might end up of being futile with the absence of recognizing what is going on there. Basing all this, one can say that the current KM processes are being poorly performed and needs to be developed in both organizations.

4.2.2.2 Leadership in Knowledge Management

The overall evaluation in this variable indicates that ECSC has better KM leadership (m=2.89) than EMI (2.63). These figures are below the expected average mean score (m=3.00) to denote that it is being poorly performed at its current level. Comparatively however, ECSC has scored major practice (m=3.07) in appreciating knowledge creation and sharing efforts and developing strategies for rewarding them. Evaluating and compensating employees based on their knowledge contribution is the other strong competency (m=2.87) of ECSC. On the other hand, EMI's practice on using learning to support existing core competencies and create new ones (m=2.84) is where it excel ECSC in KM leadership aspect.

Independent sample t-test has been done on the variables to check the magnitude of the difference of the mean values in statistical terms with the assumption that ECSC and EMI has similar KM leadership practices. However, the test revealed, the two institutions have statistically significant difference at df(262), t(264)=2.512, and $p<0.05$(0.013). The test on each of individual variables has also given the same implication. Particularly the two institutions have different practice in appreciating and rewarding knowledge creation and sharing efforts at df=262, t(264) = 4.42, and $p<0.05$(0.001) and evaluating and compensating employees for their contribution for organizational knowledge at df=262, t(264) = 3.57, and $p<0.05$(0.001). Remarkable variations in the other parameters have not been seen in the test.

Table 10: Participants' View on Knowledge Management Leadership

No.	Items	ECSC N=184		EMI N=80		t	p
		Mean	SD	Mean	SD		
L1	Strategies center KM	2.91	1.262	2.91	1.134	-0.38	0.969
L2	appreciates and reward KM efforts	3.07	1.131	2.44	0.912	4.420	0.001
L3	learning to develop core competencies	2.76	1.091	2.84	0.920	-0.567	0.571
L4	Reward based on knowledge contribution	2.87	1.134	2.35	0.965	3.575	0.001
	Overall KM Leadership	2.899	0.843	2.630	0.691	2.512	0.013

Source: survey result (Appendix 1)

Interviews with higher officials have also strengthened this fact. ECSC has a practice of rewarding employees, particularly academicians, who contribute for the existing knowledge through research or other endeavors. As RPCO representative of ECSC said, their organization has a continuous arrangement of call for papers and publications. Successful candidates in the area are then eligible for both the monitory reward and the promotion to be made in their working position. However, the RPCO representative believes that the reward amount is not as inspiring as it should be and needs improvement.

Such practices have not been seen in EMI and all interviewees agreed that their organization is not good enough in the pitch. As the researcher observed the ECSC notice boards also, there have been three calls for papers particularly on change management and transformation efforts of the country particularly on the civil service organizations. These ECSC research calls have also been posted in EMI. From both the quantitative and qualitative data, therefore it's possible to say that the ECSC's leadership practice on KM is a little better than that of EMI's though the majority of figures score is below average (m=3.00) and mark it as developmental area.

4.2.2.3 Knowledge Management Culture

Unlike to KM leadership, there is an indication of better organizational culture in EMI (m=3.40) than that of ECSC (m=3.18). Further examination of each cultural component has also given similar indication. ECSC has better encouragement and facilitation of knowledge sharing (m=3.22) while with a considerable mean score, a climate of openness and trust is better pervade

in EMI (m=3.49). The responses also shows that EMI staff take responsibility for their own learning (m=3.64) than ECSC (m=3.30). Regarding flexibility and a desire to innovate, a value of (m=3.14) and (m=3.24) has been scored in ECSC and EMI respectively.

Table 11: Participants' View on Knowledge Management Culture

No.	Items	ECSC N=184		EMI N=80		t	p
		Mean	SD	Mean	SD		
C1	facilitate knowledge sharing	3.22	1.182	3.23	1.158	-0.014	0.989
C2	Openness and trust	2.92	1.112	3.49	0.968	-3.970	0.001
C3	Customer value creation	3.35	1.096	3.42	1.000	-0.494	0.622
C4	Flexibility and a desire to innovate	3.14	1.073	3.24	0.936	-0.668	0.505
C5	Staffs take responsibility for learning	3.30	1.111	3.64	1.173	-2.203	0.029
	Overall KM Culture	3.183	0.835	3.403	0.722	-2.040	0.042

Source: survey result (Appendix 1)

To validate the comparative figures, independent sample t-test has been conducted in all variables. There is no statistically significant difference between the two organizations' organizational culture is the assumption made before analysis. However the result at df=262, t(264) = -2.04, and $p<0.05$(0.042) shows that there is statistically significant difference in the existence of knowledge culture in this two organizations. A climate of openness and trust is also different at df=262, t(264) = -3.97, and $p<0.05$(0.001). Similarly there is a significant disparity in the habits of the staff on taking responsibility for their own learning at df=262, t(264) = -2.203, and $p<0.05$(0.029). Close examination on each of the other variables however indicates that the two institutions knowledge culture is not quite different.

Contradictory views have been grasped from the interview sessions run on the culture aspect. For IPADS's head of ECSC, there is an academic culture, encompass openness and sharing, in the college. Continuous efforts are also being made to make this an institutional culture. The RPCO representative and the IT heads on the other hand claims the fact that the college's culture is not positive enough to promote sharing and enhance other KM activities.

The MD directorate director of EMI has said that his institute has a well to say culture particularly on knowledge sharing and forwarding new thoughts and developments in certain

discipline. Individuals' initiation and interest is playing a leading role in this regard and that is why such efforts are not consistent as they ought to be. The HRD and the library heads of EMI have also share the same thoughts. The KIM section head only disagreed with the fact that EMI is not being in the right track of having a knowledge culture which really can play a leading role in creating a learning organization.

Compared with the previous factors, the two organizations' respondents have given a relatively higher level of agreement on the presence of knowledge culture (m>3.00). This might lead us to take the dimension as a relatively strong side. Interviewees on the other hand have not seen their culture from similar angle. With this all disparities, one can say that there is different cultural typology in these two institutions with more positive and sharing habits in EMI.

4.2.2.4 Knowledge Management Technology

Considering the current technological infrastructure and utilization, ECSC has better performance (m=3.56) than EMI (m=3.35). Specifically, highest response rate has been scored (m=3.67) in ECSC in creation of intuitional memory that is accessible to the entire college through technological interventions. Similarly, the ECSC technological facilities have created better linkage between the internal staff and the external public (m=3.66) and brought organizational members closer (m=3.66). The EMI's current practice in this two areas has gotten a response level of (m=3.49) and (m=3.43) respectively.

Table 12: Participants' View on Knowledge Management Technology

No.	Items	ECSC N=184		EMI N=80		t	p
		Mean	SD	Mean	SD		
T1	Links members and external publics.	3.66	1.004	3.49	0.918	1.230	0.220
T2	Creates institutional memory	3.67	1.007	3.32	0.955	2.658	0.008
T3	Brings the organization members closer	3.66	1.014	3.43	0.943	1.685	0.093
T4	Its human-centered	3.36	0.965	3.25	0.988	0.794	0.428
T5	supports collaboration	3.57	1.124	3.37	1.008	1.356	0.176
T6	real-time, integrated, and smart systems are in place	3.45	1.038	3.24	0.990	1.523	0.129
	Overall KM Technology	3.563	0.706	3.353	0.763	2.170	0.031

Source: survey result (Appendix 1)

To look for significant difference, independent sample t-test is carried out with the assumption that the two organizations have no statistically noticeable variation in the technology dimension of knowledge management. As per the test result, there is a significant difference at df=262, t(264) = 2.170, and $p<0.05$(0.031). In addition, a remarkable difference is seen in utilization of technology for creating intuitional memory at df=262, t(264) = 2.658, and $p<0.05$(0.008). In other variables, though there is a slight variation in the mean scores, their magnitude is not significant to say the two organizations are in a different track of using the technology for facilitating the management of their intellectual asset.

It is observed that the two organizations have different technological infrastructure with a little more enormous exploitation in ECSC. The centralized database for students' registration and grade administration, the human resource and payroll systems, property management systems (ERMS) and the to be constructed library and BSC systems are part of the software tools found to facilitate the daily routine of ECSC. As the IT head also said, Video Conferencing, Woreda Conferencing, the internal local area network (LAN) and Ms Outlooks with 3mg/sec and 6mg/sec fast speed internet facilities are there to make the knowledge sharing and communication efforts of the college's community smooth.

In EMI also such facilities are found but most of are in their construction and testing stages. Ms Outlook, LAN with 1mg/sec internet access has prevailed in the institute. Application softwares, as the KIM head stated, are designed for different processes of the institute and being tested for their full installation. The library and part of the facility and services management systems have already started operation.

Websites of the two institutes were also reviewed and found to be attractive and exciting in their design. Concerning their facilities both websites have a hybrid nature of document-centered and application-centered design type. They give information and also permit users to interact with what they see through the provision of application features like online registration and members alumni. However the ECSC's site is more wide and vast in its content than the EMI's one.

IPADS, DLC and library section heads of ECSC take the college's IT facilities as outstanding and better one than even other similar institutions. From the other corner, as the MD director of

EMI said, the institute's technological infrastructure is paving the way for members' smooth relationship and knowledge sharing. Especially the full scale deployment of the planned systems will definitely transform the current work and communication systems. KIM head also exclaimed this view and said the existing technological facilities are being improved and will have a significant effect on the coming EMI's performance.

All in all, both the interview and the observation made revealed that the technological setup of the institutes is relatively better and still under construction. Respondents opinion in the questionnaire is also beyond the average mean score (m=3.00) to show the current good practice. But on its current status all the findings states that ECSC is good in the area and have a massive technological infrastructure to facilitate KM activities than EMI.

4.2.2.5 Knowledge Management Measurement

Unlike to the other dimensions, slightly lower level of performance is seen in KM measurement perspective. Taking the general picture of respondents' view, EMI is performing better (m=2.71) than ECSC (m=2.68). The same trend is seen in individual components with a mean value of less than the average score (m=3.00) and comparatively with greater magnitude in EMI.

Table 13: Participants' View on Knowledge Management Measurement

No.	Items	ECSC N=184		EMI N=80		t	p
		Mean	SD	Mean	SD		
M1	Link knowledge to financial and performance results.	2.74	1.030	2.75	1.002	-0.073	0.942
M2	Set of indicators to manage knowledge.	2.48	1.088	2.48	1.096	-0.034	0.973
M3	Measures balance financial and non-financial indicators.	2.66	1.031	2.67	0.935	-0.013	0.989
M4	Allocates resources to increase its knowledge base.	2.88	1.146	2.87	1.090	-0.030	0.976
	Overall KM measurement	2.688	0.899	2.708	0.778	-0.180	0.857

Source: survey result (Appendix 1)

Checking the significance of the difference observed in the mean scores using the independent sample t-test witnessed that, thought there is a slight variation in the mean scores, it is not significant and possible to say that the two organizations have different practices. Hence the

assumption, there is no significant difference, is accepted at df=262, t(264) = -0.180, and p>0.05(0.857).

As the interview with MD director of EMI and IPADS head revealed, the Balanced Score Card (BSC) of the two institutions has included knowledge sharing, and creating a new one as performance meters. Besides, continuous efforts are being carried out to increase the knowledge base of their organization. Particularly as the MD head states; "this could be manifested through the investment made on technology and educating individual employees". However, they all agreed that, these are not enough to say that the organizations are measuring their KM effort. The inference here is thus, KM measurement is one of the developmental area in the two institutions with a lesser mean value, (<3.00)

4.2.2.6 Knowledge Management Policies and Strategies

The comparative view of the responses given indicates that EMI has better (m=2.87) KM related policy and strategy practices than ECSC (m=2.64). Taking a closer look on the variables revealed two different patterns in the response given by the study participants. ECSC has better practice on integrating KM into the overall organizational management system (m=2.58) and communication of KM related policies and strategies to all staff (m=2.35). The highest positive response rate is given as EMI has a clearly identifiable organ (m=3.33) which is responsible for crafting KM policies and strategies. Likewise, the EMI's strategy is more focused on continuous learning (m=3.57) than the ECSC's one (m=2.96).

To conduct the independent sample t-test, it is first assumed that the two organizations have no significant difference in the mean scores. At df=262, t(264) = -2.237, and p<0.05(0.026), ECSC and EMI have statistically significant difference in the KM policies and strategies practices. Further examination was made to trace back where the difference is emanated from. There is a significant difference in the existence of responsible organ for KM policy and strategy and focusing the organization's strategy in continuous learning at df=262, t(264) = -4.314, and p<0.05(0.001) and at df=262, t(264) = -4.457, and p<0.05(0.001) respectively. The two intuitions have no statistically different practice on communicating KM policy and strategies to all staffs and integrating the issues of KM into the overall organizational management system.

Table 14: Participants' View on Knowledge Management Policies and Strategies

No.	Items	ECSC N=184		EMI N=80		t	p
		Mean	SD	Mean	SD		
S1	integrated into the overall management system	2.58	1.061	2.35	0.951	1.664	0.097
S2	communicated to all staff	2.31	0.946	2.14	0.875	1.264	0.208
S3	the responsible organ is clearly identified	2.65	1.138	3.33	1.213	-4.314	0.001
S4	The organization's strategic focus support continuous learning	2.96	1.206	3.57	0.929	-4.457	0.001
	Overall KM policies and strategies	2.641	0.895	2.872	0.708	-2.237	0.026

Source: survey result (Appendix 1)

The EMI's organizational structure document shows that there is the so called "*Knowledge and Information Management*" work unit in the organization with a prime duty of facilitating KM related activities including crafting a strategy and related policies. Regarding ECSC, however, there is no such department to accept all the credits concerning KM.

Although there is a separate work unit, as HRD manager of EMI states, there is still confusion on the exact place of KM in the organization. As of the MD director also, there have been debates on whether KM should be part of HRD or IT department while conducting the BPR. Such uncertainties on where the KM responsibility should lie have persisted to affect the current policy and strategy dimension of KM. The interview with EMI's KIM leader indicates that there is no KM related policy or strategy in the organization. The main reason for this is that the institute has put a precondition of conducting BPR (not have been considered in the previous moves) on the department before preparing administrative documents.

As the IPADS head of ECSC told, though a separate unit haven not been dedicated for the task, KM activities are part of all departments work routine. That is also why it doesn't have a separate policy and strategy for its implementation. The DLC and IT section heads of ECSC have also said, the college has no policy and/or strategy on KM. However, KM related concerns are tried to be integrated in the overall strategic plan of the organization. Most academic endeavors (including research and publication) have been taken into consideration and implicitly are thought to be part of the organization's KM documents.

Both organizations are now crafting there strategic plan using BSC tool. As it is known BSC has a 'learning and growth' strategic perspective to focus on continuous learning and improvement. In this respect, it's possible to say that the two organizations' strategic focus has included continuous learning through BSC. Besides, both organizations put this fact as their core value in their strategic plan document. In addition, their second strategic theme has focused on organizational improvement through persistent learning and capacity development.

Generally, below the expected mean scores (m=3.00) have been gained in all dimensions with the fact that there is no notable document to resemble a KM policy and/or strategy guide of the two institutes. Even if it is considered as developmental area however, still there are implicitly done initiatives in the institutes. As a remark anyways, we can say that, comparatively the EMI's current trend in KM policy and strategy aspect is better than ECSC particularly in putting responsible body and triggering the overall strategy in a continuous learning paradigm.

4.2.2.7 Knowledge Management Training and Development

The two organizations have more or less similar level of practices (m=2.86) in the training and development ward. However, certain difference is there as per the respondents opinion. EMI has shown better practice on coaching and mentoring efforts (m=2.73) and the transfer of knowledge from experienced to new or less experienced staffs (m=3.00). ECSC on the other hand shows comparatively better performance in evaluating employees competency (m=2.79) and implementing human performance improvement program (m=2.74). Encouraging workers to continue their education by reimbursing tuitions is the only factor where the two organizations manifested good practice (m=3.29 in ECSC and m=3.15 in EMI) with a relative higher performance in ECSC.

Further statistical tool, independent sample t-test, has been done on the variables with the assumption that there is no statistically significant difference between the two organizations KM training and development practice. As the result shows at df=262, t(264) = 0.012, and p>0.05(0.991), the assumption is held true. The Individual variables' test has also revealed the same fact that though there is a minor difference between the mean scores; it is not statistically remarkable to say that the two organizations have completely different image.

Table 15: Participants' View on Knowledge Management Training and Development

No.	Items	ECSC N=184		EMI N=80		t	p
		Mean	SD	Mean	SD		
TD1	Formal trainings on KM practices	2.88	1.112	2.84	1.084	0.254	0.800
TD2	Experienced workers transfer their knowledge to new workers	2.88	1.174	3.00	0.974	-0.895	0.372
TD3	Workers are encouraged to continue their education	3.29	1.072	3.15	0.869	1.107	0.270
TD4	Employees competence is being evaluated on a regular basis	2.79	1.136	2.72	1.154	0.469	0.640
TD5	Human performance improvement program	2.74	1.073	2.71	0.877	0.212	0.832
TD6	Coaching and mentoring is being used as knowledge sharing tool	2.61	1.200	2.73	1.174	-0.782	0.435
	Overall KM training and development	2.864	0.852	2.863	0.629	0.012	0.991

Source: survey result (Appendix 1)

The interview conducted with the HRM head of ECSC and HRD manager of EMI revealed that there is strong and well established training facilities in the two organizations. This in return gave an ample opportunity to capacitate staffs in diverse needs unlike to other organizations. However as all interviewees said, there was no a KM training program ether for the internal staff or for the external customer.

As the two organizations' training brochure printed in black and white, there is no the so called knowledge management program in their service packages. In EMI however the topic has found as one day session of HRM training. In the same organization, one documented video head set (VHS) was seen with an image of a learning forum held among the institute's professional employees on KM before six years. The forum's primary target was to create awareness and discuss on the implication that KM has in the institute's overall operation. However, as some witnesses said, that was the last time of the institute to talk about KM in learning forums.

Remarkably, both ECSC and EMI are major suppliers of the government capacity development needs. However a little concern for KM training and development have been seen both from the questionnaire, with less than average mean score (m=3.00), interview and document review information sources. So it's considered as developmental areas.

4.2.2.8 Methods, Procedures & Documentation Processes for Improving KM

Equal number of respondents' opinion have been taken (m=2.71) to reflect the fact that the two organizations have almost comparable method, procedure and documentation for improving KM practices. The same result has also been gained by focusing on individual predictors. Both organizations have parallel level of practice in regularly conducting external benchmarking (m=2.73), taking feedback from best practices (m=2.70), and regularly making organizational self assessment to enhance KM (m=2.77) elements. Composition of teams to develop knowledge transfer is better in EMI (m=2.83) while similar level of practice have been seen in the rest parameters. Unfortunately the respondents opinion on the existing practices has a slightly lower mean score than the expected value (m=3.00) and mark the dimension as developmental.

Table 16: Documentation Methods, Procedures and Processes of Knowledge Management

No.	Items	ECSC N=184		EMI N=80		t	p
		Mean	SD	Mean	SD		
D1	Comprehensive methodology that addresses learning from experience.	2.81	0.998	2.80	0.853	0.079	0.937
D2	Organizational self assessments are regularly used to enhance organizational knowledge.	2.77	1.740	2.78	1.113	-0.001	0.999
D3	External benchmarking is regularly used	2.73	1.063	2.73	0.970	0.005	0.996
D4	Feedback from best practices is used	2.71	1.055	2.70	0.892	0.041	0.967
D5	Compose work teams in a way to enhance knowledge transfer	2.81	1.066	2.83	0.982	0.005	0.996
D6	Work activities are documented to make knowledge retrieved, shared and utilized	2.58	1.109	2.57	0.872	0.057	0.955
D7	Procedures, work methods, and related documentations are being updated	2.60	1.107	2.61	0.926	-0.066	0.948
	Overall KM documentation	2.713	0.876	2.714	0.607	0.006	0.995

Source: survey result (Appendix 1)

Independent sample t-test has finally been carried out to see whether the difference is there between the two organizations' documentation practice. The initial assumption is that there is similar trend. As the test result also proved, EMI and ECSC are in the same level of overall KM documentation at df=262, t(264) = -0.006, and p>0.05(0.995). Testing each individual parameter

has also revealed the same fact that there is no statistically significant different in the practice of this perspective in the two organizations.

In the BPR endeavor of MD process, EMI, there was a designed knowledge bank system to be used to store best practices in training, consultancy and research ward for further reference purposes, said by the MD director. However, it's now run by the institute's KIM section and not still functional due to so many factors. The KIM head of the institute has also said that the knowledge bank system is part of the started system development projects to fully automate the task and fulfill things in one click event. Partially, the KIM head continues, the institute's library is doing documentation tasks for both internal and external users.

As the library unit team leader of ECSC said, though its intention is only focused on written materials and books, the college's library is striving to create a central knowledge repository for further needs. Research outputs, articles, books and important documents are part of the library's collection. The college's DLC head also stated that, even if it's reliant on individual's attitude to do things positively, there is a room for sharing best practices and create awaked society to unforeseen events.

The observation made on the two institutions support what the leaders said on their documentation practices. Both institutes have well organized libraries which are opened for any well wisher even outside their compound. However, all the reservations and transferring practices are focused on explicit knowledge with little concern for tacit aspect of individual's expertise. Besides, they gave much emphasis for academic works like books and journals than best practices. Utterly, all the collected data inclined to the point that, there is unfulfilled gap on putting comprehensive methodology and practice to reserve knowledge for future improvement.

4.2.3 Knowledge Management Maturity Level

Leveling the two organizations' maturity using the General Knowledge Management Maturity Model (G-KMMM) and the aforementioned eight KM perspectives is the other important phase of analysis. The maturity figures are determined in three comprehensive dimensions and aggregate figure as suggested by Gallagher and Altalib, (2008).

4.2.3.1 People/ Organization Perspective

As the response given by the study participants indicated (table 17), both EMI (m=1.76) and ECSC (m=1.66) organizational members have the awareness of the need to manage intellectual resources. Similarly the two organizations' management is said to have a high level of awareness, (m=3.22 in ECSC) and (m=3.39 in EMI) on the importance of having KM system. Regarding the managements' consciousness on their role towards encouraging the effort however, EMI's respondents have given positive response (m=3.21) than that of ECSC (m=2.70). Though there is weak practice of installing common strategy and standardize approach of KM, ECSC is comparatively better in incorporating KM issues in the overall organizational strategy (m=2.51). Conversely, there is a little better knowledge sharing culture in EMI (m=2.90).

Further statistical analysis, one sample t-test, was carried out to check the statistically significant level of maturity that the two organizations attained as per G-KMM model. The assumption made was the mean scores in each maturity levels are not significantly different from the test value (m=3.00).

Table 17: People/Organization Perspective of KM Maturity

		ECSC				EMI			
level	Description	Mean	SD	t	p	Mean	SD	t	p
1	No awareness of KM	1.66	0.818	-21.990	0.001	1.76	0.895	-12.324	0.001
2	The mgt awareness on the need of KM	*3.22*	1.095	2.694	0.008	3.39	1.037	3.342	0.001
3	The management awareness on its role	2.70	1.037	-3.979	0.001	*3.21*	0.741	2.565	0.012
4	Common strategy and standardize approach	2.79	1.142	-2.466	0.015	2.72	1.022	-2.477	0.015
5	Incorporation of KM in overall strategy	2.51	1.114	-5.874	0.001	2.34	.856	-6.922	0.001
5	The culture of knowledge sharing is institutionalized	2.88	1.134	-1.430	0.154	2.90	1.052	-0.748	0.456

Source: the survey result (Appendix 1)

As the result revealed, both institutions are not in the initial KM maturity stage with significantly lower mean score than the test value at df=183, $t(184) = -21.990$, and $p<0.05(0.001)$, ECSC and at df=79, $t(80) = -12.324$, and $p<0.05(0.001)$, EMI. In the awareness stage, a remarkably greater

Furthermore, the net effect of each independent variable was computed and compared to denote their relative importance for variation of the maturity level. The standardized equivalent of the b coefficient (beta weight) or β was also computed to make the measurements of the three scales comparable. As table 19 shows, the relative importance of the three KM elements in predicting the people/organization aspect of maturity was found to have a positive linear relation(0.416) only for the leadership aspect of KM in ECSC, which is statistically significant at $t_{(3,180)} = 3.436$, $p<0.05(0.001)$. The effect of the other two variables in ECSC context is not significant at $t_{(3,180)} = 1.524$, $p>0.05(0.129)$ for culture and $t_{(3,180)} = -1.786$, $p>0.05(0.076)$ for the policy and strategy perspectives. The last variable, policy and strategy has no even positive relationship (-0.190) through it's not statistically significant with a p value greater than 0.05.

In EMI's practices, two variables out of the three have shown relative importance on predicting KM maturity in people/organization aspect. Accordingly, positive relation have been found in culture (0.382) and policy and strategy (0.245) dimensions which are statistically significant at $t_{(3,76)} = 3.381$, $p<0.05(0.001)$ and $t_{(3,76)} = 2.249$, $p<0.05(0.027)$ respectively. Unlike to ECSC, the leadership predicting magnitude of the EMI's KM maturity level is not statistically remarkable at $t_{(3,76)} = 0.945$, $p>0.05(0.348)$. Generally, from the regressed result, one can say that, the 11.3% of ECSC's and the 31.8% of EMI's variation in the people/organization dimension of KM maturity is accounted for and justified by leadership alone in ECSC and culture and policy/strategy perspectives together in EMI. The rest is done by predictors which were not part of the study.

Table 19: The Relative Contribution of Variables for the People/Organization Maturity Level

No.	Organization	Variables	Un-standardized Coefficients		Standardized Coefficients	t	p
			B	SE	β		
1	ECSC	(Constant)	1.890	0.319	-	5.933	0.001
		KMC	0.195	0.128	0.149	1.524	0.129
		KML	0.416	0.121	0.321	3.436	0.001
		KMS	-0.190	0.106	-0.155	-1.786	0.076
2	EMI	(Constant)	0.926	0.395	-	2.343	0.022
		KMC	0.382	0.113	0.373	3.381	0.001
		KML	0.107	0.113	0.100	0.945	0.348
		KMS	0.245	0.109	0.234	2.249	0.027

Source: survey result (Appendix 1)

4.2.3.2 Management System/Process Perspective

As the respondents opinion, there is a practice of knowledge capturing, sharing and reuse in both EMI (m=2.26) and ECSC (m=2.37). The highest mean score has been gained (m=3.17) and (m=3.23) in ECSC and EMI respectively regarding the documentation of knowledge required for routine tasks. Unlikely, lower levels of mean scores have been found in the rest levels of KM maturity. The one sample t-test with a test value of 3.00 has been conducted to check where the two organizations significantly belong in the G-KMM model. The assumption held was that there is no statistically significant difference between the organization's mean score and the test value at each maturity level. However as the test results indicated, the nearest significantly higher score obtained in G-KMM model continuum for both ECSC and EMI is at stage two with df=183, t(184) = 2.345, and p<0.05(0.020) and df=79, t(80) = 2.583, and p<0.05(0.012) respectively.

Table 20: Management System/Process Dimension of KM Maturity

Level	Description	ECSC				EMI			
		Mean	SD	t	p	Mean	SD	t	p
1	No knowledge capturing , share and reuse practices	2.37	0.949	-9.010	0.001	2.26	0.964	-6.839	0.001
2	Knowledge for routine tasks are documented	3.17	0.974	2.345	0.020	3.23	0.779	2.583	0.012
3	KM related processes are formalized	2.46	1.189	-6.153	0.001	2.40	0.949	-5.653	0.004
4	Performance measures of productivity based on KM	2.69	1.180	-3.572	0.001	2.73	1.034	-2.285	0.025
5	KM processes are continuously reviewed	2.96	1.226	-0.482	0.630	2.90	1.014	-0.882	0.380
5	Existing KM processes are easily adaptable	2.60	1.092	-4.930	0.001	2.43	0.792	-6.494	0.001

Source: survey result (Appendix 1)

The institutes have good level of practice in some important but part of the higher KM maturity level activities. For instance both EMI's (m=2.90) and ECSC's (m=2.96) respondents' believes that their organization's existing KM process is being continuously reviewed and improved. The mean scores are not significantly greater than the test value at df = 79, t(80) = -0.882, and p > 0.05(0.380) in EMI and df =183, t(184) = -0.480, and p>0.05(0.630) in ECSC. In addition the corresponding negative t-value takes back both ECSC and EMI in second KM maturity level.

The multiple regression analysis has been carried out to trace the KM variables which have significantly contributed for the current maturity level. Elements considered here are policy, training and development, measurement and documentation which are highly related with the management system/process of KM.

As a result, similar level of positive relationship (0.68) between the four variables and the maturity level have been gained in both institutions. Besides, the coefficient of determination (R^2) was found to be 0.46 to indicate that 46% of ECSC's and EMI's KM maturity in the management system/process dimension is determined by the four perspectives. The regression analysis finally shows that the independent elements have statistically significant contribution for the current maturity level at $F_{(4,179)} = 38.528$, $p<0.05(0.001)$ in ECSC and at $F_{(4,75)} = 16.150$, $p<0.05(0.001)$ in EMI.

Table 21: Variance in Management System/Process Aspect Determined By the Four Elements

No.	Organization	R	R^2	Source of variation	SS	df	MS	F	p
1	ECSC	0.682	0.464	Regression	80.397	4	20.099	38.528	0.001
				Residual	93.381	179	0.522		
				Total	173.777	183			
2	EMI	0.680	0.462	Regression	22.189	4	5.547	16.150	0.001
				Residual	25.761	75	0.343		
				Total	47.950	79			

Source: survey result (Appendix 1)

Further analysis has been made to see and compare the net effect of the independent variables and their relative importance on varying the management system/process maturity level. To make the measurements of the four scales comparable, the standardized equivalent of the b coefficient (beta weight) or β was also computed. As table 22 shows, the management system/process aspect of maturity in ECSC have positive relation with the KMTD (0.326), KMM (0.259), and KMD (0.271) variables. This relative importance of variables on predicting the current maturity level is statistically significant at $t_{(4,179)} = 3.410$, $p<0.05(0.001)$ for KMTD, $t_{(4,179)} = 3.061$, $p<0.05(0.003)$ for KMD and $t_{(4,179)} = 2.831$, $p<0.05(0.005)$ for KMM parameters. The effect of the other variable, KMP, is not significant at $t_{(3,180)} = 0.066$, $p>0.05(947)$. Thus the 46% of variability of the ECSC's KM system/process perspective is determined by the three

important parameters whereas the rest is accounted for other predictors which are not included in this study.

As the regression of the four variables revealed also (table 22), two variables out of the four have shown relative importance on predicting EMI's KM maturity in management system/process aspect. Accordingly, positive relations are found in KMM (0.53) and KMD (0.39) dimensions which are statistically significant at $t_{(4,75)} = 4.962$, $p<0.05(0.001)$ and $t_{(4,75)}=3.207$, $p<0.05(0.002)$ respectively. KMP and KMTD variables predicting magnitude of the EMI's KM maturity level is not statistically considerable at $t_{(4,75)} = -1.686$, $p>0.05(0.096)$ and $t_{(4,75)} = 1.244$, $p>0.05(0.217)$ respectively. Particularly, the KMP have no positive relations (-0.232) with a negative t-value though it is not statistically significant at greater probability level ($p>0.05$). Generally, having these figures, one can say that, the 46% of EMI's variation in the management systems/process dimension of KM maturity is accounted for the measurement and documentation perspectives whereas the rest will remarkable justified by other variables which are not included in the study.

Table 22: the relative contribution of variables for management system/process maturity level

No.	Organization	Variables	Un-standardized Coefficients		Standardized Coefficients	t	p
			B	SE	β		
1	ECSC	(Constant)	0.785	0.251	-	3.131	0.002
		KMP	0.008	0.115	0.005	.066	0.947
		KMM	0.259	0.092	0.239	2.831	0.005
		KMD	0.271	0.088	0.243	3.061	0.003
		KMTD	0.326	0.095	0.284	3.410	0.001
2	EMI	(Constant)	0.927	0.404	-	2.297	0.024
		KMP	-0.232	0.138	-0.175	-1.686	0.096
		KMM	0.531	0.107	0.531	4.962	0.001
		KMD	0.391	0.122	0.304	3.207	0.002
		KMTD	0.148	0.119	0.120	1.244	0.217

Source: survey result (Appendix 1)

4.2.3.3 Technology

Majority of respondents agreed with the fact that there is KM related technology (EMI m=2.01) and (ECSC m=2.24) in their respective organization. Besides, their agreement has extended to the level that initial KM projects are being carried out (EMI m=3.41) and (ECSC m=3.23) and

basic KM related infrastructure is present in their current organizational setup (EMI m=3.19) and (ECSC m=3.17). Unlike to EMI, ECSC has done well in installing organization wide KM technology systems (m=3.28), and ensuring reasonable usage rate of existing facilities (m=3.08).

Table 23: The Technology Aspect KM Maturity

Level	Description	ECSC				EMI			
		Mean	SD	t	P	Mean	SD	t	p
1	No KM technology	2.24	0.929	-11.028	0.001	2.01	0.803	-10.994	0.001
2	initial KM projects	3.23	1.107	2.872	0.005	3.41	0.924	3.995	0.001
3	Basic KM infrastructure	3.17	1.005	2.293	0.023	3.19	0.828	2.025	0.046
4	Organizational wide KM technology systems	3.28	0.773	4.960	0.001	2.79	0.964	-2.089	0.040
5	Usage of KM systems at reasonable level	3.08	1.226	0.904	0.367	2.71	0.957	-2.686	0.009
5	Continuous improvement of the existing KM system	2.43	1.235	-6.207	0.001	2.50	0.900	-4.969	0.001

Source: survey result (Appendix 1)

With the assumption of there is no statistically significant difference between the two organizations' mean score and the test value, the one sample t-test was conducted at each maturity level. According to the result, the next highest statistically significant mean score was gained at stage four in ECSC with df=183, $t(184) = 4.960$, and $p<0.05(0.001)$. Though the mean score for stage five (m=3.082) is higher than the test value, it is not significantly greater at df=183, $t(184) = 0.904$, and $p>0.05(0.367)$ to take the organization at stage five. Conversely, EMI's next highest mean score is at stage three with df=79, $t(80) = 2.025$, and $p<0.05(0.046)$.

Both organizations have scored lowest mean scores at the latest stages in the G-KMM model continuum. Though interviewees said there is continuous improvement in the overall technological infrastructure, employee respondents could not take it as a considerable move to get their organization in KM track. Totally based on the decision rule of G-KMM model, ECSC is at stage four and EMI is at stage three of KM maturity level in the technology perspective.

The only one related variable, technology, to this maturity perspective has then been regressed to see its significance and relation as per respondents view. Unlike to the other dimensions, linear regression was carried out since there in one independent variable. As table 24 shows, the KM technology has a positive linear relation (0.77 in ECSC and 0.88 in EMI) with its own maturity

level. Similarly, the coefficient of determination (R^2) shows that 60% ECSC's and 78% of EMI's KM maturity in technology aspect can be predicted by related technological initiatives and practices. The technological elements or activities of KM have a statistically significant contribution for it maturity level at $F_{(1,182)} = 277.264$, $p<0.05(0.001)$ in ECSC and at $F_{(1,78)} = 285.579$, $p<0.05(0.001)$ in EMI. Thus it's possible to say that, the 60% of variability of the ECSC's and 78% of the EMI's KM technology maturity perspective is determined by related technological initiatives, whereas the rest is accounted for other predictors which are not included in this study. The net effect of the independent variable and its relative importance on varying the maturity level have not been seen since there is only one variable in the test.

Table 24: Variance in the Technology Aspect of KM Maturity

No.	Organization	R	R^2	Source of variation	SS	df	MS	F	p
1	ECSC	0.777	0.604	Regression	65.989	1	65.989	277.264	0.001
				Residual	43.316	182	0.238		
				Total	109.304	183			
2	EMI	0.886	0.785	Regression	42.562	1	42.562	285.579	0.001
				Residual	11.625	78	0.149		
				Total	54.188	79			

Source: survey result (Appendix 1)

4.2.3.4 Overall Maturity Level

The blended characteristics of the three KM maturity dimensions give the complete picture of an organization. Thus as the respondents overall opinion on the three predictors confirms, EMI (m=3.341) and ECSC (m=3.205), have a considerable level of intention and awareness to use their organizational knowledge resources.

Further statistical test has been employed to see the significance of the difference found between the mean scores and the established test value. The assumption was there is not statistically significant variation between the observed means and the theoretical value in all level. As the one sample t-test result shows, the two organizations overall knowledge management maturity level, as per the G-KMM model, is almost similar. Their next significantly higher mean value of the three is scored at stage two with df=183, $t(184) = 4.631$, and $p<0.05(0.001)$ in ECSC and at

df=79, t(80) = 5.305, and p<0.05(0.001) in EMI. This shows that the two organizations current KM maturity level has featured at level 2, awareness stage.

Table 25: Overall Knowledge Management Maturity Level

Level	Description	ECSC				EMI			
		Mean	SD	t	P	Mean	SD	t	p
1	Little or no intention to make use of organizational knowledge resources	2.099	0.548	-22.276	0.001	2.015	0.512	-17.228	0.001
2	Organization is aware of and has the intention to manage its organizational knowledge.	3.205	0.642	4.631	0.001	3.341	0.513	5.305	0.001
3	Organizations has put in place a basic infrastructure to support KM	2.769	0.684	-4.562	0.001	2.933	0.507	-1.176	0.243
4	KM initiatives are well established in the organization	2.926	0.620	-1.625	0.106	2.733	0.603	-4.000	0.001
5	KM is deeply integrated into the organization and is continually improving.	2.746	0.469	-7.338	0.001	2.631	0.376	-8.729	0.001

Source: survey result (Appendix 1)

As it's discussed so far various maturity levels have been seen in the three perspectives. Thus a multiple regression analysis was carried out to trace back which dimensions among the people/organization, management system/process and technology have a considerable magnitude to take the overall maturity level to stage two. As of the different practice in ECSC and EMI, the independent variables are also different. For ECSC's level two of people/organization and management system, and level four of technology are considered whereas level three of people/organization and technology and level two of management system variables are regressed for EMI's overall picture.

As per the responses given, the maturity level where the two organizations fall in the people/management, technology, and management system/process have a strong positive linear relations (R=0.83) in ECSC and (R=0.74) in EMI. The coefficient of determination (R^2) was also found to be 0.69 and 0.54 in ECSC and EMI respectively. That is 69% of ECSC's and 54% of EMI's overall KM maturity is determined by the where the organizations maturity level exist in the three perspectives. All in all, when the overall dimension was regressed on the three dimensions, they contribute at statistically significant level both in ECSC, $F_{(3,180)} = 130.868$, $p<0.05(0.001)$ and in EMI, $F_{(3,76)} = 30.263$, $p<0.05(0.001)$.

Table 26: Variance in the Overall KM Maturity Level

No.	Organization	R	R^2	Source of variation	SS	df	MS	F	p
1	ECSC	0.828	0.686	Regression	51.746	3	17.249	130.868	0.001
				Residual	23.725	180	0.132		
				Total	75.471	183			
2	EMI	0.738	0.544	Regression	14.271	3	4.757	30.263	0.001
				Residual	11.946	76	0.157		
				Total	26.217	79			

Source: survey result (Appendix 1)

Further analysis has been made to see and compare the net effect of the independent variables and their relative importance on varying the overall organizational maturity level. As table 22 shows, the overall maturity level of ECSC have positive relation with the process (0.366), and people (0.283) maturity levels. This relative importance of the independent maturity levels on predicting the overall stage is statistically significant at $t_{(3,180)} = 12.645$, $p<0.05(0.001)$ for management system/process and $t_{(3,180)} = 11.223$, $p<0.05(0.001)$ for people/organization parameters. The effect of the other maturity variables, KM technology, is not significant to feature the overall ECSC picture in stage two at $t_{(3,180)} = 1.833$, $p>0.05(0.068)$. Thus the 69% of variability of the ECSC's overall KM maturity is predicted by the management system/process and the people/organization parameters whereas the rest is accounted for other factors which are not analyzed in this study.

In EMI's context, the two maturity dimensions out of the three have shown relative importance on predicting overall KM maturity. Accordingly, positive linear relation have been found in process (0.436) and technology (0.223) perspectives which are statistically significant at $t_{(3,76)}=6.940$, $p<0.05(0.001)$ and $t_{(3,76)} = 3.914$, $p<0.05(0.001)$ respectively. The people predicting magnitude of the EMI's overall KM maturity level is not statistically remarkable at $t_{(3,76)}=-0.537$, $p>0.05(0.593)$. Though it's not statistically significant at $p>0.05$, there is negative linear relations (-0.035) between the people maturity dimensions and the overall KM maturity level. Generally, from the regressed result, one can say that, the 54% of EMI's variation in the overall KM

maturity is accounted for the technology and management system perspectives while the rest is determined by factors which are not included in this analysis.

Table 27: The Relative Contribution of Variables on KM Maturity

No.	Organization	Variables	Un-standardized Coefficients		Standardized Coefficients	t	p
			B	SE	β		
1	ECSC	(Constant)	0.916	0.140		6.523	0.001
		Process	0.366	0.029	0.556	12.645	0.001
		People	0.283	0.025	0.482	11.223	0.001
		Technology	0.067	0.036	0.080	1.833	0.068
2	EMI	(Constant)	1.336	0.257		5.191	0.001
		Process	0.436	0.063	0.589	6.940	0.001
		Technology	0.223	0.057	0.321	3.914	0.001
		People	-0.035	0.064	-0.044	-0.537	0.593

Source: survey result (Appendix 1)

4.2.4 Knowledge Sharing Strategies

There are a number of strategies to foster knowledge sharing among organizational members. As a matter of fact, these strategies have to be well adopted as per the current working atmosphere and environmental conditions (Iyer and Ravindran, 2009). Higher officials of the institutes were asked in these regard on their current systems to advocate knowledge sharing.

According to the MD director of EMI, there are learning forums, and workshops designed to create room for discussion and knowledge sharing among professional employees. The informal gatherings like the monthly coffee ceremony and the celebrations on public holidays have their own role in knowledge sharing. Feedback mechanisms, coaching, and friendly talks are also being exploited to exchange constructive ideas and thoughts. However, consistently performing these assignments is a challenging one and demands a lot.

Trainings and experience sharing are mainly being carried out in the organization said the KIM head, but he is still in doubt of the existence of systematic knowledge sharing. The internal technological facilities (the LAN and the Ms Outlook) and the broad arena internet have been doing favor for the institute. He also appreciate the library's effort of forwarding important

inputs through the net and providing the E-journal service as a major strive to share knowledge. The library head of the institute assert this fact though there are lots of impediments. The HRD manager said also those informal gatherings, for instance the lunch time discussion and the chats on the departure times are important incidents to share critical and updated knowledge.

Almost similar strategies have been mentioned by the ECSC officials. As the DLC head said, there are weekly meetings in his department to share new developments and plan their weekly routine. He further affirms that trainings are there to acquaint employees with new technological gadgets. The IT section head also said, technological facilities are being used to share organizational knowledge. The HRM head of the college strengthen the fact that his department is using the technology (Ms Outlook, the HRM software and the institutional website) along with the notice boards to share intellectual assets.

As of IPMDS head, research and publications, workshops and seminars and training sessions on contemporary and cross cutting issues are the primary tools for their knowledge sharing practice. Mainly the college has been preparing seminars twice a semester for sharing purpose. There are also journals and discussion papers to transfer recent thoughts on certain subject areas. Creating a learning environment and disseminating booklets are also part of the strategies used.

The observation made also revealed the fact that the two organizations' notice boards are giving valuable information for their readers. Provoking words, weekly sayings, short lessons are seen in EMI's notice board. Besides, organizational vision, mission, values and beliefs, newly arriving books and articles, monthly journal and individual messages were part of the information posted in the both organizations' boards. HIV posters and family planning notices were also part of the notices in ECSC. This shows that the institutes are using their boards as a communication medium to transmit important messages and valuable knowledge.

The responses given indicate that the two organizations are currently using both pull and push kinds of knowledge sharing strategies. Information disseminated through technological mediums and notice boards are a manifestation of the push strategy being undertaken. Reversely, employees are also looking for recent knowledge from internet and other library sources, which proof the existence of the pull strategy.

4.2.5 Problems and Challenging Situations of Knowledge Management

There are a lot to be mentioned as a problem in the existing knowledge management system of the two organizations. For analysis purpose these obstructions can be presented in four thematic groups: resistance, people, process and technology, the last three are compatible with the G-KMM model.

4.2.5.1 Resistance to Knowledge Management

Presence of possible resistance for any of knowledge management initiative is the first problematic area to be addressed. In this regard 66 (35.9%) of ECSC and 35 (43.8%) of EMI respondents did not agree with the existence of KM resistance in their respective organization. Almost similar percentage share of employees in both organizations, 47%, are not sure about whether there is opposition for KM activities. The rest little number of employees has agreed with the presence of resistance (table 28).

Table 28: Participants' View on the Existence of Resistance on KM Initiatives

Parameters		ECSC		EMI		Total	
		No.	%	No.	%	No.	%
1	Yes	30	16.3	7	8.8	37	14.0
2	No	66	35.9	35	43.8	101	38.3
3	I don't know	88	47.8	38	47.5	126	47.7
	Total	184	100.0	80	100.0	264	100.0

Source: study survey (Appendix 1)

The interview made with all officials however revealed that there is no resistance to KM initiative in both organizations except the HRD manager of EMI suspicion. As he said, some senior staffs are not willing to share their experience to newly appointed personnel in a fear of losing posts through time.

Those who claimed the existence of resistance were further asked to state some indicators. Among those, peoples' lack of willingness to use technological facilities and the hesitation of some experienced staff to share what they have gained so far was raised in EMI. Others said the Ad-hoc team composition for specific projects have not a room for knowledge sharing. One

respondent consider the establishment of KIM department as a move to have the name, not have been need based and doesn't have to strength the practice of KM in the organization.

As per some of ECSC respondents also, the absence of conceptual clarity on the subject matter might instantiate their perceived resistance towards KM. Low concern for the lower staff from the management side has put its own effect of grasping valuable knowledge from the administrative workers. Absence of sharing culture, the inabilities to put the theoretical trainings into practice and the limited guidance for the administrative staff to supply document and resources are certain manifestation of the existing resistance.

4.2.5.2 People/Organization Related Problems:

Problems emanates from the people dimension of the organizations are one of the prime challenges for KM initiatives. The workers' attitude towards new developments, cultural pillars mainly common norms, values and beliefs held by majority of the organizations members, the formal and informal relationship of employees, the work atmosphere and the management employee interaction and other related factors are part of the problem sources.

One employee respondent from ESCS said "I don't know, they don't know. Even I haven't heard of it from one management body in my stay" to explain the absence of knowledge management practice and even awareness among organizational members. All interviewees have also agreed with the fact that there have not been noticeable move by the name of KM from any of organizational leaders. Low level commitment and leadership concerns are other major problems stated by the college employees.

Negative attitude on sharing and the uncultivated culture is hampering KM. supporting this idea, the college's IT section head said, there is a tendency of keeping things secret to be the only resource person and indispensible one in all assignments. The HRM and the IPMDS heads also states lack of interest and the busy work environment along with those self centered values and norms as a limiting factors for KM. Absence of experience, motivation, and willingness to share knowledge from the employees' side has also been one area of impediment, said the employees.

As of the EMI's employee respondents, preoccupation of the staff in different routine task is a hindrance to devote more time and effort on knowledge creation and sharing activities. Obviously there is no equal level of understanding on the basics of KM aggravated by lack of skill and knowledge on its importance and technicalities among some group of employees. Lack of commitment to voluntarily undertake KM tasks along with absence of self confidence to give what they have are other citable problems. The current organizational culture is at its infant stage to fully advocate, encourage and support the sharing habit. Lastly thought there are unconscious efforts, it's not consistent and up to the expected level.

These problems stated by employees are also repeated by the officials in the interview sessions. As said by the KIM section head, "sharing will be launched only when peoples start to write!" he believes that knowledge should first be created before shared and it's one of the major gaps in the institute. The MD director has also questioned the institute awareness and attitudinal readiness of employees to share knowledge. The library section head of the institute divide the organization's culture in two groups based on age factor. As of his explanation, the young generation is willing and technically competent to share things even through technological sources, though it's a gap for the old group. Lastly the HRD manager of EMI stressed attitudinal and cultural gaps including the unwillingness to support fellow workers as limitations for successful KM effort.

4.2.5.3 Management System/Process Related Problems

Training and development, organizational structure and management system are the other possible sources of KM problems. According to the employee respondents of EMI, there has not been training on KM and/or related topics. The HRD manager affirm that, most of organizational members don't have enriched knowhow cultivated by trainings and practical exposures beyond their individual reading and class room learning in their university courses. As he continues, the KM efforts are not consistent and fully integrated as the way they should be.

Above all the current KM system including the KIM department, which is responsible for the task, is just doing the usual IT operations (mainly trouble shouting and network administration). As of the MD director and HRD manager of the institute, KM activities should have been under the human resource department not with the usual information management. The KIM head said,

KM is part of his process/department with the assumption that knowledge bank and related activities are truly technical and need professional touch. As he said, the library section is doing its job on documented knowledge reservation. The major problem however relies on the management of tacit knowledge which is part of each individual soul and imagination.

As per some respondents also, KM is not fully acknowledged and even not part of the organization strategic agenda. There is no formal way of documentation, retrieval and use of knowledge resources. The MD director has also stated consistency problem in different knowledge sharing initiatives. Besides formal strategy, policy and procedures are not in place to guide the management of intellectual assets. According to the KIM head and employee respondents, absence of motivational tools and well adapted communication effort to create awareness and gear employees' moral towards knowledge creation and sharing activities are the other managerial problems currently prevails in EMI.

Almost similar problems have been raised in ECSC. Majority of respondents said there is no planned effort to implement KM. Provision of organized, need based and ongoing trainings particular to new staff is the other problem cited here. The DLC head of the college claimed the rare, unplanned and intermitted trainings as a major problems source. As of employee respondents, programmed training and workshops are not being conducted to enhance the sharing potential of individual members. The IPMDS head has said, the continuous students' assessment and learner centered academic environment which creates extra load on the professionals along with the expected skill gap on knowledge sharing are hindrance for academicians knowledge creation and sharing practice. The IT section head stated absence of incentive scheme for knowledge sharing as another major problem. The DLC head also said, unavailability of established policies and strategies in KM aspect might prevail their own tangible obstructions. Motivating employees with common interest to network, and learning from earlier project mistakes are also possible impediments for the college's current KM practice.

4.2.5.4 Technology Related Problems

Technology is regarded by most scholars as enabler of KM efforts. Institutional technological infrastructures like networks, databases, application softwares, and working equipments

including computers, servers and other peripheral devices might be major sources of problems in KM endeavors. The DLC head said, the college community is not extremely using technology particularly those of senior staffs. According to the IT section head of the college and some respondents also, capacity gaps on fully utilizing the present technological facilities is a major problem especially on documenting and easily retrieving knowledge. Besides, the current provisions are not exploited by the staff as expected. He explains, "There are even professionals who don't even know how to edit texts on Ms Word."

Along with these, the IT section head raised the little number of IT professionals as a problem and he further affirms the need of KM expert in the college to give satisfactory service. Using the technology for fancy stuffs like watching films and browsing football scenes is the other challenging arena. Back to employee respondents, there is still a reserved group to say the college has no well developed technological infrastructure to fully support KM. on the other hand, computers crash down and virus attack is mentioned as a major hindrance to organizational KM efforts.

Comparatively employees of EMI did not mention a lot problems related with technological perspective. However, as pointed by some respondents, the current technological facilities particularly those application softwares are not enough to help everyone document knowledge gained and at the same time search past practices and lesson learned. The elongated project work on full scale automation of the institute's tasks has delayed the realization of the planned knowledge bank and related installation.

Some also said there is a gap in employees' side on using existing technological tool at its fullest extent. As of KIM head, the institute is not fully exploiting what it already has in the technology aspect. He exclaimed, "We have a gadgets of never ending resources, but are not using it". Absence of technical competencies on utilization of these resources particularly softwares like Ms Outlook is cited as a problem by employees, MD director and HRD manger of the institute.

Chapter V
Summary, Conclusion and Recommendations

In this chapter, the basic essences of the study, the methodological tools employed and important findings gained in the process are summarized to finally pass sound judgment in the subsequent conclusion and recommendation headings.

5.1 Summary

The current worlds' economic structure is being highly affected by having the knowledge required to win in every aspect. Organizations particularly those which are engaged in knowledge creation and transfer have to have a well articulated intellectual asset management system. However, as early investigations revealed so far, there are problems related to managing organizational knowledge through putting effective process, measurement, capacity development, technology, and documentation systems with well prevailed positive organizational leadership and permissive culture. Regularly assessing maturity level and strive for continuous improvement was also past impediments. Given this facts, the research has conducted to answer the following questions.

1. To what extent is there an integrated and well established KM practices in EMI and ECSC? If so what were the rationales for implementing KM?
2. What are the prospective/strong and developmental/weak areas of KM in EMI and ECSC?
3. At which level of knowledge management maturity do the two organizations currently exist? To what extent did the practices in different KM areas predicate the organizations' current KM maturity level?
4. What are the strategies and methods currently being advocated to facilitate knowledge sharing in the two organizations?
5. What are the major challenges and impediments in the current knowledge management practices of EMI and ECSC?

The research, with a comparative evaluation design framework, was aimed at examining the current practice and the coming prospects of KM in Ethiopian knowledge-intensive institutions at a specific research area of EMI and ECSC. Through the process both documents, employees

and higher officials as a primary and analyzed documents, books and web resources as secondary source of data were utilized.

As the study required informed participants on the area of KM those with diploma and above educational levels, 101 in EMI and 390 ECSC are considered as a study population. Out of which 274 samples, 80 from EMI and 194 from ECSC were selected as a sample through stratified sampling technique. The classification was made based on employees' working position as core and support staffs. The response rates of these respondents were 100% in EMI and 96% in ECSC. Questionnaire, blending four different tools, interview, observation and document analysis instruments are used to collect relevant data. The instrument's reliability is also maintained. Frequency distributions, percentages, standard deviation and mean scores descriptive and independent sample t-test, one sample t-test, and regression analysis inferential statistics are used. Uniform themes and narration with three step procedure are also used to analyze qualitative data.

The study participants are from different demographic background in terms of age, sex, working experience, educational background, and working position. Concerning the employees' awareness level on KM, there is no statistically significant difference between the two organizations ($P<0.05$), however, the support and core staffs' awareness level is significantly different ($P>0.05$) in both intuitions. As per the comparison made across the organizations, parallel level of expertise was found with no justifiable difference between the two organizations respective core and support staff. Finally there is considerable positive linear relationship ($R=0.33$ in ECSC and $R=0.34$ in EMI) between the two and subsequently 11.4% and 12.1% of variation (R^2) in the awareness level is determined by employees current working position both in ECSC and EMI respectively.

Majority of the respondents, i.e. 64.8% don't have clear picture on the current state of KM in their respective organization. The interview also revealed there are no integrated and formally managed KM practices though the initiatives are already established. The current little practice of KM has different rationales with the exception of improving work retention and enhancing their competitive advantage since they are not part of the competitive environment in the consultancy market.

The large portion of participants (77.2% of ECSC and 80% of EMI) has aspired to have a KM system in the future in order to improve corporate memory (97.6%), increase flexibility and innovation (94.2%) and improve skills and knowledge of workers (93.7%). Increasing efficiencies, capacity development and better organizational performance are other reasons as well.

EMI and ECSC have no significantly different practice with regard to KM processes. Little variation however has been seen in EMI with regard to staff's involvement and formalization of transferring best practices. Unlike to process, different level of KM leadership practice has been seen (m=2.899 in ECSC and m=2.63 in EMI) with a relatively better trend in ECSC. Particularly appreciating and rewarding KM efforts (m=3.07) and reward and motivation based on knowledge contribution (m=2.87) are the major areas where ECSC excel EMI. In general, both KM leadership and process dimensions are developmental areas in both institutions.

There is significantly better organizational KM culture in EMI (m=3.40) than ECSC (m=3.18). In specific components however, ECSC has better encouragement and facilitation of knowledge sharing (m=3.22) while a climate of openness and trust (m=3.49), and staffs' taking responsibility for their own learning (m=3.64) is better permeate in EMI. Contrary in the KM technology aspect, ECSC has significantly better performance (m=3.56) than EMI (m=3.35). The observation made also witnessed similar fact that ECSC has better technological infrastructure than EMI. These two are strength areas of KM in both institutions.

Slightly lower level of performance which is not statistically different (EMI m=2.71 than ECSC m=2.68) have been seen in KM measurement aspect. Similarly lower level of practice have been scored in policy and strategies dimension though it's comparatively superior in EMI (m=2.87) than ECSC (m=2.64). EMI has a clearly identifiable organ (m=3.33) which is responsible for crafting KM policies and strategies while the overall strategy is more focused on continuous learning (m=3.57). The major finding here is the two organizations have no written KM policy and strategy. There is also confusion in EMI on who shall be responsible for KM though KIM department is currently undertaking the task. These dimensions are found to be developmental.

Training and development, have almost similar trend (m=2.86) in both entities. A little better performance is seen in encouraging workers to continue their education (ESCS m=3.29 EMI m=3.15) whereas the transfer of knowledge from experienced to new staffs is good in EMI (m=3.00). The two organizations have no formal training in KM except there is a one day topic in EMI's HRM program. Besides, there was no session run on KM with the exception of one found in EMI before 6 years. Besides, There is equal level of practice in the overall documentation process (m=2.71) and in each individual components as well. However, the library sections of the two institutes are performing this task though it's mainly focused on explicit knowledge. There is knowledge back system in EMI which is part of the newly established integrated system project of the institute. Totally, these two are developmental.

According to the analysis done using G-KMM model, people/organization dimension, ECSC is now on the second, awareness level (m=3.22) and EMI is on the third, defined, level (m=3.21) of KM maturity. There is also a positive relation between the KML, KMC and KMS elements and the maturity level (R=0.36, ECSC and R=0.58, EMI). However, the relative importance of the variables in predicting the people/organization aspect of maturity was found to have a positive linear relation (0.416) only for the leadership aspect in ECSC and the culture (0.382) and policy and strategy (0.245) dimension in EMI. In the management system/process perspective both EMI and ECSC are stage two with respective mean score of 3.17 and 3.23. KMT, KMTD, KMM and KMD elements were regressed and found to have a similar positive linear relationship (R=0.68) in both organizations. The net effect of the independent variables is strong for KMTD (0.326), KMM (0.259), and KMD (0.271) perspectives in ECSC and for KMM (0.53) and KMD (0.39) dimensions in EMI.

ECSC is at stage four (m=3.28) and EMI (EMI m=3.19) is at stage three KM maturity levels in the technology perspective. There is also statistically significant positive linear relationship (0.77 in ECSC and 0.88 in EMI) between KMT and the technology aspect of KM maturity. All in all the two organizations current KM maturity level has featured at level 2, awareness stage with score of EMI (m=3.341) and ECSC (m=3.205). There is also a strong positive linear relations (R=0.83) in ECSC and (R=0.74) in EMI between the maturity stages achieved in the three dimensions and the overall maturity level. The management system/process (0.366) and people/organization (0.283) maturity levels are significantly important in determination of the

overall ECSC maturity level while a relatively significant positive relationship is found in process (0.436) and technology (0.223) KM maturity perspectives of EMI.

Learning forums, workshops, informal gatherings, feedback mechanisms, coaching, and friendly talks are the major tools used so far in EMI to share organizational knowledge. Along with this, the library collections and knowledge disseminations, the technological facilities including the internal Ms Outlook, LAN and the internet infrastructures are used to share important information and individual intellects. In ECSC regard, research and publications, seminars, workshops, training sessions, journals, discussion papers, and notice boards are the primary tools for knowledge sharing besides to the similar technological options found in EMI. Generally, the two institutions are using both pull and push knowledge sharing strategies.

Majority of respondents (47.8% of EGSC and 47.5% of EMI) were not sure about the existence of resistance for KM efforts. But those who said there is mainly raised, employees' lack of willingness to use technological facilities and the hesitation of some experienced staff to share their expertise as indicator of the opposition found in EMI. Absence of sharing culture, the inabilities to put the theoretical trainings into practice and the limited guidance for the administrative staff to supply document and resources are also stated as manifestation in ECSC.

Cultural, leadership and capacity development related problems are stated as a primary challenges for the current KM systems in both organizations. Absence of motivational tools, the little number of professional in the field, and consistency in KM efforts are also citable problems. Employees' attitudinal problems and lack of willingness to share, immersion in routine tasks and devotion of little time for knowledge creation, and the inability of the current technological facilities to fully address organizational needs are other impediments for the current KM practices.

5.2 Conclusion

Through the attempts made to evaluate and compare the KM practices of the two knowledge intensive institutions, EMI and ECSC, important findings are gained with pertinent implication for other similar institutions. As a major remark, the two organizations don't have formal, integrated and well established KM though some sort of practices and incoherent actions are

being performed for different reasons. Apparently, KM process, training and development, measurement, and documentation practices are being poorly performed. KM leadership and technology on the other hand have better prevailed in ECSC while EMI is superior in the cultural and policy/strategy dimensions. Generally, leadership (for EMI) and policy/strategy (for ECSC) dimensions are developmental areas while the rest two can be taken as relatively strong sides in the current KM practice.

In the coming prospect, both employees and managers of the two organizations are positive and willing to cooperate with KM initiatives mainly for improving corporate memory, increasing efficiency, and many more other reasons. As the overall maturity level of the two institutions indicates, they are currently in the awareness level, heading to defined stage, though there is different visage in the three maturity perspectives. Concentrating on the eight strong and developmental areas of KM can also lead to improvement since they have a determinant role in their current maturity state.

Alongside, the two institutions are now using both pull and push knowledge sharing strategies with much focus on explicit knowledge with exploitation strategy. Little concern for the exploration of what already is hidden in humans' experience and externalization of tacit knowledge is the implication of this strategic focus. The diverse set of mechanisms used to share intellects however is good in both institutions though they are highly dependent of individuals' interest. As a remark, the existing low attention for tacit knowledge might leads to lose of prominent mental power which has a crucial role on enhancing organizational performances.

A number of problems and challenging circumstances, in relation with capacity development, technological facilities, humans' attitude and the current working systems of the organizations are hindering the effort though the research didn't prove the existence of resistance to KM initiatives in both institutions. Besides, little concern for the collective organizational knowledge and its management is what hinders most the advantage of fully scrutinizing the concept and grab all the fruitful results out of it. Generally, the comparative views of the two organizations KM practices have their own implication and meaning for other similar institutions based primarily on their environmental factors and organizational context.

5.3 Recommendations

Given the findings and the conclusion made above, the subsequent recommendations are put forwarded to indicate the areas which needs prime focus in the two organizations KM practices. As the current reality demands, appropriate interventions need to be taken in various aspects of KM under the direct supervision of different organizational bodies. Therefore, the following propositions are made and presented in three thematic areas.

5.3.1 Long-Term Strategic Suggestions

Unlimitedly growing societal demand, and globalization together with the need to win over the versatile environmental influences, requires new ways of thinking and working methods in every organizational context. Meanwhile, copying external moves and recent developments is substantial for successful goal attainment. One of the contemporary developments of the 21th century is remarked in the KM arena. As Derek Binne (2001) said, effectively implementing a sound knowledge management strategy and becoming a knowledge-based company is seen as a mandatory condition of success for organizations as they enter the era of the knowledge economy.

These facts have extra meaning for professionally knowledge-intensive organizations. As indicated in earlier discussions, EMI and ECSC have a prominent role in the capacity development and transformation efforts of Ethiopian civil service and other organizations. Since we are in the knowledge era, then the managements of the two institutes should give attention for installing formal and integrated knowledge management system primarily for grabbing the fruits for themselves and at the same time for sharing their experience for other organizations' transformation effort. Four major optimistic conditions permit this task as per this research finding:

- The willingness and the positive attitude of majority of employees for KM initiatives
- The managements' appreciation and awareness on the importance of KM
- Little sort of early experiences in knowledge sharing efforts
- And particularly in EMI, the establishment of a responsible organ for the task.

The responsible body to accomplish the task here is primarily the top most management of the organization, i.e. the General Director Office of EMI and the President Office of ECSC in collaboration with their respective board of directors. Alongside, an organizational management body should be assigned based on its complexity, resource requirement, available expertise, and expected output. Two propositions can be made here to handle the task: assignment of KM for existing department and/or establishment of a separate KM work unit.

a) In the first option, departments with capacity and performance development related activities will take the task. In our case the HRD of EMI and Center for Academic and Performance Development (CAPD) of ECSC will be in charge. The essence is that both work units are engaged in improving the capacity and educational level of employees. Besides, they facilitate different sessions for knowledge sharing and imparting experiences. Here the role of IT departments should not be overwhelmed. Technology is the most important building block and enabler of KM efforts. Thus its collaboration is mandatory for successful result. This option will be economically viable and recommendable to start the initiative in little practices though the risk of being over sighted is there.
b) In the second frame, like EMI is doing now, a separate work unit can be established to handle the overall KM task. But unlike to EMI, this work unit should not be blended with the classical IT operations. Besides, the people dimension of KM shall get emphasis over the technical aspects. This option might not be economically feasible since the resource consumption of a separate department would be massive and unplanned one in light of the recent strategic concerns. However, the task could be done consistently and astonishing results will also be gained.

In general, the nations' policy makers also need to give attention for the new concept, knowledge management. Coping with globalization and environmental demands require policy adjustment in order for institutions to win over the new knowledge driven economy. Particularly, academic, research and other similar organizations with intensive knowledge application should have a mechanism to take care of their collective intellectual assets.

5.3.2 *Intermediate/Middle Term Interventions*

Concerning the EMI's current effort, the KIM department is being criticized for some failures in KM activities. As a proposition, the precondition task set by the management, BPR, shall be conducted in the processes prior to crafting working documents including strategies and manuals. Successful completion of the project could result in better understanding of the concept and clearly identified responsible organ for the overall KM.

The first task in implementing formal KM will be identifying current strengths and developmental areas. As this research found out, more or less the organizations have to look back on the whole eight KM areas. Especial emphasis however should be given for certain perspectives. In both organizations, particularly, KMP, KMTD, KMM, and KMD need a lot improvement. These areas could be taken as developmental elements of KM for better prospect.

- *KM Processes*: the theoretical KM processes (creating, storing, disseminating, using, learning, and updating) should be carried out consistently under the supervision of one responsible organ. These processes should consider tacit knowledge, with direct involvement of organizational members.
- *KM Training and Development*: The current effort of motivating employees to continue their educations shall be continued. Besides, equal attention shall be given for awareness creation and capacity development of employees in KM areas. Three step intervention is suggested in this perspective:
    1. Invite external body, if the expertise is not available inside, to get initial KM trainings and related materials.
    2. Hire capable consultants and capacitate selected internal staffs in the field.
    3. Institutionalize the concept through different knowledge sharing strategies like seminars workshops and the technology facilities including internet and LAN.

    In addition, other capacity development intervention like coaching and experience sharing should have a room in the organizations. Here ECSC would take a little better experiences of EMI.
- *KM Measurement*: BSC, strategic and performance management tool is a better option for the two organizations measurement system. As Kaplan et al (2004) said this tool is

comprehensive to inculcate all organizational routines in one strategic score. Here the recommendation is KM efforts shall get a room in both organizational and individual scores and be measured for their contribution in terms of *customer satisfaction, financial strength, internal business process* and the already used *learning and growth* BSC perspectives.

- *KM Documentation*: along with the usual library operations, best practices, individuals' experiences, and externalized tacit knowledge should have a place in book shelves. Taking the EMI's experience, establishing Knowledge banks is a good documentation solution. Regular benchmarking, feedback mechanisms and easing knowledge storage for later fast retrieval is where the two organizations give much focus.

The study has witnessed that ECSC has good practice in KML and KMT dimension while gaps have been seen in KMC perspective. Here the college should take the strength and exert much effort for their continuous development and mitigation of problems in commonly held values, beliefs and norms of organizational members. Contrary EMI shall focus on the improvement of its KM leadership and technological infrastructures with the effort given for maintaining the existing culture and improving it in the future. As a common task also both institutions should craft KM policy/strategy as part of the new system installation and integrate KM concerns in the overall management system.

5.3.3 Short Term Propositions

Specific to organizations, EMI shall focus on improving its KM leadership particularly on encouraging and rewarding knowledge creation and sharing efforts. In the technology ward also, the started IT projects shall be hassled to support organizational and KM specific tasks. As mentioned above, the reconfiguration of KIM department might lead to the undone document preparation stages. In ECSC also cultural components of openness and trust with better initiation of the staffs for their own learning should get attention. Regarding policy/strategy, responsible organ should clearly be assigned no matter what the option would be for the task.

Above all knowing the concept is essential before taking the action. As part of other activities, the two organizations should encourage their members to acquaint themselves with the new management though, KM. preparing training programs, facilitating a workshop on the subject

matter and distributing reading materials could be taken as the initial step. Here using and/or initiating the academic staff to better explore on the issue through different motivational tools will be important.

Management scholars said, a problem fully materialized is half solved. Identifying challenges and promising circumstance should be where these organizations start KM operations. As part of other managerial duties, striving for addressing KM problems in the aforementioned KM areas or any other dimensions is crucial. Specifically improving the developmental areas, keeping track on strong elements and continuously asking what is next is important to step up on the KM maturity ladder and get the highest level. Nothing can stop the two institutions from aspiring and of course touching the last step if there is willingness, capacity, problem solving, positive attitude, and on top of all …interest.

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Appendices

Appendix One

Addis Ababa University
College of Education and Behavioural Sciences
Department of Educational Planning and Management

Human Resource and Organizational Development stream

A questionnaire on knowledge management practices to be filled by professional workers of EMI and ECSC

Dear respondents:

The very purpose of this questionnaire is to measure the extent to which knowledge management is being practiced and the future prospect it has in professionally knowledge driven organizations at specific research area of Ethiopian management institute and Ethiopian Civil Service College. Data collected in this survey will result in a greater understanding of knowledge management applications, results gained in the process, and identifying strong and developmental elements for the betterment of organizational performance. Leveling the maturity level of organizations' knowledge management and indicating opportunistic and threat areas is the other concern while conducting this assessment with the objective of proposing possible remedies and strategic options for the bright prospect of the tomorrow's enhanced learning and organizational performance.

Instructions:

- The questionnaire has five sections comprised of background information, general questions, Strategic strength and development areas of KM, organizational knowledge management maturity assessment, and overall views compressed and presented in seven pages.
- An average of 10 minutes will be required to fully answer all the items.
- You don't need to write your name and unless the instruction said so, you are to respond for the items by putting a ✓ mark on the space provided.
- The responses that you are going to give in this questionnaire will only be used for academic exercise and it is the assurance for you that every of your reactions are secret and will be kept confidential.

Answering each piece of issues raised in the question papers is the backbone of the quality result aspired in this endeavor. *To end with, you are sincerely pledged to return the questionnaire back in one week period of time.*

Thank you for providing responses timely and honestly.

Part one: Background Information

1.1 Where are you currently working? EMI ☐ ECSC ☐

1.2 Sex: Male ☐ Female ☐

1.3 Age : <25 ☐ 25-35 ☐ 36-45 ☐ 46-55 ☐ >56 ☐

1.4 What is your current level of education?

Diploma ☐ MA/MSC ☐

BA/BSC ☐ PhD ☐

1.5 How long have you been working in this organization?

Below 2 years ☐ 11 – 15 years ☐

2– 6 years ☐ 16 – 20 years ☐

7– 10 years ☐ Above 20 years ☐

1.6 What is your current working position? _____

Part Two: General Question

2.1 How do you measure your level of expertise in knowledge management?

Very poor ☐ Poor ☐ Fair ☐ Good ☐ Very good ☐

2.2 Is currently there an integrated knowledge management practices in your organization?

Yes ☐ No ☐ I don't know ☐

2.3 If your answer is yes to question 2.2 what do you think are the reasons to get into such practices? (You can choose more than one item).

☐ To improve worker retention

☐ To promote sharing or transferring of knowledge with clients and/or partners

☐ To train workers to meet strategic objectives of your organization

☐ To protect your organization from loss of knowledge due to workers' departures

☐ To increase efficiency by using knowledge to improve working processes

☐ To improve the competitive advantage of your organization

☐ To help integrate knowledge within your organization

Other

_____

_____

2.4 Do you think that practicing knowledge management may bring improvement for your organization?

Yes ☐ No ☐ I don't know ☐

2.5 If your answer is yes to question 2.4 what advantages have then been brought to your work environment? (You can choose more than one item).

☐ Increased our knowledge sharing horizontally (across departments)

☐ Increased our knowledge sharing vertically (up on the organizational hierarchy)

☐ Improved worker's efficiency and/or productivity

☐ Improved skills and knowledge of workers

☐ Improved client or customer relations

☐ Improved our corporate or organizational memory

☐ Increased flexibility and innovation

☐ Improved involvement of workers in the workplace activities

Other

_____

_____

Part Three: Strategic Strength and Development Areas of Knowledge Management

Please indicate the extent to which the following knowledge management dimensions are being practiced in your organization. Mark "✓" in a circle which nearly reflects your view. The Likert Scales are: ***5****=very high* ***4****=high* ***3****=medium* ***2****=low* ***1****=very low*

I	The Knowledge Management Process	1	2	3	4	5
P1	Setting an integrated knowledge creation, storage, dissemination, use, and updating process in the organization.	○	○	○	○	○
P2	Systematically identifying Knowledge gaps and using well-defined processes to close them.	○	○	○	○	○
P3	Involving all staffs of the organization in looking for best practices in human and technological sources.	○	○	○	○	○
P4	Formalizing the process of transferring best practices, including documentation and lessons learned.	○	○	○	○	○
P5	Valuing and transferring "Tacit" knowledge (what staffs know how to do, but cannot express) across the organization.	○	○	○	○	○
P6	Placing a sophisticated and ethical knowledge gathering mechanism.	○	○	○	○	○

II	Leadership in Knowledge Management	1	2	3	4	5
L1	Centering management of organizational knowledge to the organization's strategy.	⬭	⬭	⬭	⬭	⬭
L2	Appreciating knowledge creation and sharing efforts and developing strategies for rewarding them.	⬭	⬭	⬭	⬭	⬭
L3	Using learning to support existing core competencies and create new ones.	⬭	⬭	⬭	⬭	⬭
L4	Evaluating and compensating Individuals for their contributions to the development of organizational knowledge.	⬭	⬭	⬭	⬭	⬭

III	Knowledge Management Culture	1	2	3	4	5
C1	Encouraging and facilitating knowledge sharing.	⬭	⬭	⬭	⬭	⬭
C2	Permeating a climate of openness and trust in the organization.	⬭	⬭	⬭	⬭	⬭
C3	Acknowledging customer value creation as a major objective of knowledge management.	⬭	⬭	⬭	⬭	⬭
C4	Existence of flexibility and a desire to innovate drive the learning process.	⬭	⬭	⬭	⬭	⬭
C5	The Staff practice of taking responsibility for their own learning.	⬭	⬭	⬭	⬭	⬭

IV	Knowledge Management Technology	1	2	3	4	5
T1	Linking all members of the organization to one another and to all relevant external publics using technology.	⬭	⬭	⬭	⬭	⬭
T2	Creating an institutional memory that is accessible to the entire enterprise through technology.	⬭	⬭	⬭	⬭	⬭
T3	Bringing the organization closer to its members via technology.	⬭	⬭	⬭	⬭	⬭
T4	Fostering the development of "human-centered" information technology.	⬭	⬭	⬭	⬭	⬭
T5	Rapidly placing the technology that supports collaboration in the hands of staff.	⬭	⬭	⬭	⬭	⬭
T6	Making Information systems real-time, integrated, and "smart."	⬭	⬭	⬭	⬭	⬭

V	Knowledge Management Measurement	1	2	3	4	5
M1	Inventing ways to link knowledge to financial and performance results.	⬭	⬭	⬭	⬭	⬭
M2	Developing a specific set of indicators to manage knowledge.	⬭	⬭	⬭	⬭	⬭
M3	Setting performance measures which balance financial and non-financial indicators.	⬭	⬭	⬭	⬭	⬭
M4	Allocating resources towards efforts that measurably increase organizational knowledge base.	⬭	⬭	⬭	⬭	⬭

VI	Policies and Strategies	1	2	3	4	5
S1	Integrated the Knowledge management policy into the overall management system.	⬭	⬭	⬭	⬭	⬭

S2	Communicating the Knowledge management policy and strategies to all staff in the organisation.	⬭	⬭	⬭	⬭	⬭
S3	Clearly identifying responsible organ for managing the formulation and implementation of the organization's Knowledge management strategy.	⬭	⬭	⬭	⬭	⬭
S4	The organization's strategic focus support continuous learning to improve individual and organizational performance.	⬭	⬭	⬭	⬭	⬭
VII	**Training and development**	**1**	**2**	**3**	**4**	**5**
Td1	Providing formal trainings related to knowledge management practices.	⬭	⬭	⬭	⬭	⬭
Td2	Encouraging experienced workers to transfer their knowledge to new or less experienced workers.	⬭	⬭	⬭	⬭	⬭
Td3	Encouraging workers to continue their education by reimbursing tuition fees for successfully completed work-related course.	⬭	⬭	⬭	⬭	⬭
Td4	Evaluating employees' competence on a regular basis.	⬭	⬭	⬭	⬭	⬭
Td5	Practicing human performance improvement program to maintain and enhance competence.	⬭	⬭	⬭	⬭	⬭
Td6	Using coaching and mentoring approaches to support knowledge sharing.	⬭	⬭	⬭	⬭	⬭
VIII	**Documentation Methods, Procedures & Processes For Improving Knowledge Management**	**1**	**2**	**3**	**4**	**5**
D1	Setting a comprehensive methodology that addresses learning from experience in the organization.	⬭	⬭	⬭	⬭	⬭
D2	Using regular organizational self assessments to enhance organizational knowledge.	⬭	⬭	⬭	⬭	⬭
D3	Using external benchmarking regularly to enhance organizational knowledge by adopting good practices.	⬭	⬭	⬭	⬭	⬭
D4	Using feedback (internal and external) from best practices by the organization for corrective action planning to achieve improvements	⬭	⬭	⬭	⬭	⬭
D5	Considering the composition of work teams (such as individual expertise/experience) in order to enhance knowledge transfer	⬭	⬭	⬭	⬭	⬭
D6	Documenting all work activities in such a way that knowledge can be effectively retrieved, shared and utilized	⬭	⬭	⬭	⬭	⬭
D7	Updating procedures, work methods, and related documentations promptly in a systematic way to address technical and organizational changes?	⬭	⬭	⬭	⬭	⬭

Part Four: Organizational Knowledge Management Maturity Assessment

Please indicate the extent of your agreement to the following knowledge management dimensions which are being practiced in your organization. Mark "✓" in a circle which nearly reflects your view. The Likert Scales are: ***5****=Strongly Agree* ***4****=Agree* ***3****=Neutral* ***2****=Disagree* ***1****=Strongly Disagree*

I	People/organization	1	2	3	4	5
Pe1	The organization and its people are not aware of the need to manage its knowledge resources.	○	○	○	○	○
Pe2	The management is aware of the need for knowledge management	○	○	○	○	○
Pe3	The management is conscious of its role in encouraging knowledge management	○	○	○	○	○
Pe4	Common strategy and standardize approaches towards knowledge management is undertaken	○	○	○	○	○
Pe5	Knowledge management is incorporated into the overall organizational strategy	○	○	○	○	○
Pe6	The culture of knowledge sharing is institutionalized	○	○	○	○	○
II	**Management System/Process**	**1**	**2**	**3**	**4**	**5**
Pr1	There is no practice of capturing, sharing and reusing organizational knowledge	○	○	○	○	○
Pr2	Knowledge indispensable for performing routine tasks is documented	○	○	○	○	○
Pr3	Processes related with knowledge management are formalized	○	○	○	○	○
Pr4	Performance measure are in use to assess the increase in productivity due to knowledge management	○	○	○	○	○
Pr5	Knowledge management processes are constantly reviewed and improved on	○	○	○	○	○
Pr6	Existing knowledge management processes can easily be adapted to meet new business requirements	○	○	○	○	○
III	**Technology**	**1**	**2**	**3**	**4**	**5**
Te1	No specific knowledge management technology or infrastructure is in place	○	○	○	○	○
Te 2	Pilot knowledge management projects are initiated	○	○	○	○	○
Te 3	Basic knowledge management infrastructure is in place	○	○	○	○	○
Te 4	Organizational wide knowledge management systems are fully in place	○	○	○	○	○
T e5	Usage of knowledge management systems is at a reasonable level	○	○	○	○	○
T e6	Existing knowledge management infrastructure is continually improved upon	○	○	○	○	○

Part Five: General overviews

5.1 What sort of problems do you think that currently exist in your organization knowledge management practice?

5.2 Do you think there is resistance to knowledge management in your organization?

Yes ☐ No ☐ I don't know ☐

5.3 If your answer is yes to question 5.2 can you raise some indicators of the available resistance to knowledge management?

5.4 What should be the remedies to overcome such challenges and the prevailing problems of knowledge management?

Thank you for your time

Appendix Two

Addis Ababa University

College of Education and Behavioral Sciences

Department of Educational Planning and Management

Human Resource and Organizational Development stream

A guide for semi-structured interview on knowledge management practices with EMI's and ECSC's higher officials

1. Is there a knowledge management practices in your organization?
2. If so what are the rationales to get into such practice?
3. What results have been gained as a result of implementing knowledge management?
4. What are your strategies to facilitate knowledge sharing?
5. Does your organization have technological infrastructure like website, local and wide area networks, internet access and the like to back up the knowledge sharing efforts?
6. How is the knowledge management function in your organizational structure?
7. How do you evaluate your level of managing knowledge basing the importance it has for your organization goal attainment?
8. What problems are you facing now regarding knowledge management, from the management, employee, training and development, technology, culture, and measurement point of view?
9. Do you think there is a resistance to knowledge management in your organization?
10. What possible remedies can you suggest to overcome the problems?

Appendix Three

Addis Ababa University

College of Education and Behavioral Sciences

Department of Educational Planning and Management

Human Resource and Organizational Development stream

A guide for observing knowledge management practices of EMI's and ECSC's

Areas to be observed:

- Information infrastructure
  - The system environment
  - The management aspect
- Knowledge sharing
  - Learning forums
  - How employees share ideas
- Documentation practices
  - Library sources
  - IT sources
- Normal work routine
  - To what extent attention will be given for knowledge management activities
  - Training facilities/rooms

Appendix Four

Reliability Statistics

No.	Name of the variable	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of items
1	KMP	76.8	74.5	6
2	KMS	82.9	82.7	4
3	KMC	77.1	77.7	5
4	KML	81.8	82.3	4
5	KMM	75.0	74.6	4
6	KMTD	69.4	70.6	6
7	KMD	90.9	90.6	7
8	KMT	79.0	78.7	6

Appendix Five

Frequency Tables for Prospective and Developmental Elements and Maturity Levels

C1-C5 = cultural dimension of KM

P1-C6 = process dimension of KM

L1-L4 = Leadership dimension of KM

T1-T6 = Technological dimension of KM

M1-M4 = Measurement dimension of KM

TD1-TD6 = Training and dev't dimension of KM

S1-S4 = Strategy/policy dimension of KM

D1-D7 = Documentation dimension of KM

Pe1-Pe6 = People/organization dimension of KM maturity

Pr1-Pr6 = Management system/process dimension of KM maturity

Te1-Te6 = Technology dimension of KM maturity

Organization	Responses	C1		C2		C3		C4		C5	
		N	%	N	%	N	%	N	%	N	%
ECSC	Very Low	22	12.0	26	14.1	10	5.4	13	7.1	9	4.9
	Low	25	13.6	30	16.3	31	16.8	33	17.9	37	20.1
	Medium	48	26.1	71	38.6	53	28.8	64	34.8	53	28.8
	High	68	37.0	43	23.4	61	33.2	48	26.1	54	29.3
	Very High	21	11.4	12	6.5	27	14.7	18	9.8	28	15.2
	Total	184	100.0	182	98.9	182	98.9	176	95.7	181	98.4
EMI	Very Low	9	11.3	4	5.0	3	3.8	3	3.8	4	5.0
	Low	10	12.5	7	8.8	10	12.5	13	16.3	11	13.8
	Medium	24	30.0	23	28.8	26	32.5	27	33.8	15	18.8
	High	28	35.0	38	47.5	29	36.3	29	36.3	27	33.8
	Very High	9	11.3	8	10.0	10	12.5	4	5.0	21	26.3
	Total	80	100.0	80	100.0	78	97.5	76	95.0	78	97.5

Organization	Responses	P1		P2		P3		P4		P5		P6	
		N	%	N	%	N	%	N	%	N	%	N	%
ECSC	Very Low	37	20.1	18	9.8	14	7.6	24	13.0	24	13.0	26	14.1
	Low	60	32.6	60	32.6	32	17.4	59	32.1	58	31.5	62	33.7
	Medium	62	33.7	56	30.4	30	16.3	61	33.2	83	45.1	57	31.0
	High	25	13.6	46	25.0	104	56.5	33	17.9	17	9.2	32	17.4
	very high			3	1.6	4	2.2	7	3.8	1	0.5	5	2.7
	Total	184	100.0	183	99.5	184	100.0	184	100.0	183	99.5	182	98.9
EMI	Very Low	17	21.3	9	11.3	3	3.8	11	13.8	9	11.3	14	17.5
	Low	32	40.0	26	32.5	12	15.0	27	33.8	27	33.8	22	27.5
	Medium	20	25.0	22	27.5	19	23.8	31	38.8	32	40.0	24	30.0
	High	9	11.3	21	26.3	41	51.3	10	12.5	8	10.0	15	18.8
	Very High	2	2.5	2	2.5	5	6.3	1	1.3	-	-	3	3.8
	Total	80	100.0	80	100.0	80	100.0	80	100.0	76	95.0	78	97.5

Organization	Responses	L1		L2		L3		L4	
		N	%	N	%	N	%	N	%
ECSC	Very Low	27	14.7	23	12.5	25	13.6	23	12.5
	Low	47	25.5	30	16.3	49	26.6	46	25.0
	Medium	44	23.9	54	29.3	64	34.8	55	29.9
	High	38	20.7	65	35.3	33	17.9	43	23.4
	very high	23	12.5	12	6.5	11	6.0	13	7.1
	Total	179	97.3	184	100.0	182	98.9	180	97.8
EMI	Very Low	8	10.0	10	12.5	5	6.3	16	20.0
	Low	24	30.0	37	46.3	24	30.0	29	36.3
	Medium	20	25.0	22	27.5	32	40.0	24	30.0
	High	21	26.3	10	12.5	17	21.3	8	10.0
	Very High	6	7.5	1	1.3	2	2.5	1	1.3
	Total	79	98.8	80	100.0	80	100.0	78	97.5

Organization	Responses	T1		T2		T3		T4		T5		T6	
		N	%	N	%	N	%	N	%	N	%	N	%
ECSC	Very Low	5	2.7	2	1.1	6	3.3	6	3.3	8	4.3	5	2.7
	Low	19	10.3	24	13.0	19	10.3	30	16.3	27	14.7	35	19.0
	Medium	47	25.5	46	25.0	43	23.4	50	27.2	39	21.2	40	21.7
	High	75	40.8	67	36.4	79	42.9	78	42.4	66	35.9	77	41.8
	very high	37	20.1	41	22.3	36	19.6	14	7.6	40	21.7	25	13.6
	Total	183	99.5	180	97.8	183	99.5	178	96.7	180	97.8	182	98.9
EMI	Very Low	2	2.5	2	2.5	2	2.5	2	2.5	2	2.5	3	3.8
	Low	10	12.5	14	17.5	11	13.8	16	20.0	14	17.5	16	20.0
	Medium	21	26.3	27	33.8	25	31.3	25	31.3	25	31.3	25	31.3
	High	39	48.8	29	36.3	33	41.3	25	31.3	27	33.8	29	36.3
	Very High	7	8.8	7	8.8	8	10.0	7	8.8	10	12.5	6	7.5
	Total	79	98.8	79	98.8	79	98.8	75	93.8	78	97.5	79	98.8

Organization	Responses	M1		M2		M3		M4	
		N	%	N	%	N	%	N	%
ECSC	Very Low	29	15.8	37	20.1	23	12.5	22	12.0
	Low	35	19.0	66	35.9	64	34.8	54	29.3
	Medium	77	41.8	40	21.7	50	27.2	46	25.0
	High	38	20.7	36	19.6	41	22.3	48	26.1
	very high	4	2.2	4	2.2	4	2.2	13	7.1
	Total	183	99.5	183	99.5	182	98.9	183	99.5
EMI	Very Low	10	12.5	14	17.5	5	6.3	7	8.8
	Low	18	22.5	31	38.8	34	42.5	26	32.5
	Medium	32	40.0	16	20.0	23	28.8	21	26.3
	High	15	18.8	13	16.3	14	17.5	20	25.0
	Very High	2	2.5	3	3.8	2	2.5	5	6.3
	Total	77	96.3	77	96.3	78	97.5	79	98.8

Organization	Responses	S1		S2		S3		S4	
		N	%	N	%	N	%	N	%
ECSC	Very Low	30	16.3	37	20.1	34	18.5	24	13.0
	Low	56	30.4	69	37.5	42	22.8	42	22.8
	Medium	58	31.5	54	29.3	68	37.0	54	29.3
	High	27	14.7	14	7.6	22	12.0	40	21.7
	very high	7	3.8	3	1.6	13	7.1	21	11.4
	Total	178	96.7	177	96.2	179	97.3	181	98.4
EMI	Very Low	15	18.8	17	21.3	7	8.8	3	3.8
	Low	31	38.8	37	46.3	14	17.5	8	10.0
	Medium	23	28.8	17	21.3	16	20.0	16	20.0
	High	8	10.0	4	5.0	28	35.0	45	56.3
	Very High	1	1.3	1	1.3	13	16.3	7	8.8
	Total	78	97.5	76	95.0	78	97.5	79	98.8

Organization	Responses	TD1		TD2		TD3		TD4		TD5		TD6	
		N	%	N	%	N	%	N	%	N	%	N	%
ECSC	Very Low	24	13.0	29	15.8	16	8.7	27	14.7	27	14.7	35	19.0
	Low	45	24.5	39	21.2	25	13.6	48	26.1	47	25.5	58	31.5
	Medium	54	29.3	55	29.9	45	24.5	57	31.0	63	34.2	35	19.0
	High	52	28.3	48	26.1	85	46.2	40	21.7	39	21.2	37	20.1
	very high	9	4.9	13	7.1	13	7.1	12	6.5	7	3.8	11	6.0
	Total	184	100.0	184	100.0	184	100.0	184	100.0	183	99.5	176	95.7
EMI	Very Low	9	11.3	4	5.0	3	3.8	17	21.3	7	8.8	10	12.5
	Low	22	27.5	21	26.3	14	17.5	15	18.8	22	27.5	31	38.8
	Medium	27	33.8	29	36.3	30	37.5	20	25.0	33	41.3	14	17.5
	High	17	21.3	21	26.3	30	37.5	27	33.8	14	17.5	18	22.5
	Very High	5	6.3	4	5.0	1	1.3					6	7.5
	Total	80	100.0	79	98.8	78	97.5	79	98.8	76	95.0	79	98.8

Organization	Responses	D1		D2		D3		D4		D5		D6		D7	
		N	%	N	%	N	%	N	%	N	%	N	%	N	&
ECSC	Very Low	21	11.4	19	10.3	22	12.0	25	13.6	19	10.3	35	19.0	36	19.6
	Low	42	22.8	63	34.2	55	29.9	50	27.2	54	29.3	53	28.8	49	26.6
	Medium	76	41.3	66	35.9	64	34.8	67	36.4	63	34.2	56	30.4	54	29.3
	High	37	20.1	25	13.6	29	15.8	29	15.8	34	18.5	30	16.3	38	20.7
	very high	6	3.3	8	4.3	11	6.0	9	4.9	12	6.5	8	4.3	5	2.7
	Total	182	98.9	182	98.9	181	98.4	180	97.8	182	98.9	182	98.9	182	98.9
EMI	Very Low	5	6.3	8	10.0	7	8.8	6	7.5	6	7.5	6	7.5	11	13.8
	Low	22	27.5	28	35.0	27	33.8	29	36.3	26	32.5	35	43.8	22	27.5
	Medium	37	46.3	26	32.5	27	33.8	28	35.0	28	35.0	26	32.5	33	41.3
	High	14	17.5	10	12.5	16	20.0	17	21.3	17	21.3	11	13.8	13	16.3
	Very High	1	1.3	8	10.0	2	2.5			3	3.8	1	1.3		
	Total	79	98.8	80	100.0	79	98.8	80	100.0	80	100.0	79	98.8	79	98.8

Organization	Responses	Pe1		Pe2		Pe3		Pe4		Pe5		Pe6	
		N	%	N	%	N	%	N	%	N	%	N	%
ECSC	Str. Disagree	97	52.7	8	4.3	19	10.3	29	15.8	38	20.7	17	9.2
	Disagree	52	28.3	42	22.8	69	37.5	42	22.8	55	29.9	65	35.3
	Neutral	28	15.2	64	34.8	54	29.3	61	33.2	53	28.8	39	21.2
	Agree	4	2.2	42	22.8	33	17.9	38	20.7	27	14.7	49	26.6
	Str. Agree			28	15.2	9	4.9	12	6.5	8	4.3	14	7.6
	Total	181	98.4	184	100.0	184	100.0	182	98.9	181	98.4	184	100.0
EMI	Str. Disagree	39	48.8	4	5.0			7	8.8	14	17.5	5	6.3
	Disagree	24	30.0	11	13.8	15	18.8	28	35.0	31	38.8	28	35.0
	Neutral	12	15.0	25	31.3	33	41.3	28	35.0	29	36.3	19	23.8
	Agree	4	5.0	30	37.5	32	40.0	12	15.0	6	7.5	23	28.8
	Str. Agree			10	12.5			4	5.0			4	5.0
	Total	79	98.8	80	100.0	80	100.0	79	98.8	80	100.0	79	98.8

Organization	Responses	Pr1		Pr2		Pr3		Pr4		Pr5		Pr6	
		N	%	N	%	N	%	N	%	N	%	N	%
ECSC	Str. Disagree	37	20.1	7	3.8	47	25.5	33	17.9	24	13.0	36	19.6
	Disagree	66	35.9	37	20.1	57	31.0	53	28.8	46	25.0	45	24.5
	Neutral	57	31.0	74	40.2	34	18.5	47	25.5	50	27.2	66	35.9
	Agree	24	13.0	50	27.2	38	20.7	38	20.7	40	21.7	30	16.3
	Str. Agree			16	8.7	7	3.8	12	6.5	23	12.5	7	3.8
	Total	184	100.0	184	100.0	183	99.5	183	99.5	183	99.5	184	100.0
EMI	Str. Disagree	17	21.3			16	20.0	9	11.3	9	11.3	5	6.3
	Disagree	35	43.8	13	16.3	26	32.5	26	32.5	16	20.0	45	56.3
	Neutral	20	25.0	40	50.0	28	35.0	23	28.8	31	38.8	22	27.5
	Agree	6	7.5	23	28.8	10	12.5	19	23.8	22	27.5	7	8.8
	Str. Agree	2	2.5	4	5.0			2	2.5	2	2.5	1	1.3
	Total	80	100.0	80	100.0	80	100.0	79	98.8	80	100.0	80	100.0

Organization	Responses	Te1		Te2		Te3		Te4		Te5		Te6	
		N	%	N	%	N	%	N	%	N	%	N	%
ECSC	Str. Disagree	45	24.5	15	8.2	10	5.4	2	1.1	24	13.0	56	30.4
	Disagree	66	35.9	29	15.8	35	19.0	26	14.1	35	19.0	42	22.8
	Neutral	56	30.4	58	31.5	63	34.2	78	42.4	49	26.6	47	25.5
	Agree	17	9.2	60	32.6	60	32.6	74	40.2	52	28.3	28	15.2
	Str. Agree			21	11.4	13	7.1	4	2.2	23	12.5	11	6.0
	Total	184	100.0	183	99.5	181	98.4	184	100.0	183	99.5	184	100.0
EMI	Str. Disagree	23	28.8	4	5.0	1	1.3	8	10.0	10	12.5	7	8.8
	Disagree	35	43.8	8	10.0	15	18.8	18	22.5	19	23.8	40	50.0
	Neutral	20	25.0	23	28.8	35	43.8	38	47.5	37	46.3	20	25.0
	Agree	2	2.5	41	51.3	26	32.5	15	18.8	12	15.0	12	15.0
	Str. Agree			4	5.0	3	3.8	1	1.3	2	2.5	1	1.3
	Total	80	100.0	80	100.0	80	100.0	80	100.0	80	100.0	80	100.0

Declaration

I, the undersigned declare that, this thesis is my original work and has not been presented for a degree in any other university, and that all sources of materials used for the thesis have been duly acknowledged.

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Date of Submission: 08/06/11

This thesis has been submitted for examination with my approval as a university advisor

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Date: 08/06/11