ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

SCHOOL OF INFORMATION SCIENCE

ORGANIZATIONAL MEMORY FOR KNOWLEDGE RETENTION IN ETHIOPIAN REVENUE AND CUSTOMS AUTHORITY

A Thesis Submitted to the School of Graduate Studies of Addis Ababa University in Partial Fulfillment of the Requirements for the Degree of Master of Science in Information Science

By

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DEDICATION

I dedicate this thesis to my beloved family.

Thank you all for your unconditional love and encouragement.

ACKNOWLEDGEMENT

First and foremost I would like to thank my thesis advisor, Dr. Rahel Bekele, for introducing me to the world of Knowledge Management. Her insightful advice and support during this project have been remarkable. Special thanks to W/t Woinshet Gebre, for helping me on collecting data. I also would like to thank my friends and coworkers at ERCA (Ethiopian Revenue and Customs Authority) for their support and cooperation in my work.

ABSTRACT

There is no measure for the loss of corporate memory. An Organization build a reservoir of knowledge in its employees, organizational culture, organizational structure, documents, and standard procedures etc ...This knowledge becomes a critical ingredient in an organization's ability to carry out its mission. Among those repositories, individuals are extremely valuable and once they leave, their organizationally-applied knowledge leaves with them. This study introduces the concept of organizational memory for effectively capturing the tacit and explicit knowledge with in ERCA. Under this construct the proposed study assesses the barriers (i.e. *organizational support, cultural barriers*, infrastructural *barriers and personal barriers*) towards building an effective organizational memory at ERCA.

Findings indicate that ERCA lacked a number of KM enablers which are necessary for enhancing OM in order to retain operational relevant knowledge. In view of these findings, the study was concluded by recommending a strategy in building a robust organizational memory in the ERCA's context.

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LIST OF ACRONYMS

AI - Artificial Intelligence

COP - Community of Practice

ERCA - Ethiopian Revenue and Customs Authority

GTP - Growth and Transformational Programme

KM - Knowledge Management

NGO - Non Governmental Organization

OL - Organizational Learning

OM - Organizational Memory

CHAPTER ONE

1. INTRODUCTION

1.1 BACKGROUND

Organizational Memory (OM) falls under the broader topic of knowledge management, which encompasses areas of scholarly research such as Organizational learning (OL), Organizational culture, System theory, system dynamics, Artificial intelligence (AI), Organizational psychology etc. An active organizational memory is one of the firm's key organizational capabilities that allow the organization to store and retrieve knowledge of facts, process, or experiences. A review of organizational memory shows that there are widely varying views of its nature, locus, and influence (Walsh & Ungson, 1991).For instance, some viewed organizational memory as a metaphor to individual memory, by others as the aggregation of individual memories, and yet by others as an independent capability of the organization itself.

Robinson and Ensign (2009) define organizational memory as either stored decision information in a company's systems (including databases, paper archives and other resources) or in its people, through individual and group memory. According to Girard (2006) organizational memory can be subdivided into data, information, and knowledge. While Olivera defined organizational memory as a set of knowledge retention devices, such as people and documents which collect, store and provide access to the organization's experience (Olivera, 2000). Walsh and Ungson (1991) provide an

often-cited definition of organizational memory as stored information from an organization's history that can be brought to bear on present decisions.

As these definitions highlight, organizational memory is more than stored documents, reports and manuals as explicit knowledge. Rather it encompasses combination of experiences and skills about projects, services and decisions that is more often embedded in the minds of the workers, or entrenched in the organization's culture as tacit knowledge.

In this study, the author tries to explore about organizational memory of Ethiopian revenue and customs authority (ERCA) which is one of the governmental authorities of Federal Government of Ethiopia. It traces its origin to July 7, 2008 as a result of the merger of the Ministry of Revenues, the Ethiopian Customs Authority and the Federal Inland Revenues into one giant organization. Currently, the authority has around 8,569 employees and operates throughout the country via its Branch Offices and Tax Centers. Its current annual operating budget reaches 458 million birr.

However, a recent study conducted by human resource department of the authority reveals that the number of employees leaving the organization is increasing in an alarming rate. The study also indicates the presence of high turnover at ERCA's Head Office than the ERCA's Branch Offices and Tax Centers. In addition, the- study attributes the key cause for self-resignation to the growing demand for similar professionals by the private sector (Kebede et. al, 2012).

The above mentioned study also shows that there is a significant loss of OM due to high turnover. This OM loss has a wider impact on the organization's performance since

researches have indicated that office workers generally prefer social networks over *computer systems* and *procedural manuals* when they are in need of accessing organizational memory. Olivera (2000) emphasizes by stating, "Social networks have been evaluated as more effective given that people have a natural preference for interacting with other people but also because they have unique features than other memory systems lack. They are capable of containing multiple types of experiential knowledge and pointers to the location of knowledge in other systems, and of effectively linking dispersed knowledge in a way that the most sophisticated computer systems had the difficulty" .

Moreover, the loss of critical knowledge has been recognized as one of the central problems in an organization which is among one of the areas which can be solved using knowledge management as a solution. In addition, it is obvious that knowledge and expertise once acquired do not necessarily remain at the disposal of organizations for all times to come. For this reason Organizational Memory has got attention in the recent past and is frequently leading to concrete projects in organizations.

In addition to the importance of addressing this critical loss of organizational memory, nurturing the growth and maintenance of organizational memory is a critical success factor on realizing strategic objectives. However in ERCA, despite some fragmented activities here and there, a little work is done on acknowledging the importance of organizational memory and on putting a comprehensive plan towards it.

1.2 STATEMENT OF THE PROBLEM

Organizational Memory plays an important role in every organization, as memory is a prerequisite (or occasionally a barrier) to the successful achievement of organizational goals and the implementation of the organization's strategic plans. Moreover, it has a crucial part in the retention of organizational knowledge which is supposed to have a long term consequence on the performance of the organization. However, many of the initiatives being undertaken to develop and exploit organizational knowledge are linked to either the private sector or NGOS (Lize & Tricia, 2011).

Though, according to Wiig (2002) the viability of any society depends on the quality in supplying public services, and that quality is influenced by many factors: *governmental structure, public servants' responsibilities, specialization & capacities, information,* and *available knowledge*. Among these *knowledge* is the major player without it all practical undertakings will dwell in ignorance and are bound to become arbitrary and fruitless.

The focus of this study, Ethiopian revenue and customs authority (ERCA); is a governmental authority which is entitled for collecting revenue from customs duties and domestic taxes. In addition to raising revenue, ERCA is responsible to protect the society from adverse effects of smuggling. It seizes and takes legal action on the people and vehicles involved in the act of smuggling while it facilitates the legitimate movement of goods and people across the border.

According to a report by Ministry of Finance, in 2010/11 the total tax revenue as percent of GDP has reached 11.5 % from the level of 11.3 % in 2009/10.And it is planned to achieve the share of tax to GDP ratio to 15-17 % by the end of 2014/15 budget year (Annual Performance report on GTP, 2012).In the same vein, the authority develops a strategic plan to increase its revenue collection performance year by year to reach its target.

However, its continued success is challenged by the inability to get qualified experienced employees for the expansion of new offices and to retain its own qualified personnel (Kebede et. al., 2012). The study further reveals that the number of employees leaving the organization increases in an alarming rate. For instance, employees who left during 2009/10 budget year rose from 2.15% of the total employees to 7.0% during 2011/12 budget year. Among those who left the organization during 2011/12, self-resignation accounts 80% of the total turnover. On the other hand, the turnover at the head office accounts to 31 % of the total turnover studied throughout ERCA's Branches and Tax Centers during 2011/12.In addition, the study finds out that the key cause for self-resignation is attributed to the growing demand for similar professionals by the private sector (Kebede et. al., 2012).

Based on the above study, one can observe the difficulty faced by ERCA concerning the loss of operational relevant knowledge through attrition and resignation and retirements. In order to alleviate the loss of operational relevant knowledge, organizational memory (OM) plays a crucial role. Since, OM is a facility that could extend and amplify the knowledge assets by capturing, organizing and disseminating knowledge

created by employees. OM can be shared among individuals, by a group and by organization as a whole for long term and short term goals.

Under this premise, this paper explores the different aspects of organizational memory at ERCA and designs a viable strategy for nurturing its growth.

The primary research questions that will be addressed in this thesis are:

- Is there *organizational support* in place for nurturing the growth of organizational memory within ERCA?
- What are the *cultural barriers* with respect to organizational memory development within ERCA?
- What are the *infrastructural barriers* with respect to organizational memory within ERCA?
- What are the *personal barriers* for the embodiment of individual memory towards organizational memory in ERCA?

1.3 OBJECTIVES

The purpose of this thesis is to explore organizational memory at ERCA and to develop a strategy for nurturing its growth.

RESEARCH OBJECTIVES

- To identify the *organizational support* available for ERCA's organizational memory
- To identify *infrastructural barriers* towards organizational memory development within ERCA

- ↘ To identify *cultural barriers* with respect to the development of organizational memory within ERCA
- ↘ To identify *personal barriers* towards organizational memory development within ERCA
- ↘ To recommend a strategy for the development of an effective organizational memory.

1.4 SCOPE AND LIMITATION

Although there is a general need for research on organizational memory, the present research has concentrated on identifying aspects of organizational memory and developing suitable methods to investigate these concepts. Moreover, this research focused on the practical aspects of organizational memory with an eye on its role in knowledge retention.

However due to the time and financial constraints imposed by the disparity among the ERCA'S Branch Offices and Tax Centers throughout the country, this study is restricted to ERCA'S Head Quarter.

1.5 SIGNIFICANCE OF THE RESEARCH

This study strived to explore the different aspects of organizational memory and the development of a strategy for effective organizational memory within ERCA. Since few empirical studies on organizational memory have been done and works on organizational memory have been mostly theoretical contributions (Casey et.al, 2003).

Moreover, the output of this study will help to enhance our understanding about Organizational Memory and its role in the retention of critical organizational relevant knowledge .This in turn is supposed to help the organization to extend its growth amidst of the threats imposed by the turnover. Besides this research assumes a stake on the existing Knowledge Management research at national level and it will pave a way for future researches in the organizational memory arena.

1.6 RESEARCH METHODOLOGY

The purpose of this study was to assess aspects of organizational memory such as: type of organizational support available; individual barriers, infrastructural and cultural barriers towards the development of robust organizational memory for capturing operational relevant knowledge with in ERCA.

1.6.1 RESEARCH APPROACH

For the purpose of this study, mixed research approach was employed. The research mainly used quantitative research method to describe the status of ERCA's existing organizational memory by studying the different knowledge management activities such as knowledge capture/acquisition and knowledge sharing phenomena within the context of developing an effective organizational memory.

The rationale behind the use of quantitative research in this study can be explained based on the human and process characteristics that can be generalized to some degree to describe the subject of interest. Plus the researcher clearly identified the type of information he was looking for from the literature review. Moreover, it provides a high

level of reliability of gathering data and statistical power. The quantitative study was augmented by a qualitative research using document analysis and mini observation.

1.6.2 SOURCES OF DATA

Generally we can collect data from two sources, primary sources and secondary sources. The target population for this study was selected from ERCA's Head Office since huge resource was required to include all ERCA'S Branch Offices and Tax centers across the country. In this study, survey was used as a primary data collection instrument while document analysis and mini observation was employed for collecting secondary data in order to gather relevant information about the research questions.

1.6.3 SAMPLING TECHNIQUE

In this research a quota sampling technique was adopted. In accordance with the sampling technique, the population was categorized based on the three well known organizational levels (i.e. Top Management, Middle Management and Operational level employee). In ERCA's context, top management refers to those above the position of team leader and middle management corresponds to team leader. While operational level employees are those below the position of team leaders and which assume the title of officers. The importance of considering quota sampling in a case like these is clear, it guarantees the representativeness of the resulting sample by making sure its similarity in composition with that of the population. Moreover, this technique gives the researcher the flexibility to select the respondents within each category based on their convenience.

- ✓ **Inclusion criteria:** Employees at ERCA' Head Quarter with a position of officer and above are included in this study. According to the new organizational structure of ERCA an officer should have a bachelor degree or above in the appropriate field of study.

1.6.4 SAMPLE SIZE

As has been mentioned in the previous paragraphs, the study covered only ERCA's head office. There are 26 directorates and 4 corporate divisions in ERCA's head office which makes up the population of 978 respondents. Then the population was classified into mutually exclusive strata; top management, middle management and operational level employees. Based on 5% error of margin, 90 % confidence interval and 50% response rate the total sample size was determined to be 213 respondents. Among them 11 senior managers, 50 team leaders and 152 officers were included.

1.6.5 DATA COLLECTION INSTRUMENTS

i. QUESTIONNAIRE

The questionnaire designed to assess ERCA'S organizational memory. It contains seven distinct sub topics; demographic profile, personal barriers, organizational support, infrastructure, organizational culture, knowledge acquisition/knowledge capture and knowledge sharing. A total of 37 questions included in the questionnaire. It was a self administered questionnaire with a 5 point Lickert scale.

It was adopted from S.D. Uma Mageswari pursuing Ph.D. in Pondicherry University on "knowledge management practices in industries" and the questionnaire used by Canada's Statistics office for Survey of Knowledge Management Practices 2001. In

line with the objective of this study the questionnaire was modified to suit for its purpose. The questionnaire was prepared by English and pre-tested prior to the actual data collection on 10 (5%) respondents at ERCA's head office and appropriate amendments were made.

ii. DOCUMENT ANALYSIS

Document review also referred as documentation or literature survey (Singh, 2007) is the analysis of published and unpublished documents, articles, journals, conference proceedings, company reports, and memos of relevance to the issue being investigated. The rationale for such an analysis is to mold the research questions and to expand our understanding about the area of study. Thus in this study at ERCA, reviewed documents served as sources of information for the following objectives of the study; for reviewing the different Organizational Memory concepts and augmenting the data gathered during questionnaire.

1.6.6 DATA COLLECTION PROCEDURE

The researcher allocated two weeks for the distribution and collection of the questionnaire. To ensure a good response rate, the researcher went door to door to all the departments to distribute the questionnaire and gave a brief highlight about the purpose of the research for the department heads. The plan was to physically collect the questionnaires after five days from the departments' secretaries. In the mean time a document analysis was done in parallel with administering the questionnaire.

1.6.7 DATA ANALYSIS

The quantitative data were initially entered and cleaned using EXCEL 2007 and exported to SPSS version 19.0 for analysis. Descriptive statistics was employed for describing the study of population in relation to the relevant variables. Then the result was illustrated using graphs and cross tabulation. Finally, the results are interpreted and discussed.

1.7 ORGANIZATION OF THE THESIS

This thesis is organized into four chapters. The first chapter describes the research problem, the research questions, the objectives, significance of the research, and the research methodology. The second chapter is devoted to literature review about Knowledge Management, Organizational Learning and their interaction with organizational memory. This is followed by a detail review of organizational memory. It also presents related works done regarding organizational memory. The third chapter deals with the data analysis and finding of the results. The fourth chapter includes conclusion and recommendation for future studies.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 INTRODUCTION

Knowledge is a bunch of facts, feelings, or experiences known by a person or group of people related to context. While organizational memory (OM) is a repository for knowledge which can be found in artifacts people produced, in communications they carried out, at the places they worked and live and within the minds of the people. So, OM can be related to people, products, processes, or culture, human behavior and interactions with others. Despite the type of organization whether it is private or public institution their existence are guided by knowledge and the knowledge they had (E.Jennex, 2005).

Up on consulting the literatures there are different outlooks of organizational memory (see Section 2) through divergent approaches with differing foci. However, the stand of this paper is to analyze the existing organizational memory from knowledge management perspective and to formulate an appropriate strategy for the development a successful organizational memory. In order to achieve that first of all it is important to understand how knowledge can be created, modified and shared in the organization context. Then in subsequent sections we explore overview of organizational learning, the different concepts about organizational memory.

2.2 KNOWLEDGE AND KNOWLEDGE MANAGEMENT

2.2.1 KNOWLEDGE

Davenport and Prusak (1998) view knowledge management as an evolving mix of framed experience, values contextual information and expert insights that provides a framework for evaluating and incorporating new experiences and information. They found that in organizations, knowledge often becomes embedded in documents or repositories and in organizational routines, process, practices and norms. They also say that in order for knowledge to have value, it must include the human additions of context, experience and interpretation. This implies that user of knowledge must understand and have experience with the context, or surrounding conditions and influences, in which knowledge is generated and used. Accordingly a knowledge repository to be useful, it must store the context in which the knowledge was generated.

Various knowledge taxonomies exist, but the most commonly used classification is tacit and explicit dimensions of knowledge (Polanyi, 1967). This paper adopts this classification of knowledge. Tacit knowledge is personal embedded in individual experience and involves intangible factors such as personal belief, perspective, instinct, and values. It is hard to formalize and, therefore, difficult to communicate with others. Or in the words Michael Polanyi, *"We can know more than we can tell"*.

In contrast, explicit knowledge can be codified, collected, stored, and disseminated. It is not bound to a person and has primarily the character of data. Explicit knowledge is "grounded" in tacit knowledge and is created by externalization

(visualization, articulation, or codification) of tacit knowledge (Nonaka & Takeuchi, 1995). It is the part of tacit knowledge that can be expressed verbally and does not represent the entire body of knowledge (Nonaka & Takeuchi, 1995).

2.2.2 KNOWLEDGE MANAGEMENT

E.Jennex (2005) defined KM as the practice of selectively applying knowledge from previous experience of decision making to current and future activities with the purpose of improving organization's effectiveness. Also he view KM system as a system created to facilitate the capture, storage, retrieval and reuse of knowledge. Accordingly KM and KM Systems holistically combine organizational and technical solutions to achieve the goals of knowledge retention and reuse in order to improve organizational and individual decision making. This view of KM allows KM systems to take whatever form necessary to achieve these goals. Another key definition of KM defines it as an entity's systematic and deliberate efforts to expand cultivate and apply available knowledge in ways that add value to the entity in a sense of positive results in accomplishing its objective. The entity's scope may be individual, organizational, trans-organizational, national, and so forth. Another definition reviewed by E.Jennex (2005) defines KM as distinct but interdependent process of knowledge creation, knowledge storage and retrieval, knowledge transfer, and knowledge application. While a better explanation of KM is found from (Jennex & Olfman, 2002), they describe KM by incorporating the concepts of organizational memory(OM) and organizational learning(OL).They view the three of them as a related areas and have an impact on organizational effectiveness. They define organizational effectiveness as how well the

organization does those critical activities for producing products and services the organization delivers. OL is the process the organization uses to learn how to perform these activities better. OL results when users utilize knowledge. While KM and OM are the processes used to identify and capture critical knowledge (E.Jennex, 2005). Figure 1 illustrates these relationships and the following sections expand on these concepts.

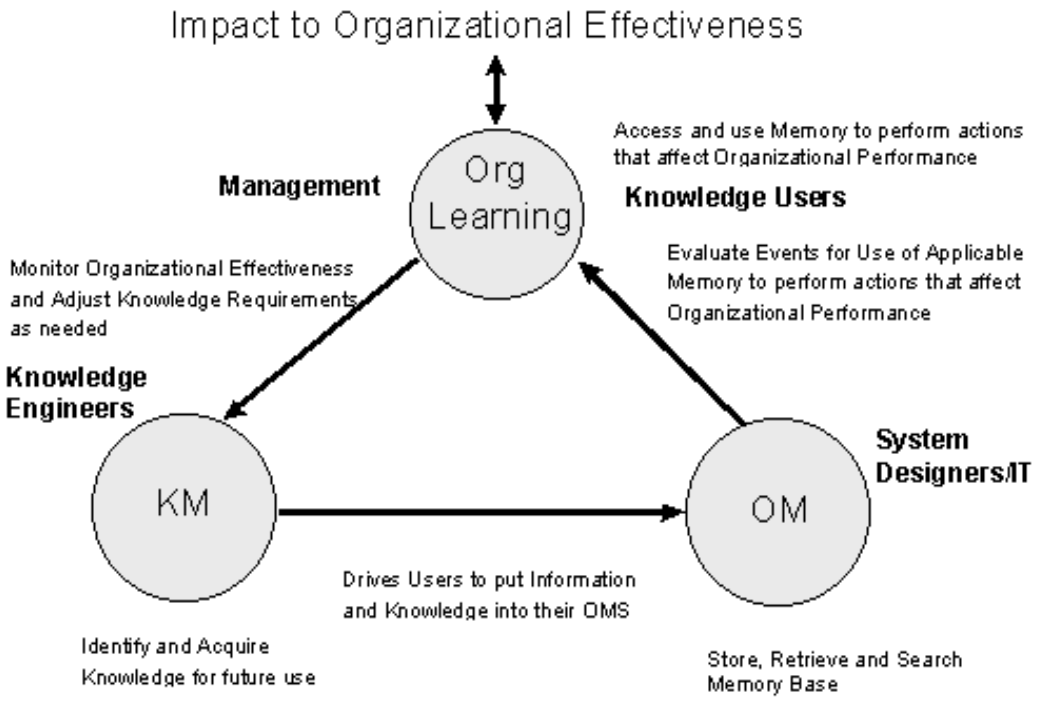

Figure 2-1: Relationship between OL, KM and OM

I. SECI MODEL

Knowledge transfer in an organizations occurs when members of the organization passes tacit and explicit knowledge to each other. (Nonaka & Takeuchi, 1995) Proposes a model for knowledge transfer and creation (known as SECI model):

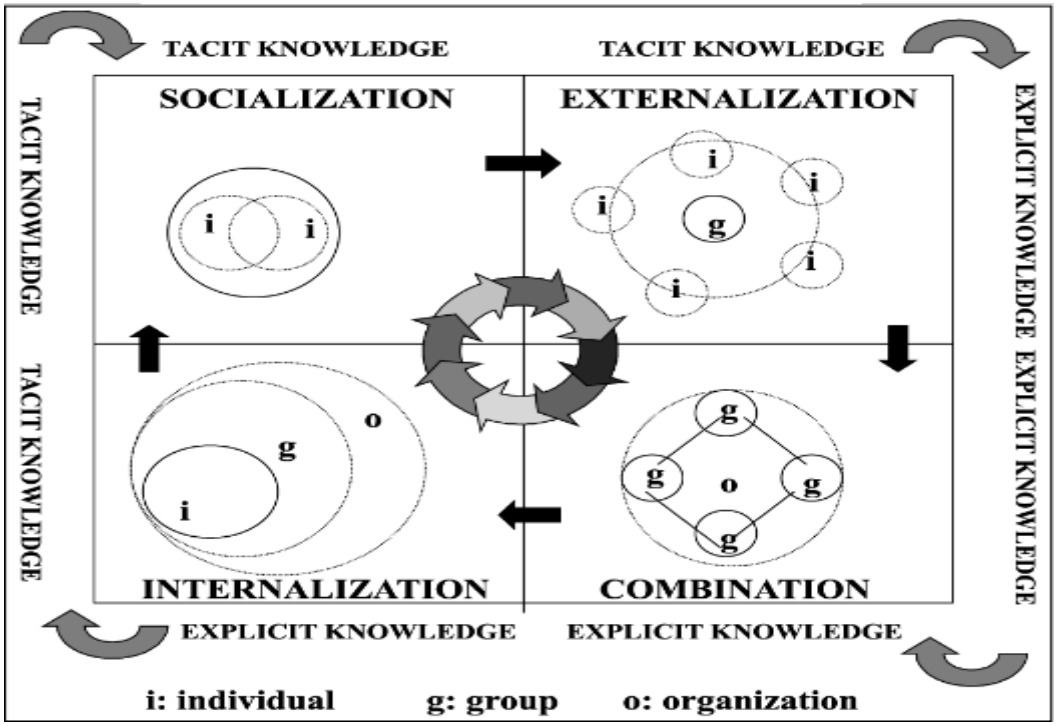

Figure 2-2: The SECI Model

- *Socialization* is the process of sharing experiences and thereby creating tacit knowledge such as mental models and technical skills. Tacit knowledge can be obtained without using language through observation, imitation, and practice.

- *Externalization* is the process of articulating tacit knowledge in the form of explicit concepts, taking the shapes of metaphors, analogies, concepts, hypothesis or models.

- *Combination* is the process of systematizing concepts into knowledge system by combining different bodies of explicit knowledge.

- *Internalization* is the process of converting explicit knowledge into tacit knowledge and is closely related to learning by doing.

These four process shows that the transfer of knowledge is dependent upon the transfer of a common understanding from the knower to the user of the knowledge. Common understanding consists of the context (the story behind the knowledge, the conditions and the situations that make the knowledge understandable) and the experience (those activities which produce mental models of how the knowledge should be used) expressed in a culturally understood framework (E.Jennex, 2005).

II. KNOWLEDGE CAPTURE AND RETENTION

Knowledge captures encompasses the identification of existing knowledge and the creation of new knowledge. In most organizations, explicit or already identified and coded knowledge typically represents only the tip of the iceberg (Dalkir, 2005).

Capturing the knowledge in an organization is not purely about technology. Indeed, many firms find that IT plays only a small part in ensuring the availability of knowledge within the company. Rather Knowledge capturing spans a whole set of activities ranging from organizing customer information details into a single database to setting up a mentoring program.

Therefore, knowledge capture cannot be seen as a purely mechanistic add-on because it has to do with the discovery, organization, and integration of knowledge into the fabrics of the organization. Moreover, every organization has a history, which provides a backdrop to the growth and evolution of the organization. Besides every organization has a memory, which is composed of the experience of its employees, combined with the tangible data and knowledge stores in the organization (Walsh and Ungson, 1991).

Without doubt knowledge capture may be difficult, particularly in the case of tacit knowledge. Tacit knowledge management is the process of capturing the experience and expertise of the individual in an organization and making it available to anyone who needs it. The capture of explicit knowledge is the systematic approach of capturing, organizing, and refining information in a way that makes information easy to find, and facilitates learning and problem solving (Dalkir, 2005).

III. TACIT KNOWLEDGE CAPTURE

In KM, this knowledge creation or capture may be done by individuals who work for the organization or a group within that organization, by all members of a community of practice (CoP), or by a dedicated CoP individual.

At the individual level everyone performs some knowledge creation, capture, and codification activities in carrying out their job. Cope (2000) refers this as PKM (personalized KM).

On the other hand, individuals share perceptions and jointly interpret information, events, and experiences, and at some point, knowledge acquisition extends beyond the individuals and is coded into organizational memory (Nonaka and Takeuchi, 1995). Unless knowledge is embedded into organizational memory, the firm cannot leverage the knowledge held by individual members of the organization. Organizational knowledge acquisition is the amplification and articulation of individual knowledge at the firm level so that it is internalized into the firm's knowledge base (Malhotra, 2000).

IV. EXPLICIT KNOWLEDGE CODIFICATION

Knowledge can be shared through personal communication and interaction, as we saw in the first quadrant of SECI Model (socialization). This occurs naturally all the time and it is very effective. By converting knowledge into a tangible (explicit form) such as a document, that knowledge can be communicated much more widely and with less cost. Interaction is limited in scope to those within hearing or able to have face-to-face contact. Documents can be disseminated widely over a corporate intranet, and they persist over time, which makes them available for reference as and when they are needed, both by existing and by future staff.

Knowledge codification serves the pivotal role of allowing what is collectively known to be shared and used. Knowledge held by a particular person enables that person to be more effective. If people interact to share their knowledge within a community of practice, then that practice becomes more effective. If knowledge is codified in a material way (i.e., it is rendered explicit), then it can be shared more widely. Knowledge must be codified in order to be understood, maintained, and improved upon as part of corporate memory. The codification of explicit knowledge can be achieved through a variety of techniques such as cognitive mapping (concept mapping and common KADS), decision trees (flow charts), knowledge taxonomies (knowledge dictionary), and task analysis.

V. TECHNIQUES FOR KNOWLEDGE CAPTURING AND RETENTION

Several methodologies have been developed from the codification and personalization strategies. Jackson (2010) and Mimnagh (2002) have developed social software approaches to capturing tacit knowledge. Jackson identified four steps which

include strategizing, preparing and conducting interviews; followed by processing and storing the expert knowledge captured. The tools used here include Web 2.0, wikis, cameras and audio recordings. Techniques employed were uploading video and text on a wiki, with enhancement capabilities, such as tagging. The latter (Mimnagh, 2002) captured informal internal knowledge with the use of an intranet containing a skills and learning repository, topical groups and collections of documents. The tools and resulting knowledge products included directories, communities of practice and lessons learned repositories.

The use of a competitive intelligence system was found to be a solution for external knowledge capture (Davenport and Prusak, 1998).Through this technical approach; the company can have better access to its external environment.

Other methods (Liebowitz, 2011) which addressed the human resource approach included the creation of an organizational knowledge map, continuity books (inclusive of business processes and contacts), desk-side reviews, mentoring, knowledge fairs, job rotation, and expertise locator systems.

VI. STRATEGIES FOR KNOWLEDGE CAPTURE AND RETENTION

Codification and personalization were identified as the two widespread strategies for knowledge capture and storage (Desouza, 2008). According to Desouza (2008), codification involved the processes of acquiring knowledge from individuals then coding, storing and reusing it later as needed. In this way, the knowledge will be available to many individuals simultaneously. On the other hand, he defined personalization as a

social approach where communication between persons occurred and became more effective through networks or communities, such as discussion forums.

2.3 ORGANIZATIONAL LEARNING

Organizational Learning has been defined as a quantifiable improvement in activities, increased available knowledge for decision-making or sustainable competitive advantage (E.Jennex, 2005) defines Organizational Learning (OL) as the process of detection and correction of errors. In this view, organizations learn through individuals acting as agents for them. Individual learning activities are seen as being facilitated or inhibited by an ecological system of factors that may be called an organizational learning system.

Organizational Learning (OL) believed to have organizational memory (OM) as a component. As organization learns its potential behaviors are changed. In this view, OL is the process by which experience is used to modify current and future actions.

A different perspective on OL argues that organizations do not learn; rather only individuals learn. During work, people gain experience, observe and reflect in making sense of what they are doing. As they analyze these experiences into general abstractions, their perceptions on how work should be done changes. As these individuals influence their co-workers, the "organization" learns and the process is gradually changed (E.Jennex, 2005).

2.4 ORGANIZATIONAL MEMORY

The notion of corporate or organizational memory has been discussed for over a quarter of a century. It falls under the broader topic of knowledge management, which encompasses areas of scholarly research such as organizational learning and information systems (Robinson & Ensign, 2009). In the literature there exists a variety of definitions and concepts about organizational memory. In the following section we will see some of the dominant concepts regarding organizational memory.

2.4.1 LAYERED ARCHITECTURE OF ORGANIZATIONAL MEMORY

According to Kirsch and Pautzke (as cited in Lehner & Maier, 2000), the organizational Memory (organizational knowledge base) represents the sum total of knowledge to which an organization has access. This knowledge encompasses a broad spectrum of knowledge of all kinds. As they noted, the organizational memory does not represent a homogenous picture, but rather it is multi-dimensional. According to them, organizational memory is the collection of knowledge which is either accessible to *(horizontal layered model)* or, in a larger sense, at the disposal of *(vertical layered model)* an organization adopts.

The horizontal layered model, which is intended to represent the structure of the organizational memory. At the center of the model the chance of applying information for organizational decision increases as one move from the outer layers toward the inner ones. The following figure shows the horizontal layered model of organizational memory.

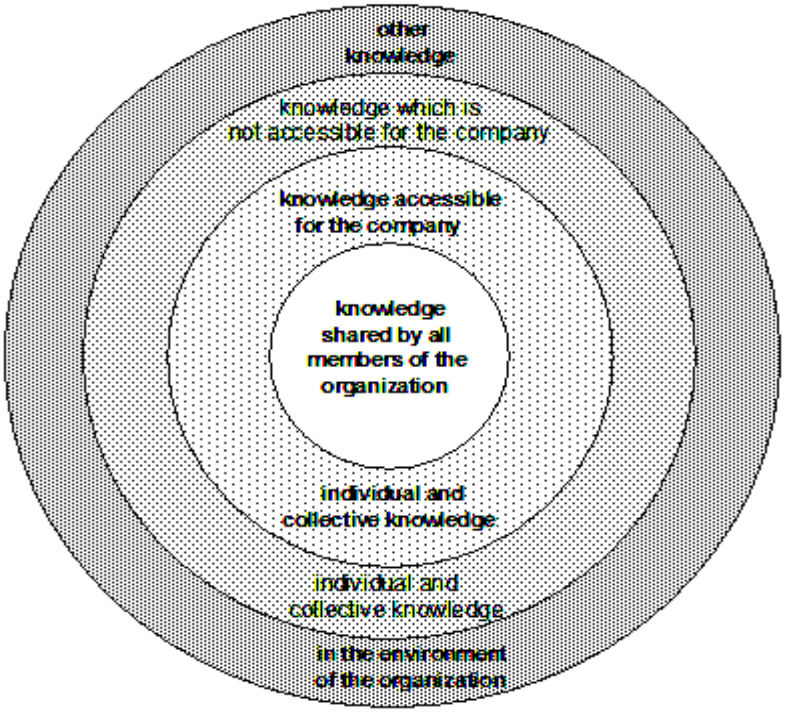

Figure 2-3: Horizontal layered model of the organizational memory

The first two layers represent the knowledge currently available to the organization, i.e. the actual organizational memory. The latent organizational memory (third and fourth layers) encompasses knowledge that is potentially available to the organization. Ultimately the remaining knowledge available in the cosmos belongs to the fifth layer.

A. ACTIVE ORGANIZATIONAL MEMORY

At layer one, the organizational memory of an organization or its employees consists of a common language (in the form of stories, anecdotes, myths, sagas, rites, rituals, and ceremonies) as well as common values and system of norms that arose historically and that manifest themselves as negotiation and behavioral guidelines, manner of thinking and paradigms. Thus many authors assign organizations a kind of cultural identity, from which the term corporate culture arose (Lehner & Maier, 2000).

While at layer 2, an employee implicitly makes his knowledge available to the organization by participating in decision making processes within the organization (negotiation). An obvious problem here is that the organizational memory of a corporation is diminished whenever an employee leaves the corporation. Another possibility is to distribute the knowledge of individuals among several employees (collectivization), e.g. as a result of group discussions among colleagues. This will help to alleviate the problem of organizational memory loss. However, this influenced by the personal attitude towards knowledge sharing, organizational structures and processes (Lehner & Maier, 2000).

B. LATENT ORGANIZATIONAL MEMORY

At layer three, the horizontal layered model of OM refers to potential individual knowledge that is not made available to the organization. There are different blockades against access to this type of knowledge some of the following are the principle causes:

- ✓ Fear of change that might result from passing on knowledge (e.g. weakening of one's own position)
- ✓ incompetent ability to recognize the organizational relevance of one's own knowledge (e.g. departmental blindness)
- ✓ Power struggles (e.g. mobbing or consciously supplying colleagues with disinformation)

It would make sense here to develop appropriate methods (e.g. introduce a corporate suggestion box, quality-control circles, resource labs, job rotation) to discourage or at least reduce the mental barriers that arise in an organization so that the employee knowledge that is not originally accessible can be incorporated (Lehner & Maier, 2000).

The fourth layer in the horizontal layered model includes knowledge that lies outside the realm the organization but to which the organization might possess meta-knowledge. Meta-knowledge is always present when someone knows something about something; this is called explicit knowledge.

The layered model makes the task of knowledge management visible so that organizational and infrastructural conditions are created to insure that the organizational memory can be used, maintained and improved. However, it provides no information as to how to reach this goal (Lehner & Maier, 2000).

2.4.2 STORAGE BIN VIEW OF ORGANIZATIONAL MEMORY

Walsh and Ungson (1991) provide an often-cited definition of organizational memory as stored information from an organization's history that can be brought to bear on present decisions. They described OM as consisting of five storage bins: individuals, organizational culture, processes of transformation, organizational structures (roles) and workplace ecology.

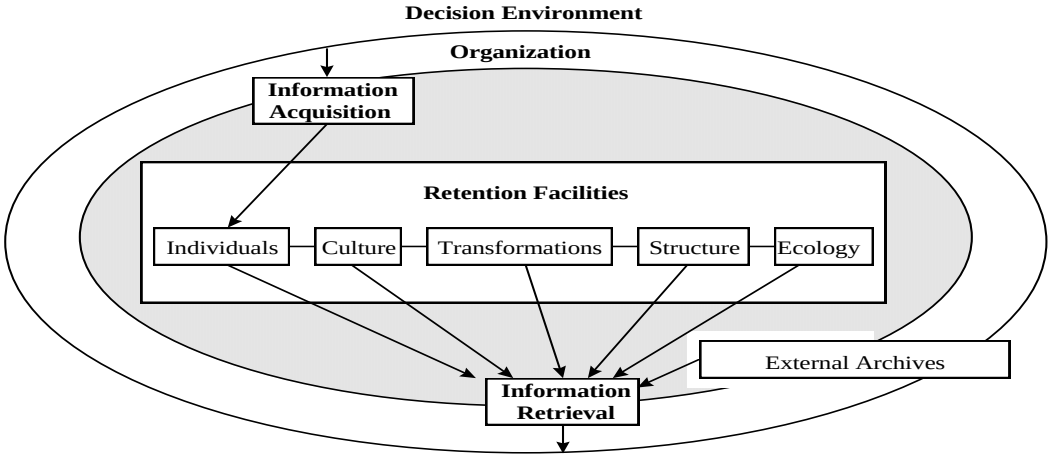

Figure 2-0-4: storage bin model structure of organizational memory

According to them, OM has a decentralized character and can be distributed throughout the entire organization. The individual components will now be discussed in more detail.

Individuals: The employees of a corporation have their own memories about activities and events in and around the workplace. Thereby, experience and observation play an important role in the retention of knowledge.

Culture: Culture can be defined as a learned way of perceiving, thinking and feeling about problems that is transmitted to members in the organization. Past experience manifests itself in the culture of the organization and is of direct importance for current decisions. In this way culture actually assumes the role of a kind of storage mechanism.

Transformations: Information is also embedded in the numerous processes that are always taking place in an organization. For example, this can be knowledge about data processing (i.e. how is a certain input transformed to output), a standardized procedure, or a self-fulfilling insight.

Structures: Structures are to be viewed in how they influence the behavior of employees. At the same time they represent a connection to the environment. Organizational information is established in the form of roles. So information is coded as roles and the resulting structure will influence the decisions in the organization.

Ecology: The physical composition and arrangement of the workplace and environment also contain coded information about the organization (e.g. office furnishings, lighting, and number of people). Behavior is influenced to a greater or lesser degree by these things.

External archives: As one can easily determine, the organization itself is not the only place where information about the organization and its past is kept. Records can also be found at the competition, government agencies, advertising agencies, societies, accounting offices, news agencies and the media, etc…

Interestingly, Walsh/Ungson do not refer to archives, data base systems, etc., even though in theories on memory these storage facilities have traditionally been labeled as external storage facilities. In fact, these particular labels are missing completely; nevertheless it can be assumed that they can be considered under the component of "individuals".

2.4.3 ORGANIZATIONAL MEMORY AS TRANSACTIVE MEMORY

The transactive memory system (TMS) is comprised of a multitude of individual memory systems as well as communication between individuals and persons together.

The transactive memory system (TMS) is comprised of three components (as cited in Lehner & Maier, 2000).

Individual memory: To characterize individual memory, Wegner uses the well-known phase-oriented view of human information processing (coding, storing, recall). Single information elements are stored as linked sets. Memory also includes a meta-memory that contains knowledge about the stored knowledge. It has a significant influence on how well one can use one's own memory.

External memory: This has to do with information that is stored outside individual memory (e.g. in books, CD-ROM, computers). In individual memory, only the "access pathway" to the external memory is stored. Along with the key to relocation (information marking), another site is needed to access information in the external memory. Unquestionably, there can be several keys and locations. Wegner beliefs that a significant part of our individual memory is used for storing information related to site.

Transactive memory: Besides books and other storage media, people can also serve as external memory. In this case, persons act reciprocally as external storage media. In this way, a reciprocal and dependent system of storing information arises in groups that are larger and more complex than each individual memory. The term "transactive" describes the feature of this system to process information as transactions that several people take part in.

2.4.4 ORGANIZATIONAL MEMORY AND GROUP REMEMBERANCE

In his studies, (Hartwick et al., 1982 as cited in Lehner & Maier, 2000) concentrate on the role of group memory within the framework of human information processing. He does not deal directly with the original concept of memory; rather he approaches with an ordered compilation of models and knowledge in relation to the performance of memory. His inquiries focus on:

- ✓ the influence of other persons on the individual person's remembering
- ✓ the influences of social interaction on information processing in groups, and
- ✓ The combination of individual memory performance and social interaction.

The presence of other people can either hinder or promote remembering. This influence is attributed to how well the other people present, pay attention and how they react. Another reason might be individuals have limited capacity for information processing. In other words they make use of other individuals' memory in order to expand their own memory capacity, but that can also be used to verify or correct one's own memory.

A review of organizational memory shows that there are widely varying views of its nature, locus, and influence. The concept of an organizational Memory as opposed to individual memory is viewed by some as purely metaphorical, by others as the aggregation of individual memories, and yet by others as an independent capability of the organization itself. Scholars also have suggested various repositories of organizational

memory, including minds of individuals; organizational culture, processes, structures, roles and the paper or computer files.

As the definition highlights, organizational memory is more than stored formal documents, reports and manuals as explicit knowledge. Rather it encompasses communities of practice, combination of experiences and skills about projects, products and decisions that is more often embedded in the minds of the workers, or entrenched in the organization's culture as tacit knowledge.

While proposing a unifying definition of organizational memory is beyond the scope of this paper, the author considered the above aforementioned aspects of organizational memory to guide the discussion in the remainder of this paper.

2.5 ORGANIZATIONAL MEMORY PROCESS

Despite the different views about Organizational Memory, it is generally agreed that organizational Memory consists both mental (i.e. data, information, and knowledge) and structural artifacts (i.e. roles, architectures, and operating procedures) within an organization (Kruse, 2003). Furthermore, organizational memory is considered important in that it allows organizations to draw upon events from the past to influence present decision-making. Focus on the organization's ability to learn and subsequently remember what it has learned suggests the ability for organizations to transcend the fragile limitations of individual knowledge structures.

Based on this conception organizational memory process is classified in to processes by which knowledge is acquired, stored and retrieved.

2.5.1 ACQUISITION

Information about problems encountered, solutions identified and decisions determined forms the core of any organization's memory. Several types of information are acquired within this process of development. The identification of the stimulus might be considered a felt difficultly, a problem or an ecological change. In any episode, the origin of the stimulus is an important aspect of the memory dilemma. Without adequate identification of the stimulus, future efforts to replicate the learning cycle are thwarted as similar issues may well be ignored. *Second*, the organization's response, including data collected, information gathered and knowledge gained, concerning the stimuli must also be identified. *Third*, the outcomes of the responses must be examined and explored for future use and potential application across the organizational setting.

2.5.2 RETENTION

For memory to be useful to an organization it must be retained. Furthermore, for the memory to be truly organizational it must be stored in a variety of locations within the organizational structure. Weick offers the notion that knowledge may be stored as "brains or paper" – that is, either within individuals and organizational cultural patterns, values and beliefs or within the technologies of an organization's written policies, files or records (Kruse, 2003).

When knowledge is stored within the brains of an organization, it is housed as language based on shared, communal experience. As the belief structures of members shift to include shared norms and values, patterns of retention increase throughout the organization. Conversely, knowledge may be more officially retained as recorded data, policy or documents. Administrative structures also serve as a mechanism for preserving knowledge as they formalize new practices into organizational common places (Weick, 2000 as cited in Kruse, 2003).As formalization of new knowledge occurs retention is enhanced through the transformation of prior practice.

The following table illustrates a list of knowledge repositories and the knowledge that can be efficiently and efficiently stored.

Medium	Memory Content
Individual	Professional skills; evaluation criteria and results; explanation of procedures, decision rules; personal ethics and beliefs, performance criteria; individual routines
Culture	Schemes; stories; external communications; cultural routines
Transformation	Tasks; experiences; rules, procedures and technology; patents
Structure	Task divisions; hierarchy; social structure; formal structure
Ecology	Layout of Shop floor; building architecture
External	Client and market characteristics; competition profiles; list of knowledgeable people and organizations; technology of competitors
Systems	Planning and decision systems; process control systems; e-mail; cad systems; knowledge-based systems; administrative systems

Table 2-1: Repositories and related memory contents

2.5.3 RETRIEVAL

When members of an organization seek to use knowledge they have previously stored in its collective archives. First, retrieval may be automatic, that is, members of the organization may be able to draw effortlessly on knowledge because it has been archived.

Automatic retrieval results from a change in schema toward the problem presented, that is, it no longer appears unique to the collective organization and has become recognizable given information from past situations. On the other hand, most computer based knowledge systems make use of automatic retrieval using inferences by combining several knowledge elements (e.g. production rules) via a defined formal logic stored in the inference engine of the knowledge based system.In situations where automatic retrieval functions at high levels, organizations are said to have "learned" (Senge, 2000 as cited in Kruse, 2003).Memory can be thought of as robust when automatic retrieval occurs.

However, the potential exists for an organization to disregard the need to create lasting structures in which to house the knowledge learned. Knowledge may well have been obtained and applied to a past problem situation, yet members may fail to see the utility of the knowledge for other situations or neglect to develop the necessary organizational structures to draw upon the new learning (Walsh and Ungson, 1991). In this case, it is difficult to argue that the organizational memory was sufficiently robust to transmit new learning beyond a single case application (Kruse, 2003).

2.6 KNOWLEDGE SHARING FOR EFFECTIVE ORGANIZATIONAL MEMORY

The importance of knowledge sharing to organizational memory cannot be underemphasized. However creating an environment that enables the sharing of organizational knowledge is often a challenge. So, it is essential that an organization's leaders develop the institutions and culture necessary to ensure that future generations of leaders are better equipped to adapt and respond to external stakeholder needs. This means inculcating employees with values that emphasize the sharing of valuable knowledge and the implementation of systems that enable the creation of various types of organizational memory, and processes to acquire and store this memory (Robinson & Ensign, 2009).

The sharing of knowledge is a pillar for the development of a healthy organizational memory and is a critical factor in determining the success of social network memory systems. All social networks are reliant on the individual participants, who must be both willing and able to contribute their learned experiences for the benefit of internal and external stakeholders. Fostering this type of environment is a considerable challenge according to numerous scholars in the organizational memory sphere (Robinson & Ensign, 2009).

They identified a number of barriers that can potentially inhibit knowledge sharing and the growth of an organization's memory:

- The past behavior and expected actions of individuals and even groups play a critical role in determining the extent to which knowledge to be shared. The

source contemplating whether or not to share knowledge considers the balance of past transactions and whether the sum of these prior interactions is positive, negative, or zero.

- A location has negative impact on knowledge sharing .As a rule; the greater the distance the less likely it is that the source will share the knowledge with the recipient.
- When the sharing of information was perceived as a threat to the expert source's "scientific domain." This attitude is both stifling to sharing and stifling to the development of a solid base of organizational memory.
- A defensive attitude exhibited by less senior employees to more senior employees as they were "more inclined to deny assistance to those who were senior".
- The existence of a trusting relationship may decrease the perceived cost of sharing knowledge with colleagues and ultimately increased utilization of the organizational memory stored in social networks and individuals.
- Making the sharing of knowledge as little work for the source as possible (i.e. reducing the time and effort exerted by the source).
- A trusting employee that is a team player is an employee that drives organizational learning and helps in the development of an organization's memory bases.

2.7 ORGANIZATIONAL CULTURE AS VESSEL FOR OM

Organizational culture determines values and beliefs which are an integral part of what one chooses to see and absorb (Davenport & Prusak 1998). It includes a shared perception of reality, regarding how things are and how things should be. Furthermore,

community and group culture determine the willingness and conditions for knowledge sharing with other members of the organization. Knowledge, and knowledge sharing, is thus inseparable from organizational culture.

The concept of organizational culture and organizational memory are complex and intertwined. Lundberg (1990 as cited in Stoyko, 2009) best describes Organizational culture as a shared common frame of reference in which it is largely taken for granted and shared among some significant portion of organizational members.

In general, organizational culture is a roll-up of the experiences, observations, formative events, preferences, and lessons over time. Those things that do not resonate with the larger population and people in positions of persuasive authority are usually filtered out. Ultimately, the fragments that remain are molded into something coherent that most members can relate to (consciously and unconsciously). This coherence has its own impact, so that new experiences and lessons are compared and judged according to what has come before. Culture is a living memory (Stoyko, 2009).

Organizational memory embedded in culture is not necessarily accurate given that the filtering process is highly imperfect. Organizational cultures that accommodate divergent ideas or place a high value on innovation are less censorious. However, in most organizational cultures, valuable knowledge will likely be filtered out if it is considered heterodox (i.e. ahead of its time, behind the times or beside the point*)*. These are labels that are normally attached to things which do not conform to deeply held assumptions, values, principles, and mental models (Stoyko, 2009).

An organization's memory is knowledge that can be brought to bear on the present; although that use may not necessarily bring about improvement (Stein & Zwass, 1995). An uncritical over-reliance on past knowledge can make it difficult for organizations to adapt to changing circumstances. Organizational memory is not a substitute for intelligence; it merely serves intelligent thinking (Spender, 1996 as cited in Stoyko, 2009).

2.8 ORGANIZATIONAL MEMORY MODELS

OM is a branch of collective memory studies and tied to instrumental group action in formal organizations context. If OM consciously designed, controlled and managed it will lead to raising the adaptive capacity and economic value of the organization under consideration. Organizations which can effectively manage their OM are capable of enhanced learning, the development of innovative products or services, greater stability in the midst of turbulent change, lower transaction costs, and reduce time, effort and capital in socializing new members (N.Wexler, 2002).

OM classified into three forms of intellectual capitals: structural, human and relational intellectual capital (N.Wexler, 2002).The three forms of intellectual capital are interrelated. The human intellectual capital refers to the organizations capability on the effective use of knowledge to stimulate the thinking, problem solving and skill level of individuals as agents within the firms. On the other hand, Structural intellectual capital adheres less to the competencies or commitment level of particular individuals and more to the policies, job descriptions, standard operating procedures, reporting structures, and

how they impact on the organizational culture of a firm. (N.Wexler, 2002).While, the relational capital refers to the nature and quality of inter and intra organizational relations established within the firm and its environment.

N.Wexler(2002) develops OM models based on the three forms of intellectual capitals: structural, human and relational intellectual capital.

2.8.1 THE STORAGE BIN MODEL OF OM

It is the storage bin or repository model of OM the information is placed and organized so as to be retrieved and used at a later date. Collective remembering entails locating information or experiences that either one has directly dealt with earlier or more indirectly has been left in a repository by others. The primary concern in the design of a storage bin model is that of the location and design of collective memory so as to reduce time required to retrieve the needed information and the experience lost from storage. The storage bin model of OM is the most "intuitively" available of the four models of OM because when one engages in the act of remembering, one most frequently attempts to locate information. The location or whereof OM in the storage bin model encompasses human, structural and relational intellectual capital (N.Wexler, 2002).

In human intellectual capital terms, the collective memory of the firm is stored in individual or group memory. The training, retention and promotion of competent contributors generate a growing OM from which information, knowhow and experiences relevant to future problems can be drawn. The knowhow and experience of individuals can be harnessed further with the development of structural intellectual capital. Effective

organizational structures embed the personal information and experiences from individual personnel into the policies, procedures, rules, job descriptions and decision making protocols of the organization and its operation. In other words, in the storage bin model of OM the memory resides in the recurrent routines, explicit directives and ongoing technological interdependencies that unintentionally store memories and experiences. Finally, the storage bin OM is located in relational intellectual capital, that is, in memories and experiences stored in ongoing inter and intra organizational exchanges (N.Wexler, 2002).

2.8.2 THE NARRATIVE MODEL OF OM

The narrative model of OM doesn't specialize in the where or retention which is emphasized in the storage bin model; rather it questions how to motivate the retrieval and use of information and experiences?" .That is the narrative model used to motivate creation and use of OM. In narrative model of OM the collective memory practices here emphasize interpretation of information and experience made active by a motivated organizational culture.

Within the context of the narrative model of OM, human, structural and relational capital, are vested in the ability of a viable organizational culture to (N.Wexler, 2002):

- Stimulate individual use and involvement in OM creation, development and use;
- Support of policies, rules, reporting structures and decision making protocols which encourage the retrieval , interpretation and adaption of information and experiences in the OM to current organizational concerns, and lastly, in relational intellectual capital terms.

- Foster ongoing viable inter and intra organizational relations between a firm and those with who it forms interdependent relationships.

2.8.3 THE INNOVATIVE MODEL OF OM

The innovative model of OM is focused neither on storing information in memory nor motivating the use or retrieval through continual reconceptualization and interpretation. Rather, the innovative model of OM seeks to use information and experience in the OM to anticipate problems, attend to creative solutions and develop a bank of new, potentially useful information and experiences on which to draw. In practice, the innovative model develops human, structural and relational capital by attempting to integrate the OM to a firm's effort at creative problem solving. The innovative model of OM can be envisioned as the search for an OM which can inject new information and experiences in assisting the firms in solving problems and taking advantage of opportunities. This is the most project based notion of OM among the four OM models (N.Wexler, 2002).

2.8.4 POLITICAL RESOURCE MODEL OF OM

The political resource model grows in networks where loose and brief coalitions flourish. The resource in the political resource model is the power and authority which is granted on components of a human system which control and thus gain legitimacy from the OM. The political resource model differs from the other three models because of the emphasis it gives on the control of OM.

In the political resource model of OM, the OM is a resource which, when controlled by a group or coalition of groups within a larger system, grants power, status and privilege. In the political resource model of OM, credible versions of the past equally compete for attention. In this model of OM, not only is the past interpreted and recontextualized as it is in the narrative model of OM, and new components added as occurs in the innovative model of OM, but in the political resource model of OM there are multiple versions of the past which compete. In the context of political resource model there is always a form of provisional memory awaiting a series of new power brokers .For instance, the change in CEO often leads to a series of new directions grounded on the reinterpretations of the knowledge in memory. These power brokers not only revise the past to fit their agenda, but also present this version of the past to justify, ground and pint towards the reasonableness of their agenda. The basis of political resource model rests on the availability of OM which contain credible multiple and substitutable pasts.

2.9 RELATED RESEARCHES

Researches on OM have multi disciplinary nature where researchers came from organizational studies to those of science and technology. Due to their diversified background the way they handle the concept is varied. However, based on the objective this research the author beliefs the appropriateness of exploring those research papers which are relevant to the problem at hand. Accordingly, some of the dominant empirical researches relevant to this study are presented as follows:

Lahaie(2005) perform a research on the impact of corporate memory loss when a senior executive leaves. He examines the impact of corporate memory loss on a health care institution, caused by increasing retirement rates of senior executives. His research revealed that pre-assumed managerial competencies are insufficient to minimize the negative impacts of corporate memory loss caused by departing senior executives. And he suggested effective knowledge management and knowledge transfer within the organization as a remedy and a tool to enhance organizational effectiveness. However, his research was very limited and only 12 senior executives participate.

Kruse (2003) extends the existing theory in organizational learning to include the construct of memory as an important organizational tool for staff and faculty to advance innovation and student achievement in schools. The focal point of this research was the development and application of organizational memory as an analytic construct; and the utility of memory as a construct helpful in understanding organizational outcomes and performances. The research finding asserts that organizational memory, remembering, has the potential to foster increased understandings of the processes with which schools may foster and implement reform. While past events have the potential to constrain future or current learning.

Al-Habil1 & Koraz(2012) aimed to highlight the concepts of organizational memory and intellectual capital and investigated the impact of organizational memory on intellectual capital by the staff of Gaza Power Generating Company. They employed a qualitative analytical approach. Their study employed adaptable model generated to represent the organizational memory through the experiences, data archiving systems,

standard operating procedures, organization's policies and the learning facilities. On their finding, they explained the influence of organizational memory on intellectual capital. They recommend the necessity of creating the awareness of the organizational memory at the organizations and its role on the development of intellectual capital.

Kuutti & Virkkunen (1995) studies the relationship between organizational memory, team work and organizational learning. Their case study focuses on a project carried out at a Finnish labor protection office during 1988-1992.They found out that organizational memory plays a central role in creating a learning network in which team work is facilitated.

In sum there are numerous papers regarding organizational memory, however as has been said earlier their themes varied extremely. On the other hand, in Ethiopia as far as the knowledge of the author there is no research paper regarding organizational memory.

CHAPTER THREE

3. DATA ANALYSIS

As has already been stated in Chapter 1, the study uses Organizational Memory concepts to explore the barriers and enablers of Organizational Memory at ERCA. To assess ERCA's OM questionnaires were distributed to employees at the head quarter. The responses obtained through the questionnaire were supplemented with document analysis. The Statistical Package for Social Sciences (SPSS) and EXCEL 2010 were used to analyze and summarize the data.

The questionnaire has six sections (see Annex I). Part I covered the background information about the respondents. Part II explored personal barriers about knowledge sharing. Part III focuses on organizational support. Part VI related to infrastructure that supports KM in the organization. Part V gathered data about organization culture. Part VI focused on gathering data on knowledge acquisition / knowledge capture, and finally Part VII was about knowledge sharing practices in the organization.

From the total 213 distributed questionnaires, 140 questionnaires were fully filled and returned by the respondents while 9 questionnaires were rejected and 64 questionnaires not returned by respondents which made the response rate for the survey 66%.

3.1 DEMOGRAPHIC ANALYSIS

This portion of the survey was concerned with background of the respondents to understand the employees or respondents who participated in filling the questionnaire for this research. Respondents were requested to fill their sex, age, educational status, work experience and their organizational rank (i.e. senior manager, middle level manager and officer).

The majority of the respondents were comprised of officers, which accounted 64.3%. While 27.1% respondents were part of the middle management. Only 8.6 % of the respondents were senior managers. This shows that most of the respondents were at the operational level. When we see respondents' by age range 57.1% respondents were categorized in age range between 23-30 years, 28.6 % in the age range 31-40 years ,10.0 % respondent were in the age range of 41-50 years and respondents less than 23 were 2.9% . Only 1.4% of the respondents were in the age range of Greater than 50. In other words, about 60% of respondents were less than or equal to the age of 30.In general, most of the participants were young and mid carrier employees

			Age					Total
			Less than 23	23-30 years	31-40 years	41-50 years	Greater than 50	
Organizational RANK	Officer	% within Organizational RANK	4.4%	73.3%	20.0%	2.2%		100.0%
		% of Total	2.9%	47.1%	12.9%	1.4%		64.3%
	Middle Level Manager	% within Organizational RANK		34.2%	44.7%	18.4%	2.6%	100.0%
		% of Total		9.3%	12.1%	5.0%	.7%	27.1%
	Senior Manager	% within Organizational RANK		8.3%	41.7%	41.7%	8.3%	100.0%
		% of Total		.7%	3.6%	3.6%	.7%	8.6%
Total		% within Organizational RANK	2.9%	57.1%	28.6%	10.0%	1.4%	100.0%
		% of Total	2.9%	57.1%	28.6%	10.0%	1.4%	100.0%

Table 3-1: Organizational RANK * Age Cross tabulation

Respondents were also categorized by their level of education into Masters, Bachelor and diploma. Table 3-2 shows the details about respondent's level of education.

Education	No of respondents	Percent
Bachelor	113	81%
Masters	26	19%
Total	140	100.0

Table 3-3: Educational Status

3.2 FINDINGS AND DISCUSSIONS

3.2.1 PERSONAL BARRIER TO KNOWLEDGE SHARING

Part-I intended to collect the views of respondents about personal barriers on knowledge sharing. Figure 3-1 summarized the seven questions aimed to gather the respondent's opinion about personal barrier to knowledge sharing. The figure gives each statement and the levels of agreement.

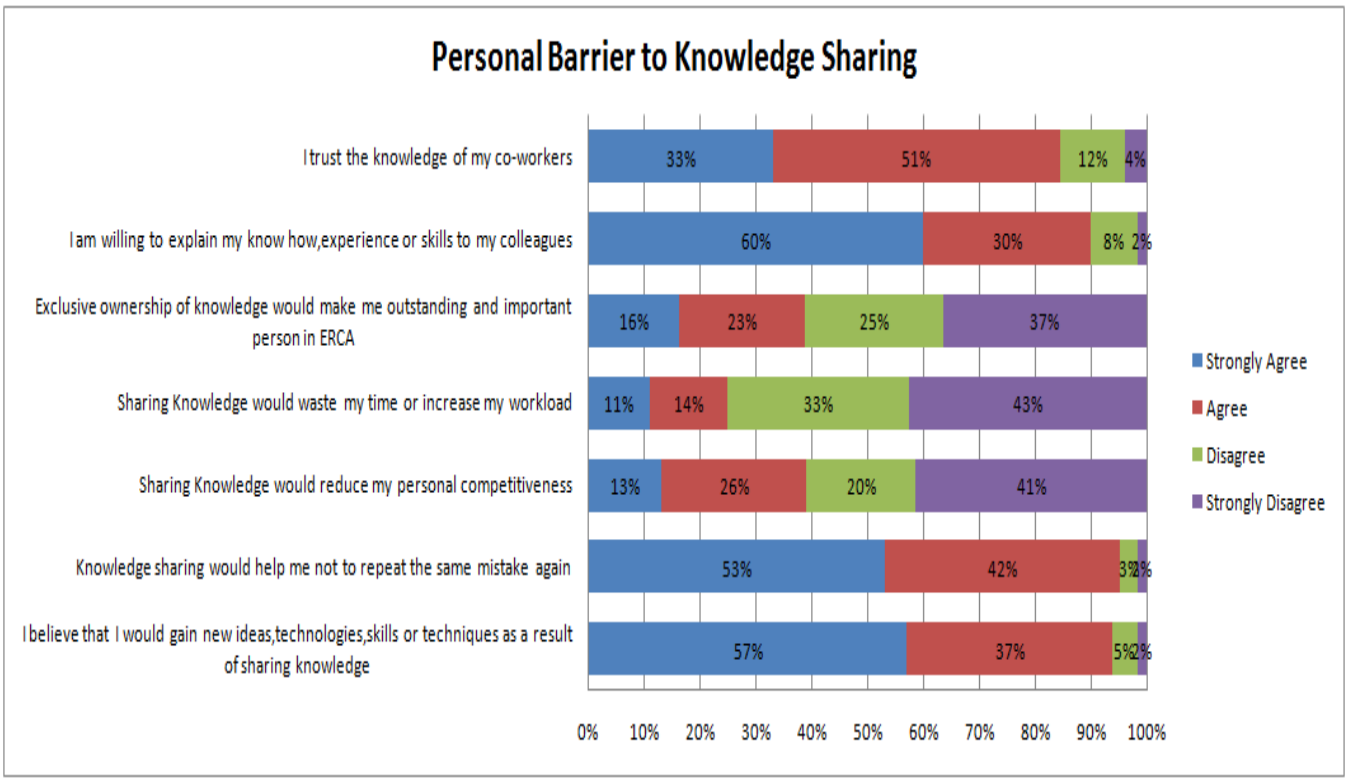

Figure 3-1: Respondents view of personal barrier to knowledge sharing

I. TRUSTING RELATIONSHIP AMONG COWORKERS

According to the results of this research, among the participants, 86% of them trusted the knowledge they gain from their coworkers and 90% of the respondents were also willing to explain their knowhow, experience & skills to their colleagues.

Besides, 95% of the respondents thought knowledge sharing would help them not to repeat the same mistake again. In agreement with the above stated opinions, 94% of research participant's felt; they would gain new ideas and technologies, skills or techniques as a result of knowledge sharing.

Numerous studies stated the existence of strong ties between coworker's attitude and knowledge sharing. They noted that the "magic ingredient" that links strong ties between coworkers is trust which is critical to the success of having a robust Organizational Memory. Accordingly, organizational memory to make use of experiential (tacit) knowledge available throughout the organization, trust among coworkers should be addressed. This trusting relationship established when employees believe on the willingness of their peers and their expertise on the particular subject area. More importantly, their peers reciprocally should be willing to help.

In general, we can say in ERCA, there is good trusting relationship among coworkers with respect to willingness to accept and to share knowhow, skill and expertise. This can be used as a good fertile ground in the process of nurturing the growth of existing organizational memory.

II. EXCLUSIVE OWNERSHIP OF KNOWLEDGE, PERSONAL COMPETENCY AND WORK LOAD

In ERCA's context, only 39 % of the research participants felt the idea *"sharing of knowledge would reduce my personal competitiveness"*. While 62 % of them disagreed with the statement *"exclusive ownership of knowledge would make them outstanding*

and important person at ERCA". On the other hand, 75% of the respondents disagreed with the opinion "*knowledge sharing would waste their time or increase their work load*".

In summary, considerable amount of employees have a negative stand on knowledge sharing due to their belief on exclusive ownership of knowledge. They thought exclusive ownership of knowledge made them an important person in the organization. Besides those who had this stance also had a strong fear of losing their power and competency within the organization due to knowledge sharing. On the other hand, there are employees who believe on knowledge sharing. However, they feel that it will add additional work load to their daily job. Both of these perceptions have a negative impact on knowledge sharing which ultimately will shrink the overall individual, group and transactive memory. They in turn will affect the performance of the overall organizational memory.

As a conclusion, this research reveals that there is a wide consensus on the importance of knowledge sharing and most of them believe knowledge hording nothing to do with their importance and competency within ERCA. More importantly, they conceive knowledge sharing didn't add additional work load to their daily job.

3.2.2 ORGANIZATIONAL SUPPORT

In this part of the questionnaire the researcher aimed to explore the availability of organizational support for knowledge management with respect to its importance on fostering a sustainable organizational memory. Figure 3-2 summarized the seven

questions intended to gather the respondent's opinion about organizational support .The figure gives each statement and the levels of agreement.

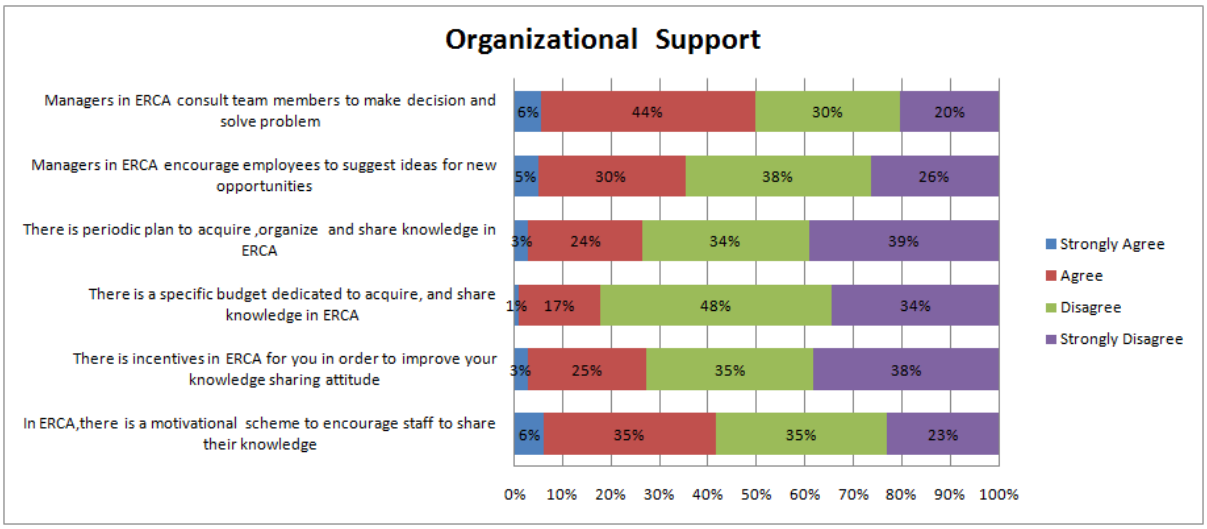

Figure 3-2: organizational support

I. MOTIVATIONAL SCHEME

Regarding the motivational scheme in ERCA, 73% of the research participants felt that there were no incentives at ERCA which reward knowledge sharing attitude. While 51% and 64% of research participants' considered managers at ERCA didn't encourage employees to suggest ideas for new opportunities and didn't consult team members to make decision & solve problems respectively.

In motivation theory, motivation is regarded as the tendency or force to act, and this tendency can be the result of both intrinsic factors (such as having a strong need to discover new things or to achieve something) and extrinsic factors such as pay. Pinder (1998 as cited in Shiva, T., & Abdullahi, 2011) defines work-motivation as 'a set of energetic forces that originate both within as well as beyond an individual's being, to initiate work related behavior and to determine its form, direction, intensity and duration'.

In the past, employees were motivated to hoard knowledge because of the competitive advantage it gave them personally within their organization. From this perspective of the employees, organizations are now asking them to share the very thing that earns them the positions they hold and their hope of financial reward and advancement. Nowadays organizations device a motivational scheme to develop an organizational culture where these feelings can be overcome and the sharing of knowledge and learning becomes the norm.

In summary, most of the participants agreed the lack of incentive and rewarding scheme at ERCA which is needed to promote knowledge sharing. Moreover the majority conceive that the management is not open and participatory on the decision making process. This will in turn has a negative consequence on the development of a robust organizational memory within ERCA.

II. RESOURCE ALLOCATION FOR OM ACTIVITIES

Regarding resource allocation for OM activities, 82% of the research participants believe that there is no specific budget dedicated to acquire, and share knowledge in ERCA. Accordingly, 73% of the respondents' belief there is no periodic plan to acquire, organize and share knowledge in ERCA. Besides 73% of the research participants believe there is no incentive at ERCA which reward knowledge sharing attitude. While 51% and 64% of research participants' belief managers at ERCA didn't encourage employees to suggest ideas for new opportunities and didn't consult team members to make decision & solve problems respectively.

Nowadays organizations deploy large amounts of company resources to bring about the desired cultural change. They specifically set aside a certain amount of their budgets for this purpose. This rationale is based on the assumption that these types of incentives will encourage employee loyalty, foster teamwork and ultimately facilitate the development of the desired culture that encourages and supports knowledge sharing.

In general, there is weak organizational support at ERCA regarding knowledge management and organizational memory in particular. Furthermore, there is a lack of top management initiative towards knowledge sharing.

3.2.3 INFRASTRUCTURE

In order to gather the relevant information the research participants were asked to rate the five questions intended for this task of exploring available infrastructure. The following figure illustrates the summarized form of the research participant's view.

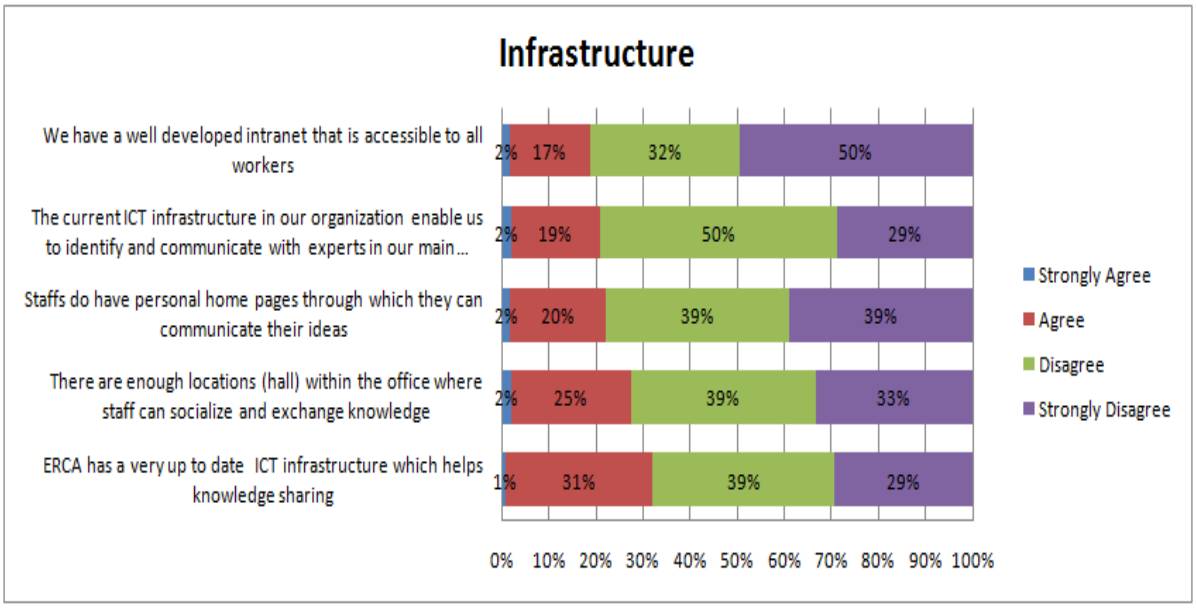

Figure 3-3: Infrastructure

I. ICT INFRASTRUCTURE

This study finds out that 68% or more of the research participants consider the inadequacy of the existing intranet infrastructure. In agreement with that, 79% of them belief the current ICT infrastructure didn't enable them to identify and communicate with experts in their main functional areas quickly and 78% of them disagree with the statement "Staffs do have personal home pages through which they can communicate their ideas".

Many factors have transformed the way organizations view knowledge sharing but perhaps most pivotal is the dramatically extended reach of knowledge through new information technology (world Development Report,1998/1999 as cited in Stein,1995).However, ICT is not knowledge management by itself. Technology is a key enabler in implementing a successful knowledge management program and strategy. Although technology is an enabler to knowledge management, it is still considered as the most effective means of capturing, storing, transforming and disseminating knowledge.

ICT enables rapid searching, accessing and retrieving of knowledge, and can support teamwork and communication among organizational members. Effective organizational memory depends on people sharing their knowledge through computer facilities that users across the organization have access to. Up-to-date ICT infrastructure will help employees to create, share and transfer knowledge within the organization which eventually enhances organizational memory.

As conclusion, ERCA's ICT infrastructure is not well developed to facilitate the development of effective organizational memory. As a member of the IT department of

the organization, the researcher also had the chance to observe the IT strategy of the company. However, the strategy focuses on transactional information systems and it is in short of making emphasis on knowledge management activities.

II. HALLS AND ROOMS FOR KM ACTIVITIES

From the responses gathered from the research participants, 82% of the respondents consider the lack of enough locations (hall) within the office where staff can socialize and exchange knowledge.

Overall, ERCA's infrastructure is limited and it has insignificant role on facilitating the growth of ERCA's organizational memory.

3.2.4 ORGANIZATIONAL CULTURE

This part of the questionnaire seeks to understand the ERCA's organizational cultures in terms of the knowledge management practices in the authority which ultimately influences the growth and maintenance of organizational memory. Figure 3-4 summarized the responses on the five Questions, whose aim is to find out how ERCA existing organizational culture influences the building of robust organizational memory.

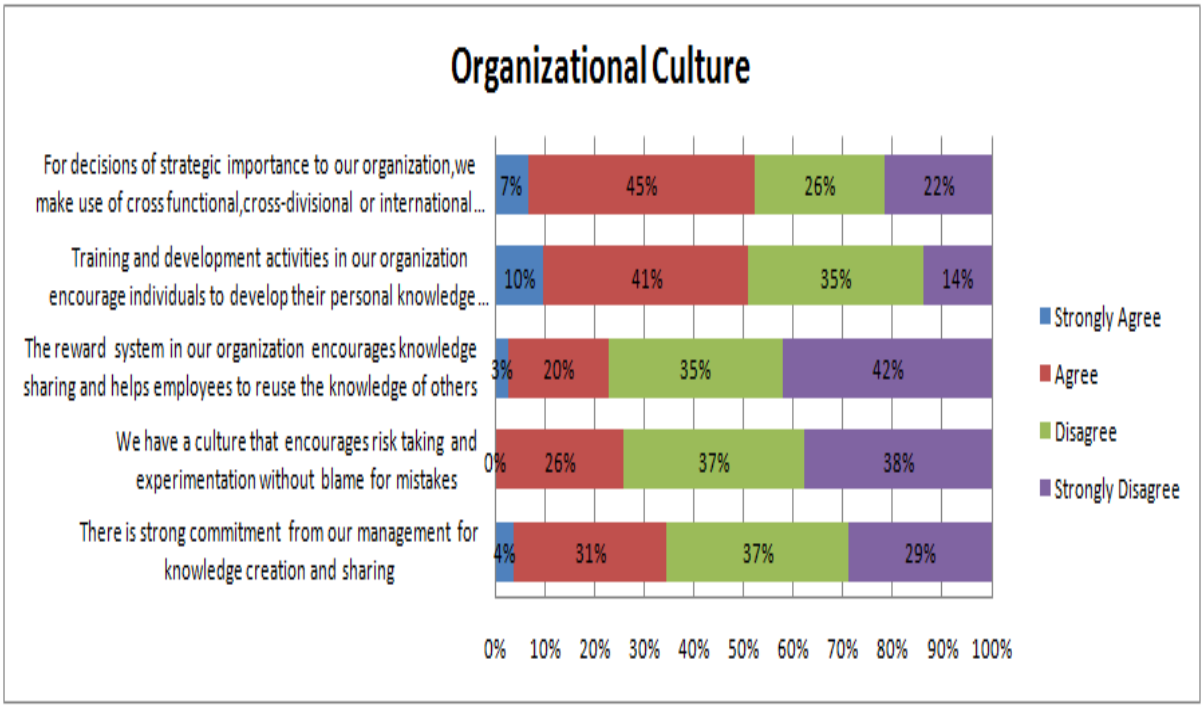

Figure 3-4: Organizational Culture

I.CROSS DIVISIONAL KNOWLEDGE SHARING AT ERCA

Regarding the cross divisional knowledge sharing at ERCA, only 52% of the research participants considered the availability of knowledge across functional, divisional or international best practices.

As Kirsch and Pautzke (as cited in Lehner & Maier, 2000) referred this cross divisional knowledge in their horizontal layered model of organizational memory. They identified the blockades against this type knowledge. Among them, in apt ability to recognize the organizational relevance of one's own knowledge or unable to discover the knowledge available elsewhere in the organization leads to departmental blindness. Wegener (as cited in Lehner & Maier, 2000) also stresses the importance of social interaction across the organization among its members for the development of organizational memory.

This shows that there is no consensus about the use of knowledge available somewhere else in the organization or outside the organization regarding the decision to be made. This will ultimately hurt the development of robust organizational memory with in ERCA.

II. LEARNING ACTIVITIES

At ERCA, 51% of the respondents felt that a training and development activity in ERCA encourages individuals to develop their personal knowledge skills in order to acquire, share and use new knowledge.

As OM is the basis for organizational learning, organizational learning is also a prerequisite for the development of robust OM. Since Waslsh and Unson(1991) noted, individual memory is one of the viable repositories of OM. Similarly, Kirsch, Pautzke and Wegener also agreed on the significance of the development of individual memory for the development of effective organizational memory (as cited in Lehner & Maier, 2000).Moreover, retrieval capacity might be taken as indicator to evaluate the effectiveness of robust OM. In relation to that, training and development activities are among the non-automatic retrieval means.

Overall, according to the results found from the study, there is limited training and development which empowers employees with respect to knowledge sharing, acquiring and reuse. The author believes that a lot of work should have been done around this area.

III. REWARDING SYSTEM

Regarding rewarding system, 66% of the participants view weak management commitment concerning the promotion of knowledge creation and sharing by means of different rewarding schemes.

A lack of incentives is an obstacle to knowledge sharing where people are reluctant to share without recompense either in the short or in the long term (Davenport & prusak, 1998).Since it will ultimately shrink the size and effectiveness of organizational memory. Rewards could range from monetary incentives to non-monetary awards. Bartol and Locke (as cited in Jahani, Ramayah, & Effendi, 2011) identified several important aspects of organizational reward systems that are useful for motivating individuals to perform the targeted behaviors. Numerous studies argued that a reward system is key factor for the success of knowledge sharing in an organization. Bartol and Locke (as cited in Jahani, Ramayah, & Effendi, 2011) found a positive relationship between rewards and knowledge sharing.

In sum, the lack of rewarding system has been observed by most participants. This will eventually hurt ERCA's organizational memory.

IV. RISK TAKING CULTURE

Regarding risk taking culture, 75% of the research participants didn't believe the existence of organizational culture that encourages risk taking and experimentation with in ERCA.

Since learning from failures enable organizations to act and improve the safety, reliability and resilience. The learning process is not only a technical and procedural issue, but is also a complex social and management issue. The specific culture characterizing an organization is the main element of this learning process. As previously said in the literature review Organizational Learning has a big role in enriching and maintaining organizational memory which eventually help on the realization of robust organizational memory.

On the contrary, the blame culture supports the hiding of failures and the non-reporting of anomalies. Fear of bad consequences (e.g. disciplinary, penalty and professional measures) is one of the most important deterrents of reporting a failure. Fear averts the identification and the analysis of critical events and inhibits the growth of organizational memory. The development of a *no blame culture* is a priority in order to establish a robust organizational memory.

As a conclusion, the majority of participants believe there is little room to be welcomed to learn from the failures and there is observable blaming culture

V. MANAGEMENT COMMITMENT TOWARDS KNOWLEDGE SHARING

According to the results found in this study in ERCA which badly hurts ERCA's OM, 66% of the research respondents' belief there is weak commitment from ERCA's management towards knowledge creation and sharing.

Motivating cooperative behavior among staff has been called one of the key managerial issues, if the organization wants to fully utilize its intellectual capital. This is because "creating and sharing knowledge are intangible activities that can neither be

supervised nor forced out of people. They happen only when people cooperate voluntarily. So managers play an important role in stimulating or inhibiting knowledge sharing. Senior and Middle level managers with in ERCA expected to play a significant role in leading knowledge sharing efforts by example. In addition managers are supposed to communicate the importance of knowledge sharing and of practicing what they preach. Besides, it is the role of management to allocate time for training and sharing, to determine job assignments which can optimize or stunt learning. Those activities eventually will affect the scope, depth, maintainability and retrieve ability of existing organizational memory.

In summary, ERCA's organizational culture is not in a position to support the growth of robust organizational memory.

3.2.5 KNOWLEDGE ACQUISITION / KNOWLEDGE CAPTURE

In this part of the questionnaire the researcher raised five questions which were intended to explore the knowledge acquisition / knowledge capture practices at ERCA. Figure 3-5 summarized the respondents view. It is illustrated as follows.

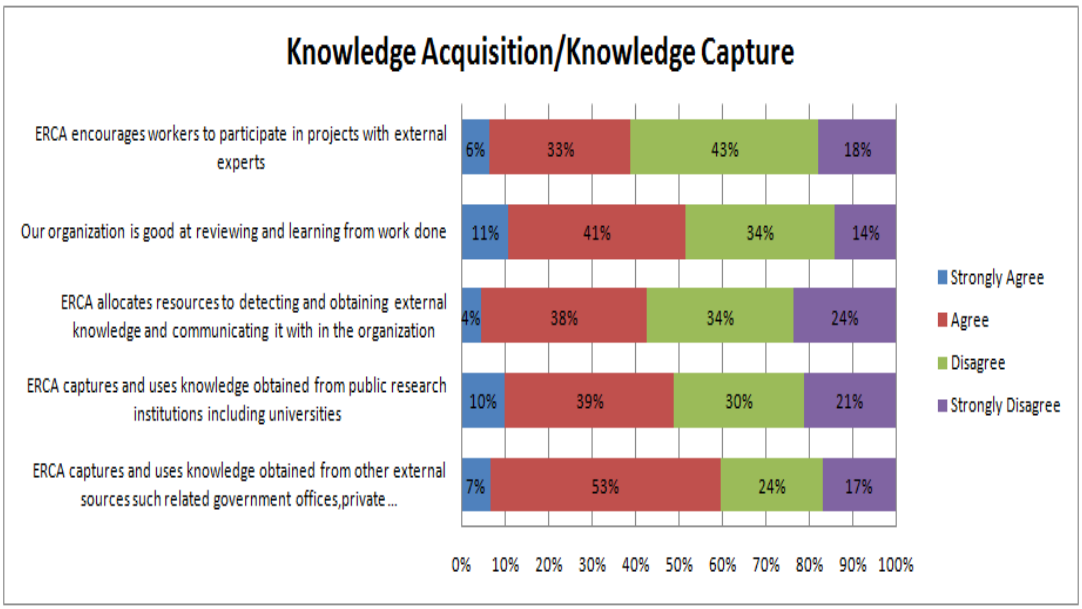

Figure 3-5: Knowledge Acquisitions / Knowledge Capture

Here 61% of the survey participants view ERCA was weak on encouraging workers to participate in projects with external experts. Similarly, 58% of them view ERCA was weak on allocating resources needed to detect and obtain external knowledge communicating with in the organization.

However, a considerable number of participants (i.e. 60 %) view ERCA had a capacity on capturing and using knowledge obtained from external sources such as other government offices, private sectors and associations. Besides, 52% of them belief ERCA was good at reviewing and learning from work done.

In general, ERCA's knowledge capturing and knowledge acquisition practice has limitations on effectively capturing knowledge created within the organization and acquiring knowledge from outside.

3.2.6 KNOWLEDGE DISSEMINATION

The final part of the questionnaire was dedicated on the availability of knowledge repositories at ERCA. It was comprised of four questions. The following figure illustrates the summarized form of the research participant's view.

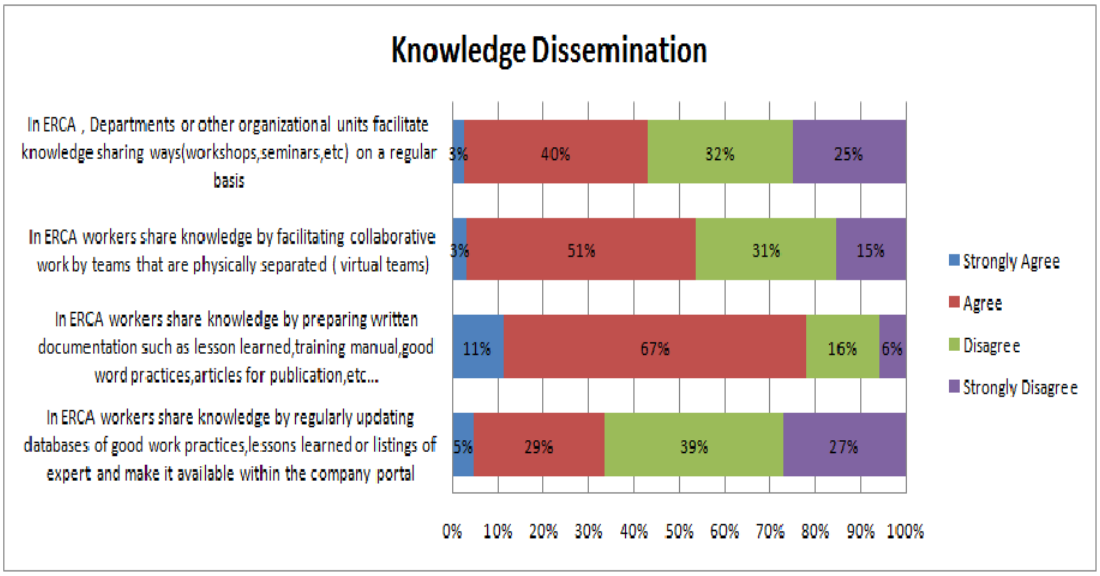

Figure 3-6: Knowledge Dissemination

As can be seen on the figure, 78% of the respondents agree on the availability of written documentation such as lessons learned, training manuals, good work practices, publications etc. Similarly, 54% of the research participants consider the presence of collaborative work by teams which are physically separated.

By contrast, 66% of the research participants' believe ERCA is weak on updating the knowledge already available on databases or listing of experts within the company portal. Moreover, only 43% of the participants view ERCA facilitates knowledge sharing platforms such as workshops and seminars on a regular basis.

As a conclusion, we can see that ERCA has good reputation on making explicit knowledge available even though there was weakness on updating databases and listing of experts on the company portal. Besides, ERCA is weak on making use of knowledge sharing platforms.

CHAPTER FOUR

4. CONCLUSION AND RECOMMENDATION

4.1 CONCLUSION

The main aim of this research was to increase our understanding about organizational memory concepts and to explore the different factors which affect the existing organizational memory within ERCA. In order to achieve these, the different views of OM were reviewed and an empirical research was done on ERCA. The main findings of the research were summarized as follows:

- There is good trusting relationship among coworkers with respect to willingness to accept and to share knowhow, skill and expertise
- There is a wide consensus on the importance of knowledge sharing and most of them believe knowledge hoarding is nothing to do with their importance and competency within ERCA. More importantly, they conceive knowledge sharing didn't add additional work load to their daily job.
- ERCA has good reputation on making explicit knowledge available even though there was weakness on updating databases and listing of experts on the company portal.

- Lack of incentive and rewarding scheme at ERCA which is needed to promote knowledge sharing. In addition the majority conceive the management as closed and not participatory on the decision making process.
- There is weak organizational support at ERCA regarding knowledge management and organizational memory in particular. Furthermore, there is a lack of top management initiative towards knowledge sharing.
- ICT infrastructure throughout ERCA is not well developed to facilitate the development of effective organizational memory.
- There is no systematic mechanism put in place for acquisition of knowledge from partner organizations or international organizations in order to improve the decision making process.
- There is limited training and development which empowers employees with respect to knowledge sharing, acquiring and reuse.
- There is little room for learning from their failures and there is observable blaming culture.
- there is limited knowledge capturing and knowledge acquisition practice with in ERCA

In summary, the author believes a lot of work should be done on changing the organizational culture of the company besides enhancing the organizational support and infrastructure since it is the foundation for increasing knowledge sharing practice and ultimately the organizational memory of the organization.

The main contribution of this study is to contribute to the limited number of empirical studies available on organizational memory researches within the large body of knowledge (Casey et.al, 2003).Besides there are few researches regarding KM with respect to Ethiopian context.

On the other hand, despite its importance KM research with in the public sector got little attention. While the public institutions like ERCA by far exposed to OM loss due to business process engineering (i.e. done in most of governmental institutions across Ethiopia) and the presence of high turnover within these institutions. This shows the urgency need for KM research in general within the public sector.

4.2 RECOMMENDATION

4.2.1 KM STRATEGY FOR EFFECTIVE OM

The need to recommend a strategy for the development of effective OM was the drive behind this study. Accordingly after the assessment of barriers with respect to the existing OM and reviewing the literature, the author believes the need to classify the type of organizational knowledge in to four categories in order to devise an effective organizational memory:

- Knowledge shared among all members of the organization,
- Group knowledge,
- Individual knowledge and
- Knowledge from the organization environment.

This classification will help to put a clear strategy for addressing each categories of knowledge with respect to building a robust OM. The general framework of the proposed OM is illustrated in the following table.

Type of Knowledge	Knowledge Retention Facilities	Strategy	Recommended Tools
Knowledge shared among all members of the organization	• Lesson Learned Databases • Organizational Structures • Standard Operating Procedures, manuals, rules and regulations etc…	codification strategy • In this scenarios the main task will be facilitating access and retrieval time • enriching the OM through combination	• Directories • Corporate intranet • wikis • E-learning • Story telling
Group Knowledge	• Individuals	• Codification for those knowledge through externalization	• Collaborative technologies (groupware, etc.) • Communities of practice • After action reviews • Best practice transfer • Cross-project learning
Individual Knowledge	• Individuals	• Personalization strategy through socialization.	• Personal web pages • Expert directories • Blogs • Master-apprentice relationship • Rewards • Exit Interview
Knowledge from the Organization's Environment	• External archives	• Codification strategy through combination.	• Stake holder session • Interface with external organization • Links to stake holders' official web sites

Table 4-1: OM frame work for ERCA

Based on the literature review and the analyses of the ERCA's OM besides the framework, the following recommendations were made regarding the processes of knowledge capture and knowledge sharing within the realm of ERCA:

a. Policies and strategies should be put in place that enhances the processes of knowledge creation, capture and sharing.
b. The top management should support knowledge management initiatives.
c. Employees should be encouraged to share knowledge with others. It is also necessary to allow their networks to extend beyond the boundaries of their own units and departments to other units and departments within ERCA, as well as with the relevant stakeholders.
d. Provide benefits for staff who participate actively in knowledge processes. Employees should feel free to share their ideas and lessons learned with others in the organization and understand that their input is important – whether it is good or not.
e. Investigate technologies already available and see how they can be utilized better in order to enable knowledge-management processes.
f. Re-examine the corporate portal and the Intranet for the purpose of knowledge sharing.
g. Integrate the activities of knowledge management processes as an essential part of daily activities. Success depends on how seamlessly these can interact with the day-to-day activities of employees.

4.2.2 FUTURE RESEARCH DIRECTIONS

The limitations of this study come from the small and limited sample taken, as described in chapter one the study only covers ERCA's head quarter. Future research with more resources could extend and deepen the study. Besides, the suggested frame work needs to be tested. On the other hand, it would be good to extend the study in future to include social network analysis and to enrich it with interviews.

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ANNEX

Annex I: Questionnaire

SELF ADMINISTERED QUESTIONNAIRE

Declaration

This research is being conducted on the topic of organizational memory for knowledge retention on Ethiopian revenue and customs authority. As part of this study, assessment is needed on the current practices and challenges regarding organizational memory for the sake of retaining organizational relevant knowledge. You are respectfully requested to complete this questionnaire for the aforementioned purpose. I assure you that, you will not be identified in person and any of the information given by you will not be disclosed.

We thank you for your help.

For further information please contact Binyam Teshome. TEL: +251911475621 or Email-biny.info@gmail.com

Part 1: Demographic Profile
Please circle your response to each of the questions

1. Your gender?				
1. Male	2. Female			
2. Your age group?				
1. Less than 23 years	2. 23-30 years	3. 31-40 years	4. 41-50 years	
5. Above 50				
3. Educational Status?				
1. Diploma	2.Bachelor	3.Masters	4.Doctor	
4. Position				
1.J.officer/Officer/S.*officer*	2.Team Leader	4.Process Owner	5.Advisor/D.Director/Director	
5. Your experience (in the current or prior institution)				
1. Less than 3 Years	2. 3 -10 Years	3. 11-15 Years	4. Greater than 15 Years	

Part 2: Personal
Please circle your response. The responses are presented in a scale ranging from 1 to 5.
1. Strongly Agree 2. Agree 3. Neutral 4. Disagree 5. Strongly Disagree

		SA	A	N	D	SD
1.	I believe that I would gain new ideas, technologies, skills or techniques as a result of sharing knowledge	1	2	3	4	5
2.	Knowledge sharing would help me not to repeat the same mistake again	1	2	3	4	5
3.	Sharing knowledge would reduce my personal competitiveness	1	2	3	4	5
4.	Sharing knowledge would waste my time or increase my work load	1	2	3	4	5
5.	Exclusive ownership of knowledge would make me outstanding and important person in ERCA	1	2	3	4	5
6.	I am willing to explain my know-how, experience or skills to my colleagues	1	2	3	4	5
7.	I trust the knowledge of my co-workers.	1	2	3	4	5

Part 3: Organizational Support

Please Circle your response. The responses are presented in a scale ranging from 1 to 5.

1. Strongly Agree 2. Agree 3. Neutral 4. Disagree 5. Strongly Disagree

	SA	A	N	D	SD
1. In ERCA, there is a motivational scheme to encourage staff to share their knowledge	1	2	3	4	5
2. There is incentives in ERCA for you in order to improve your knowledge sharing attitude	1	2	3	4	5
3. There is a specific budget dedicated to acquire, and share knowledge in ERCA	1	2	3	4	5
4. There is periodic plan to acquire, organize and share knowledge in ERCA	1	2	3	4	5
5. Managers in ERCA encourage employees to suggest ideas for new opportunities	1	2	3	4	5
6. Managers in ERCA consult team members to make decision and solve problem	1	2	3	4	5

Part 4: Infrastructure

Please Circle your response. The responses are presented in a scale ranging from 1 to 5.

1. Strongly Agree 2. Agree 3. Neutral 4. Disagree 5. Strongly Disagree

	SA	A	N	D	SD
1. ERCA has a very up-to-date ICT infrastructure which helps knowledge sharing	1	2	3	4	5
2. There are enough locations (Hall) within the office where staff can socialize and exchange knowledge	1	2	3	4	5
3. Staffs do have personal home pages through which they can communicate their ideas	1	2	3	4	5
4. The current ICT infrastructure in our organization enable us to identify and communicate with experts in our main functional areas or activities quickly	1	2	3	4	5
5. We have a well-developed Intranet that is accessible to all workers	1	2	3	4	5

Part 5: Organizational Culture
Please Circle your response. The responses are presented in a scale ranging from 1 to 5.
1. Strongly Agree 2. Agree 3. Neutral 4. Disagree 5. Strongly Disagree

	SA	A	N	D	SD
1. There is strong commitment from our management for knowledge creation and sharing	1	2	3	4	5
2. We have a culture that encourages risk taking and experimentation without blame for mistakes	1	2	3	4	5
3. The reward system in our organization encourages knowledge sharing and helps employees to reuse the knowledge of others	1	2	3	4	5
4. Training and development activities in our organization encourage individuals to develop their personal knowledge skills in order to acquire, share and use new knowledge	1	2	3	4	5
5. For decisions of strategic importance to our organization, we make use of cross functional, cross-divisional or international best practices	1	2	3	4	5

Part 6: Knowledge acquisition / knowledge capture
Please Circle your response. The responses are presented in a scale ranging from 1 to 5.
1. Strongly Agree 2. Agree 3. Neutral 4. Disagree 5. Strongly Disagree

	SA	A	N	D	SD
1. ERCA captures and uses knowledge obtained from other external sources such related government offices, private sectors, associations	1	2	3	4	5
2. ERCA captures and uses knowledge obtained from public research institutions including universities	1	2	3	4	5
3. ERCA allocates resources to detecting and obtaining external knowledge and communicating it within the organization	1	2	3	4	5
4. Our organization is good at reviewing and learning from work done	1	2	3	4	5
5. ERCA encourages workers to participate in projects with external experts	1	2	3	4	5

Part 7: Knowledge Dissemination
Please Circle your response. The responses are presented in a scale ranging from 1 to 5.
1. Strongly Agree 2. Agree 3. No opinion 4. Disagree 5. Strongly Disagree

In ERCA workers share knowledge or information by:	SA	A	N	D	SD
1. Regularly updating databases of good work practices, lessons learned or listings of experts and make it available within the company portal	1	2	3	4	5
2. Preparing written documentation such as lessons learned, training manuals, good work practices, articles for publication, etc ...	1	2	3	4	5
3. Facilitating collaborative work by teams that are physically separated (Virtual teams)	1	2	3	4	5
4. In ERCA, Department or other organizational units facilitates knowledge sharing ways (workshops, seminars, etc) on a regular basis	1	2	3	4	5

Annex 2: Declaration

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

_____

Date

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

_____

Advisor