

# Knowledge Management Model for managing Knowledge among Related Organizations

Mahboubeh Molaei

**Abstract**—Transferring information developed by other peoples is an ordinary event that happens during daily conversations, for example when employees see each other in the organization, or when they are having lunch together, or attending a meeting, they use to talk about their experience, and discuss about their current projects, and talk about their successes over some specific problems. Despite the potential value of leveraging organizational memory and expertise by using OMS and ER, still small organizations haven't been able to capitalize on its promised value. Each organization has its internal knowledge management system, in some of organizations the system face the lack of expert people to save their experience in the repository and in another hand on some other organizations there are lots of expert people but the organization doesn't have the maximum use of their knowledge.

**Keywords**—Knowledge, Knowledge management.

## I. INTRODUCTION

KNOWLEDGE vests in different places in an organization and shows education, experiences, and other valuable lessons for the management and organization staff [1]. Knowledge and its related concepts such as data, information, wisdom and understanding can be organized into a hierarchy that begins to offer some insights about how we might employ IT to manage knowledge.

Knowledge Management (KM) is not about having a powerful tools or keeping everything in the storage or retrieval databases. KM is about people, process and technology. In other words, people are the most significance contributors and it involves the processes that relate to their activities. Through Information Communication Technology (ICT), knowledge can be captured and disseminated across the globe. The Japanese recognizes knowledge platform as 'Ba'. It is a physical space such as meeting rooms, cyberspace or mental space. A process of societal conversion to a global scale is a transformation from an industrial society to a knowledge society. In a period which has been called the "knowledge age" or the "knowledge economy", knowledge is known as the primary asset, and knowledge flows is known as the most important factors in the economy. The key factor in competitive products and producing innovative is the trend of organization toward the knowledge. [5], stated that "now a day's business organizations know

knowledge as their most valuable and strategic resource." [3] agreed that "in an economy which uncertainty is the only certainty, the only sure source to last in the competitive word is knowledge." Since the focus is not only on tangible assets but also on people's experience and abilities This change of focus guide organizations to re-think about the way that they manage their business. Now a day the employee's collective knowledge has become such a vital resource to the organization that managers feel the need to know how to manage this "intellectual capital". [1] argues that "most of the managers believe that the most important commodity that helps to separates their organization from other competitors is the intellectual capital or knowledge assets of their staff.

### A. Knowledge cycle

Now a day it is generally accepted that Knowledge is an asset. The knowledge arises from information and data, and Information and data themselves are part of knowledge as well. We can divide knowledge to 2 basic parts, Polyani (1962), agrees that there are two types of knowledge: tacit knowledge and explicit knowledge: Explicit (leaky) knowledge is the Knowledge that deals with objective, rational, and technical material (data, policies, procedures, software, documents, etc.). Tacit knowledge is the Knowledge that is usually in the domain of subjective, cognitive, and experiential learning. It is highly personal and hard to formalize.

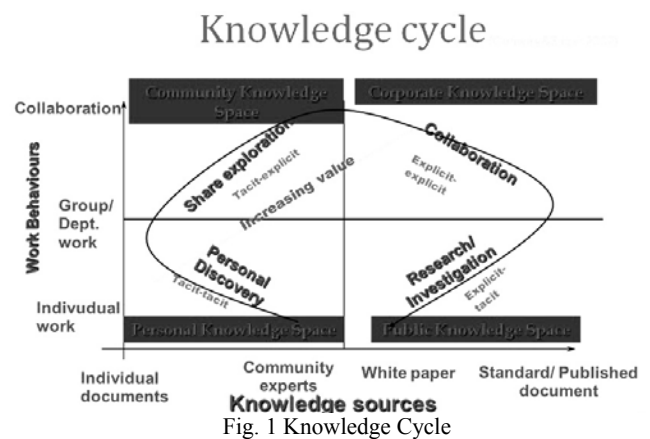


Fig. 1 Knowledge Cycle

Each one of these two types of knowledge can be converted to another one. Fig. 1. shows the cycle of knowledge conversion. In this cycle we have 4 basic parts which are:

*Tacit to tacit: e.g. apprenticeship, mentoring.*

*Tacit to explicit: communicated knowledge e.g. through multimedia.*

Mahboubeh Molaei is with Master student of National University of Malaysia. e-mail: (mehbooba4m@yahoo.com)

*Explicit to explicit: standardized and systematic way e.g. computer database.*

*Explicit to tacit: distribution of knowledge e.g. participation and repetition of use.*

### B. Knowledge management model

Knowledge Management cycle model, which can be very helpful to use the parallel ways to make significant differentiation and shows different path in managing knowledge, is shown in Fig. 2.

The different activities which are listed under some of the major phases are just to illustrate the matter and not definitional.

The model in Fig. 2 shows that the beginning phase of the KM cycle can start with the acquisition or the creation of knowledge by an organization.

Knowledge creation means to develop new knowledge or to replace existing knowledge with new material.

What is important in this phase is to focus on the knowledge creation inside the area of the firm and not outside the boundaries.

The four parts which is under the “creation” phase shows Nonaka’s four modes of knowledge creation which are:

- 1- Socialization (the conversion of tacit knowledge to another new tacit knowledge via social interactions and shared experiences)
- 2- Combination (to create new explicit knowledge by synthesizing, merging, and categorizing, existing explicit knowledge).
- 3- Externalization (conversion of tacit knowledge to new explicit knowledge).
- 4- Internalization (to produce new tacit knowledge from existing explicit knowledge).

Knowledge acquisition means to search and to recognize valuable knowledge which is available often in outside the organization.

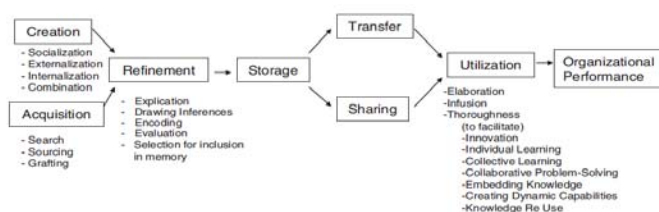


Fig. 2 Knowledge Management Model

The subjects under the “acquisition” phase implies to some processes for acquiring knowledge from external sources, which are:

- 1- Searching.

2- Sourcing (selecting the sources which are going to be used).

3- Grafting (adding an individual who possesses desired knowledge to the organization).

After new knowledge is acquired or created, KM procedure must become prepared to enter into the organization’s memory in a way that can be used in long-term.

Knowledge refinement implies to the mechanisms and processes that are used to purify, select, optimize, and filter knowledge for insertion in different storage media.

The subjects under the “refinement” phase say that, implicit or tacit knowledge must explicate, codify, and organize into a suitable format and be evaluated by some criteria for insertion into the organization memory.

It is obvious that explicit knowledge needs only to be evaluated, selected and formatted.

Knowledge that is entered in to these stores of knowledge becomes a part of the organization’s memory.

Organizational memory contains knowledge which is stored in the memories of organizational stakeholders, which is held in softcopy forms, that which has been acquired and by teams or groups that is embedded in external and internal relationships and the business’s services, processes, and products.

In order that knowledge has wide organizational effect, usually it should be either shared or transferred.

Sharing and transfer may be seemed as two ends of a string. Transfer contains the purposeful and focused communication of knowledge from a knowledge sender to receiver.

Sharing is less-focused distribution, such as via a repository, to people who are usually unknown to the person who is sharing his or her knowledge.

Some of the points on the hypothetical string contain many of combination of the two procedures and both procedure may involve groups, organizations, or individuals as either receivers or senders, or both.

Once knowledge is shared with, or transferred to other people, it may be applied or used via a procedure of below:

- 1- Elaboration (to develop of various interpretations).
- 2- Infusion (to identify underlying issues).
- 3- Thoroughness (to develop multiple understandings by various groups or individuals)

In order to be helpful in facilitating collective learning, individual learning, collaborative problem solving, and/or innovation.

It can be embedded in the systems, practices, relationships, and products of the organization via the creation of knowledge-intensive organizational capabilities.

When a problem has occurred and sufficient information is not remembered by the staff, the expert(s) that originally solved the problem will assist the staff by giving the knowledge to solve the problem. Casual information reuse has been recognized as one of the valuable organizational assets (Conklin, 1996).

To capitalize on those assets, organizations tend to use computer systems to manage their knowledge, formally and systematically.

To simulate natural information sharing two core components are needed.

First, organizational memory systems (OMS) that means storing information within repositories. Classified storage of methods of solving problems, developed processes, procedures, and previous decisions about the similar problems helps employees to search for and reuse explicit information even after those employees who originally developed the information have left the organization.

Secondly, expertise recommender systems (ER) helps to answer the questions when stored information is not enough or is not present for solving a problem, in fact ER mimics and simulates employees' natural ability to find collaborative partners.

When these two are combined together, ER-OMS provides access to both explicit and tacit information, it avoids employees to interrupt experts by asking them about the known solutions and then to locate and contact an expert for consultation when stored information is not sufficient.

## II. PROBLEM STATEMENT

Despite the potential value of leveraging organizational memory and expertise by using OMS and ER, still small organizations haven't been able to capitalize on its promised value.

Each organization has its internal knowledge management system, in some of organizations the system face the lack of expert people to save their experience in the repository and in another hand on some other organizations there are lots of expert people but the organization doesn't have the maximum use of their knowledge.

## III. PROPOSED SOLUTION

Given Solutions states that these small organizations need to use the advantage of large pools of experts from different but relative organizations or from different organizations that have similar objectives. It may help them to find the suitable experienced solution of another organization for their inexperienced unsolved problem in the organization.

To feel the gap between context-rich, expert poor local systems and context-poor but expert plentiful systems, a third vision of ER-OMS Internet-based system is needed (White, 2004).

The framework, proposed to bridge this gap, divides the society to different domains and in each domain there are organizations that have the similar objectives or relative organizations. Non-competing and Parallel organizations are those organizations that work within the same domain of work but they do not directly compete with each other (or competition is in such a limited scale that it is not known as a big matter), such as public libraries, religious institutions, and school districts. In each domain these non competing, parallel

organizations share similar organizational information needs, structures, focus of work and purpose, and recurring problems.

Although these organizations are competing for resources at some time, such as for grant monies and more qualified employees, they often have a pre-established culture and partnerships that let them and even encourage them to have a dialog between them.

In cross-organizational ER-OMS a pools of experts is available by establishment of information partnerships and information sharing.

Establishing such knowledge partnerships makes it possible to increases pools of experts for each participating organization.

While local expert people in the organization are unable or unavailable for helping the other staff with a specific problem, the person who needs the information would be able to consult with a an expert from outside of organization boundaries.

In this situation the expert(s) are able to make the help available at a less cost compared to the external located sources like Internet-based knowledge storages.

This can be possible because they are doing similar work and are employed in organizations that have similar goal and similar objective, increasing the probability of overlap in contextual and cultural backgrounds.

When a partnership is established and while the partners learn about each other's unique circumstances, cultural and contextual understanding is going to increase.

As much as time passes the knowledge stored in cross organization repository will have greater degree of cultural and contextual relevance, comparing to the knowledge that are founded through Internet-based sources.

Cross-organizational ER-OMS manages the cost of contextual richness and provides opportunity to capture, store, and spread knowledge for larger quantities of employees as well,

In addition, it increases the quantity of explicit knowledge which is captured within the OMS and reduces the help the information-seekers to be able to satisfy their information needs without interrupting the experts.

Therefore, benefit of the system will be available for organizational experts. They can expand their social network and have collaborative opportunities which normally are limited or totally unavailable within their own organization.

Although information partnerships and information sharing are most possible to occur between non-profit organizations like libraries, school systems, law enforcement agencies, and religious institutions because of limited competition between them, in some areas such partnerships may be likely to achieve between competing organizations as well.

For example, most competing organizations contain some departments that have no direct influence on the profitability of the organization (such as human resource departments, custodial services, and technical support departments) so cross organizational knowledge repository will be useful even for these competing organizations.

In other cases, competing companies that are working within the same purpose, but their geographic distance minimizes direct competition also have opportunity to form information partnerships and cross organizational knowledge sharing.

#### IV. CRITICAL SUCCESS FACTOR CROSS ORGANIZATIONAL KNOWLEDGE MANAGEMENT MODEL

Employers should be cognizant of existing cultural barriers which must be broken down in order to expand information reuse within and across organizations.

In order to do so, managers must take appropriate steps to identify and remediate the root causes from which the cultural barriers emerged. In the school environment, for example, IT Directors were reluctant to enable their employees to for social networks beyond their organizational boundaries.

The IT Directors were eager to break down these cultural barriers, particularly since eliciting information from cross organizational employees was time consuming.

However, there were no processes in place to allow them to do so. Though the origins of the cultural barrier were initially unclear, it became evident that the IT Directors were concerned that if they were to allow their employees to contact cross-organizational employees directly, inappropriate information would be shared.

Though such barriers must be considered for each organization, the specific concerns that were expressed by the IT Directors could be remedied through employee training, gradual introduction of systems that support cross-organizational information reuse, establishing connections with trusted cross-organizational partner sites, and introduction of processes that enable safe information reuse behaviors (such as approval processes within workflows). In this study the IT directors were leery of the process but also ready to eschew the cultural barriers in order to become more efficient.

Employers should also be cognizant of the value and cross-organizational connections that are available to them through consultants, manufacturers, and others who enter their workplace on a regular basis.

These quasi-members of the organization may yield new and valuable sources of information beyond that of their own expertise simply through the second-hand information which they gleaned from other workplaces.

Their connections provide an avenue to establish cross-organizational information reuse partners even before formal systems such as MindMeld are developed to support reuse activities.

Finally, employers should consider forming partnerships with parallel organizations based upon the degrees of similarity of hardware and software, funding, organizational size, community demographics, and the vision, and mission and philosophy.

Providing a summary of each organization, along with a yellow page style list of potential collaborative employees that includes their experience, certifications, formal education,

position title, and contact information would enable employees to select organizations and collaborative partners that meet their specific needs and encourage employees to establish relationships with external experts.

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