

Preliminary Study: Knowledge Attic of Organisational Memory System

Mohd. Nazir Ahmad @ Sharif¹, Nor Hidayati Zakaria¹

¹Department of Information System
Faculty of Computer Science & Information System
Universiti Teknologi Malaysia, Skudai
81310, Negeri Johor Darul Takzim.
Malaysia.
{nazir, hidayati}@fsksm.utm.my

ABSTRACT

Knowledge Management (KM) is becoming more and more important tools for managing organizational knowledge. Currently, many organizations have implemented KM strategies and KM applications for maintaining competitive advantages. Due to that, knowledge has become the most important asset in those organizations. One of the key benefits that can be provided by KM is to improve efficiency of workers when performing their operations. KM can improve learning cycle of knowledge worker and produce better practices among them. One of the factors to be successful organization is how they transform the personal's of employee as well as knowledge stored on passive knowledge assets such as manual procedures, policies or books, into organizational knowledge and make it widely available according to the organizational specific context. In the context of student's supervision, for example, supervising student's project, many lecturers or academic supervisors facing the problem to get standard rules, policies and decisions when examining the projects. As a result, the performance when evaluating the project becomes lacking and inconsistent, especially to the new supervisors. Besides this, the knowledge of experienced supervisor is difficult to share whereby it can be obtained within the organizations. This paper meant is to present preliminary study on how KM concepts can be applied to demonstrate Supervisor Advisor System (SAS). At this stage, this paper will propose the general framework the architecture of SAS. This framework will be used as a starting point for realizing SAS which will be used to facilitating supervision of undergraduate student project.

Keywords: Knowledge Management, Lesson Learned, Supervising, Corporate Memory.

1.0 Introduction

Knowledge has become increasingly relevant for organizations since the shift from an industrial economy based to global, decentralized and information-driven economy. Knowledge differ from data and information. Data are facts, such as pictures, numbers and presented without context. Whereas information is organized data presented in context, examples include organized statistics about weather in Malaysia, and an article in a journal. Knowledge is information in context, together with an understanding of how to use it [2]. For examples, knowledge about weather, derived from looking at a statistics about weather and understanding whether may or may not affect the fishermen to go to the sea. Tangibles resource, such as land and labour can be bought at competitive prices in the global market. But, intangible resource such as knowledge cannot, because their

value is tightly bound to the specific and unique organizational context in which they originate. Generally, there are two types of knowledge; tacit knowledge and explicit knowledge. Tacit knowledge resides in the heads of people and is gained mainly through experience. It's often personal and difficult to capture but it has the most value. Explicit knowledge is the stuff of books. It is easy to articulate, capture and communicate [1].

2.0 Knowledge Management (KM)

It is easy to be confused about meaning of between knowledge management and information management. There are many definitions for KM that are defined by people who are working on this area. Thomas Davenport gives a more comprehensive definition of KM and it's implications. The definition about KM is:

“KM is concerned with the exploitation and development of the knowledge assets of an organization with a view to furthering the organization's objectives. The knowledge to be managed includes explicit and tacit knowledge. Management of this knowledge entails all the process associated with the identification, sharing and creation of knowledge. This requires systems for the creation and maintainance of knowledge repositories and to cultivate and facilitate the sharing of knowledge and organization learning. Organizations that succeed in KM are likely to view knowledge as an asset and to develop organizational norms and values, which support the creation and sharing knowledge”[3].

Understanding from this definition, KM is about theory and practice, KM is multidisciplinary, people and cultural issues are central to KM, and technology is a useful enabler rather than central issues of KM. Towards an understanding of KM, many researcher have proposed diverse systematic views of KM processes and strategies. One of the systematic view is Two-track views [4]. First, track1: KM is equal to management of information, which several researchers have a background in AI, reengineering, groupware, so on. To them, knowledge is equal to objects that can be identified and handled in information systems. They focus on the research and practices within organizations. Second, track2: management of people, which several of them have a background in phylosophy, pscology, sociology and business. To them, knowledge is equal to process, and the focus on the research are on the individual. From these views of KM, we can conclude that KM involves converting knowledge from the sources accessible, to an organization and connecting people with that knowledge.

Knowledge exists when data and information are applied. In other words, information becomes knowledge when it is actionable, in example, when it is incorporated into a work process and used by people. To increase the performance of employee efficiency, a company must deploy new and better practices to the employees. In figure 1.0 illustrates how organizations create knowledge by setting in place process and infrastructures to manage new knowledge created by individuals [7]. Companies must develop the infrastructure to capture, store, and disseminate the knowledge created from individuals. KM allows organizations to leverage lessons learned to be more effective in the future. In addition to having the infrastructure in place, companies must also understand how information and knowledge interplay with the business process. A KM must help employee to get their work done easier and more efficiently.

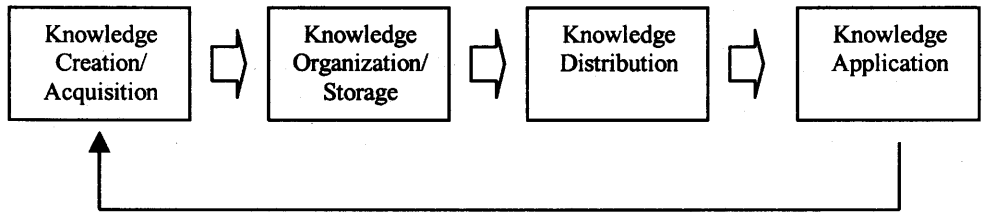


Figure 1.0: Knowledge Management Process

3.0 Corporate Memory (CM)

The discussions of corporate or organizational memory has been around for more than quarter of a century[5]. Many definitions of CM have been proposed and most of them focus on the persistence of knowledge in an organization, independently of how this persistence achieved. Therefore the knowledge in the minds of individual employee is also considered as part of the corporate memory. In others word, any piece of knowledge or information that contributes to the performance of an organization could (and perhaps should) be stored in the corporate memory. This includes knowledge about know-what, know-how, know-why, know-when, know-which, know-who, to the individuals, products, process, customers, stategies, archives, organizational culture and so on. In practice, CM is a centralized well organized information repository located at the core of an organization. Intelligent KM services are built around it to assist the user working on a knowledge intensive task, by providing all the information necessary and useful for fulfilling this task [6]. Based on KM process explained in section 2.0, and the descriptions of CM in [6], we can conclude as derived model in how CM can assist in the KM process, see figure 2.0.

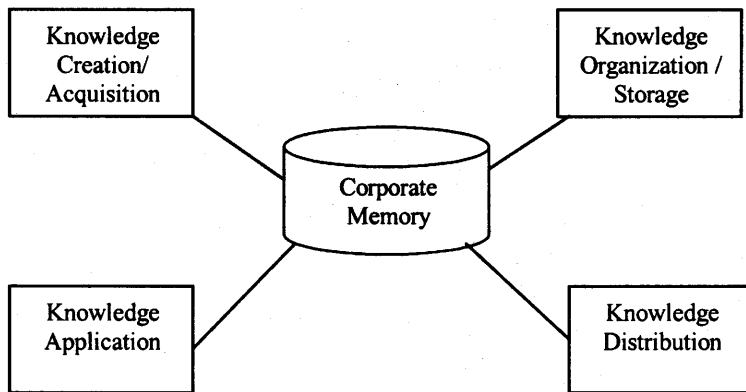


Figure 2.0: CM assists in the KM Process

The collection and the retrieval of knowledge from the CM can be active and passive[8]. Based on these dimensions, we can therefore distinguish between four types of CM as deccribed in [8]. Figure 3.0 shows the types of CM based on these dimensions.

	Passive Collection	Active Collection
Passive Distribution	The knowledge attic	The knowledge sponge
Active Distribution	The knowledge publisher	The knowledge pump

Figure 3.0: Types of Corporate Memories

Our aim is to investigate how computer systems can be used to realize corporate memories. Based on these dimensions as explained in [8], we will know briefly how the computer system may support to realize the CM and build the infrastructure for KM process. Refer to figure 3.0, the simplest for CM is the Knowledge Attic, where knowledge is provided and is accessed without any mechanism to facilitate and automate the match between requested knowledge and produced knowledge. The most advanced case, given by Knowledge Pump, where technology tries proactively to match seekers and providers of knowledge. In this paper, we focus on to implement the infrastructure or computer system support for managing CM as defined in knowledge attics. This is because, knowledge attics are fairly simple and easy to implement, and will be appropriate in many cases [8]. However, they require a community of users strongly motivated toward finding and providing the relevant knowledge all by themselves. The corporate memory is used as an archive which can be consulted when needed. In practice, this type of CM will often be the most feasible one. The advantage of this type is that is not intrusive. It emphasizes the bottom-up nature of organizational learning. However, in order to function well it requires a high discipline of the workers in the company.

In th aspects of developing CM incrementally, we need to understand the nature of organizational learning and the concepts lesson learned process. On global level, we have two forms of learning in organizations can be distinguished as top-down learning and bottom-up learning [8]. We will focus on bottom-up learning, because it is centered around the lesson learned concepts. Lesson learned is a reflection on the knowledge should someone take with them from this experience into similar ones. These lessons often reflect on "what we did right," "what we would do differently," and "how we could improve our process and product to be more effective in the future." The basic model is a individual learning in organizations [8]. Workers gain experience with the way they do their jobs and use these experiences to improve the work processes. Second model, namely communication learning is begins with individual learning, but then the individual experiences are shared among employee, as depicted in figure 4.0 [8]. Third model is a learning in organizations focuses on storing lessons learned in some information repository so that they can be retrieved and used when needed. This model of learning is summarized in figure 4.0 [8]. The process is similar to learning through communications, but now communication is replaced by collection, storage and retrieval.

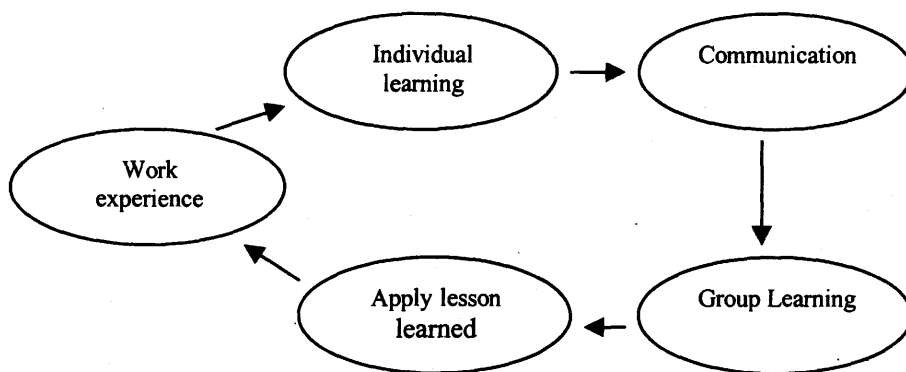


Figure 4.0: Organizational learning through maintaining an corporate memory

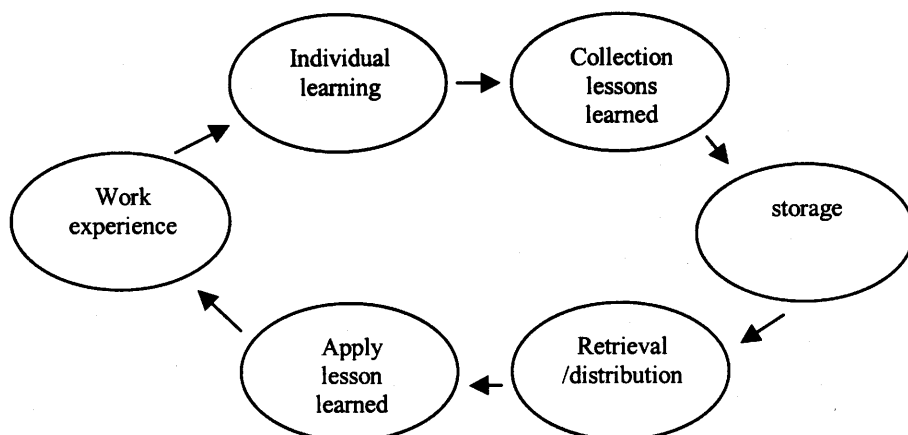


Figure 5.0: Organizational learning through maintaining a corporate memory

4.0 IT Support For KM

The previous explanations in section 2.0 and 3.0 provide theoretical foundation in how we can understand and intergrate the concepts of KM and CM. Basically, these concepts can be concluded by the general framework for IT for the support of KM, which defined in [8], and shown in figure 6.0 as below.

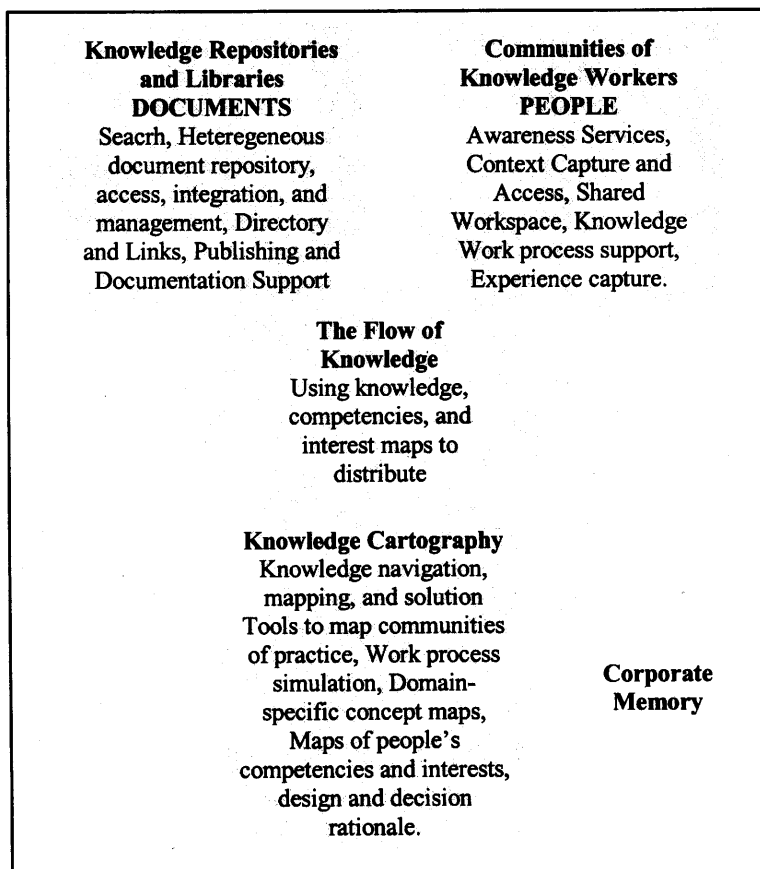


Figure 6.0: Knowledge Management Architecture

This framework provides the general views how IT can be used as a tool or technology and fits within the framework for supporting KM and then realizing the CM. This paper focuses on the flow of knowledge as component that glues the other three together. The flow of knowledge is the fundamental goal of KM [8]. That is why the "Flow of Knowledge" component is central in the framework. In particular, it supports the interaction between tacit knowledge that is exchanged and generated within communities of practices, with the explicit knowledge that is contained in knowledge repositories in the form of libraries and document archives, and explicit meta-knowledge through which an organization maps its own territory [8]. The mechanisms given by knowledge attics is example for supporting the flow of knowledge. Discussions about knowledge attics is given by a good example of community-based solving demonstrated by Eureka project at Xerox company. Xerox lauched the web-based system named Eureka to help their world wide technicians for customer service of reprographic equipment. It captures and shares the knowledge they amass through the million customer visits they make every month. Eureka provides a social and technical infrastructure for technicians to share and build their service repair knowledge. This infrastructure is given by a knowledge attic in the form a Web-based accessible online database of tips and hints with references to technical repair documentation. Currently, technicians have begun to use the system at the rate of more than 5000 tips per month and generate more than 1000 new suggestions a month.

5.0 Case Study

To realize this study we will investigate the actual problem in the academic supervising domain. This study will be conducted at Faculty of Computer Science and Information System is one of the faculty exists in University Technology of Malaysia. This faculty produced about 250 to 300 graduated students from varieties of discipline in computer science and information technology yearly. Although the faculty has been established for the past 10 years, it has been facing many difficulties every semester. Most of the problems have revolved around of academic staff's inability in students' project supervision to maintain overall quality. The dean and head departments feel that this situation has been caused by poor management of information and knowledge which deals with the following areas; studies of research supervision, issues in research supervision, factors in the supervision process (academic experience and skills of both the student and supervisor), roles of the supervisor (personal and professional skills and styles of supervision), problems and difficulties faced by research students (poor planning, methodological difficulties, writing-up, isolation, personal problems, inadequate or negligent supervision), students at risk (overseas and part-time), the structure and skills of supervision (helping students to organize their research, providing feedback), planning in research supervision (the various stages of the research) , examining theses (an approach to reading a thesis) and the viva voce (an approach to conducting a viva). In highlighting some value questions and conflicts that occur in supervising students, the faculty must identify the types of lesson learned for examples what are the most repeated mistakes, what are the worst and best practices, and what are the recommendations can be used to help inexperienced supervisors to develop their skills and experienced supervisors to reflect and share their effectiveness of their approach in supervising the student. This also improve the learning cycle of new supervisor and as a result, it increases the organization performance in the context of student supervising. For the purpose to solve these problems, the KM application need to be developed as an infrastructure to manage corporate memory of supervision of undergraduate student's project. This application will be named as Supervisor Advisor System (SAS) and will be developed to demonstrate knowledge attic corporate memory management as disscussed in section 3.0. Based on reviewed on Xerox and NASA experienced as described in [8],

the concepts of KM and CM in the section 2.0 and 3.0, also the concepts of lesson learned, adapted from the model in figure 5.0, the following framework is preliminary study for SAS architecture, illustrated by figure 7.0.

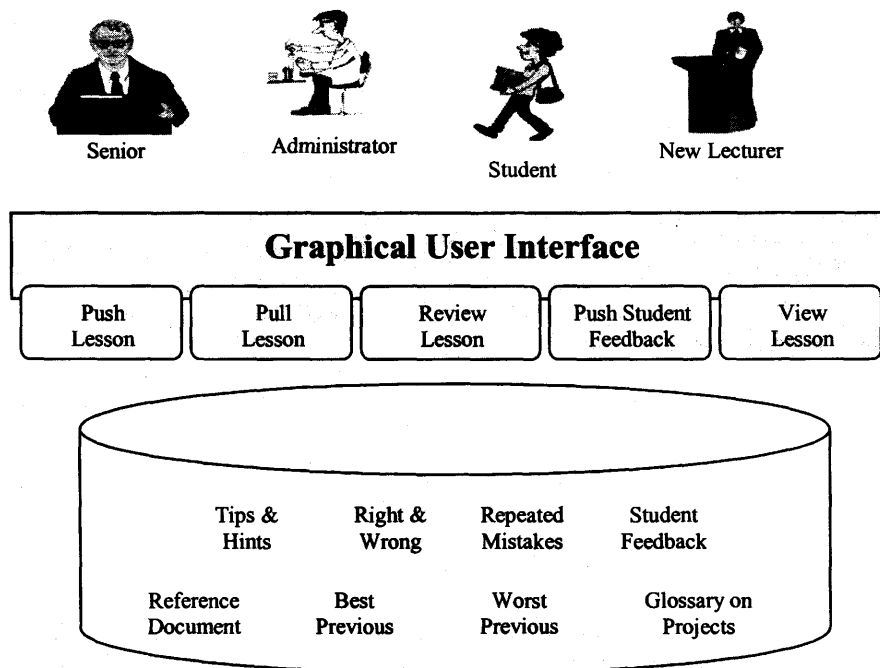


Figure 7.0: Preliminary Study For SAS Architecture

6.0 Conclusions and Further Works

In our points of view, CM is an older term than KM for starters. We can also think of KM as being a larger set of issues or possibilities than CM. CM consists of any piece of information artifacts that can contribute to the performance of an organization and the people making it very close to KM and its issues. This paper demonstrates the preliminary study of IT as enabler, exemplified by Supervisor Advisor System which can be used for facilitating supervisors, in particular focus on lecturers or academicians in order to supervise undergraduate student's project. This study representing how the concepts of KM, CM and lesson learned process can be adapted for realizing the types of corporate memory as given by knowledge artifacts. For the further work, we are going to refine the SAS architecture and to propose the explicit methodology for implementing this architecture.

7.0 References

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