

THE STUDY OF VARIOUS MODELS OF KNOWLEDGE MANAGEMENT

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Abstract

Since no agreed knowledge management model has ever existed, so it is necessary to apply the required models based on the usage and needs and according to the introduced models. This article, has tried to introduce the best and most efficient models of knowledge management. So, first the knowledge and management is defined and then the most important practical models in knowledge management are discussed, including: general structure of the knowledge management systems, Milton knowledge management, and basic knowledge management in the organization, knowledge management strategies, multi-factors of developing knowledge management systems, knowledge life cycle and the knowledge structures.

Keywords: Knowledge Management, Management, KM requirements, KM

Introduction and Statement of the Problem

One of the most important issued in recent period has been knowledge management. Knowledge management is a strategy that rapidly is improving and completing. The need for knowledge management originates from the fact that knowledge is an important element in organizational performance and having access to the stable competitive advantage (Akhavan & Jafari, 2006, p.84).

Based on this, in order to recognize and study the knowledge management, many scholars introduced and studied different models in this field. Some of these models study the performance of knowledge management concentrate and some consider it generally and include the activities related to knowledge management. However, an agreed knowledge management model is not suggested yet. So, it is necessary to use these models based on the case and the related issues along with knowing the introduced models. So, the present research tries to study the models and approaches of knowledge management so that a more developed view is provided for all.

Definition of Knowledge

The features and characteristics of the knowledge cause that different definitions are provided. One of the factors of knowledge complexity is due to its nature. Davenport and Prusak (1998) are the famous scholars in the field of knowledge and considered it as the combination of flexible and changeable experiences, values, meaningful information and views of the scholars that define a framework for the evaluation and cohesion of the data and new experiences. Moreover, Nonaka and Takeuchi (1995) define the creation of knowledge as a combination of received information and creating meaning for people. This reason indicates that knowledge can only be found in the field of beliefs and experiences (Azari, 2002, p.47).

Generally, knowledge roots in information and data. Knowledge is an organized combination of the data which is obtained through rules, processes and performances. In other words,

knowledge is the definition and meaning that comes out of thoughts and without thought it is data and information. This is the only way that this definition revives and changes to knowledge. So, knowledge is created in the mind of the scholar and is applied. Knowledge in organizations is not only illustrated in documents and sources but also it can be seen in organizational process, actions and norms (Bergrn, 2007, p. 23).

Types of Knowledge

Nanaka divides knowledge into two groups of explicit and implicit knowledge. He considers knowledge as the ability to code and express through speech and implicit knowledge is considered abstract which is not easily accessible and this is in the mind and experiences of people and cannot be published explicitly or in the books and articles.

Another approach toward knowledge is for Ckarj and Rollo who divide knowledge in hidden level higher than data and in lower level than wisdom (Karami and Mobaseri, 2009, p.193).

Knowledge management from Scholars Point of view

Authors and scholars of knowledge management have defined it from different perspectives. Rubritz stated that knowledge includes all the methods that an organization manages its assets through it and includes how to collect, store, transfer, apply, update and create knowledge. Furthermore, Prusak defines knowledge management as an attempt for showing the hidden assets in the mind of members and changing these assets to the organizational ones so that all the staffs do not have access to it (Gottschalk, 2005). Management faculty of Texas defines knowledge management as a systematic process of discovery, selection, and organization, summarize, and provide the data; so that knowing the people in the related field is improved. According to the, knowledge management helps them to understand their experience and focus their activities on obtaining, storing and using knowledge so that they can solve the problems, have active training, strategic planning and decision making. Knowledge management not only prevents the decline of thoughts, but continuously adds the values and assets (Abtahi and Salavati, 2007, p.34). Overallly, knowledge management is a process through which organization produces wealth of knowledge (Takeuchi, 1995).

Knowledge Management Strategies

Earl in 2001, considered the strategic schools of knowledge management as one dimension of competitive strategy (Gottschalk, 2005). Strategic schools of knowledge management can be generally discussed in two frames: the first school is related to division of the knowledge management strategies as the personalized and explicit strategy.

Explicit strategy aims at collecting knowledge, storing it in the database, and provide explicit and codified knowledge available in a suitable format for organizations which want to use the existing knowledge (McDermott, 1999).

The second strategy is personalization strategy in which the focus is not on stored knowledge but on using information technology to help people have a personal communication between their knowledge. The purpose of this strategy is transmission, communication and knowledge exchange among the networks such as discussion forum (Holloway, 2000).

In the second approach, knowledge management strategies are divided based on two dimensions: 1) focus on knowledge management, and 2) knowledge management resources grouping. On knowledge management dimension the focus is on knowledge management strategy is divided into two sections of explicit and implicit.

Explicit strategy is trying to clear the organization's performance and increase the reuse of knowledge through information technology (Holsapple and Jones, 2009). The implicit approach applies the personalization strategy where tacit knowledge is transmitted through socialization.

The second dimension is the source of knowledge in which knowledge management strategies can be divided into two categories of introverted and extroverted strategies. The extrovert strategy tries to acquire knowledge from external sources or through imitation and then transfers it to the organization. In contrast, the introvert strategy focuses on the production and dissemination of knowledge within organizations (Tapscott, 2003).

Models of Knowledge Management Implementation

1. The general model of knowledge management systems

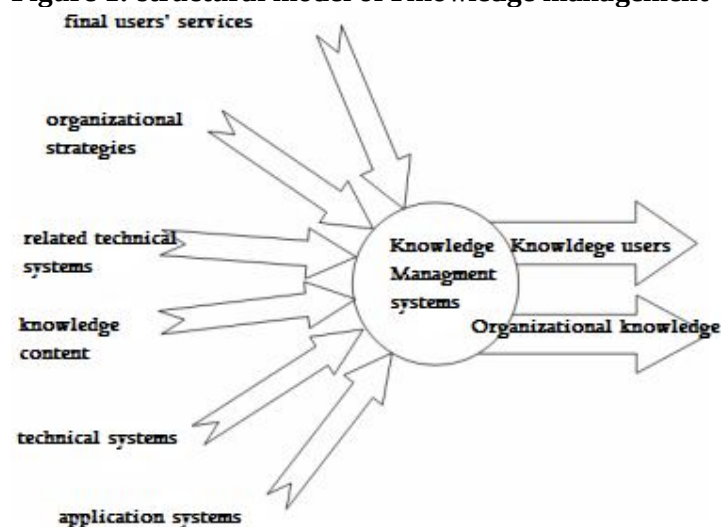
This model gives a broad view of knowledge management systems and these systems show high dependence on the interactions between individuals. Based on this model, knowledge management systems strategy is shaped by and thus facilitates how to convert this strategy into organizational knowledge.

Users pass on their knowledge to the system and in turn, by strengthening their knowledge take benefit s of the system. In addition, these systems share the access to the knowledge and provide users with access to the technical system, too.

Other related systems to the knowledge management systems are derived from the most important organizational functions such as finance and human resources systems. In such systems, knowledge management, content, and data entered into the system are examined to verify safety and to ensure their availability.

Therefore, the final output and final use of knowledge management systems effectively protect the knowledge (Debowski, 2006). This Knowledge group consists of end-users and the general priorities of the organization. More importantly, the knowledge management systems irrespective of their organizational role create a close relationship between them. The following figure shows the general structure of the knowledge management systems.

Figure 1: structural model of Knowledge management



2. Knowledge Management Model of Milton

Milton model is based on two attitudes toward knowledge management, namely communication and collecting. These two approaches are complementary and their value is in using balanced and parallel with each other (Entezari, 2007).

Communication, means linking people together and creating networks within the organization and with other organizations, so that individuals are able to share their knowledge with others. Most of the networks are called 'functional groups' allegedly.

E-mail is an excellent medium by which people are confronted with the network or discussion,

share their problems and receive the responses. These groups can also meet each other face to face and talk about common problems and possible solutions related to the exchange of knowledge about the issue.

Gathering also meant to absorb new knowledge pertaining to the way in which the activities and operations created and stored for future re-use. Collected valuable knowledge helps to create a knowledge base that has covered the main activities and can have long-term returns (Milton, 2002, p.2).

3. Fundamental knowledge management model in the organization

It is clear that the main content of a knowledge management system is knowledge. In model 2, the main steps of a knowledge management system for managing the content are shown. This model explains how the organization deals with the basic knowledge and explains the process in three main steps:

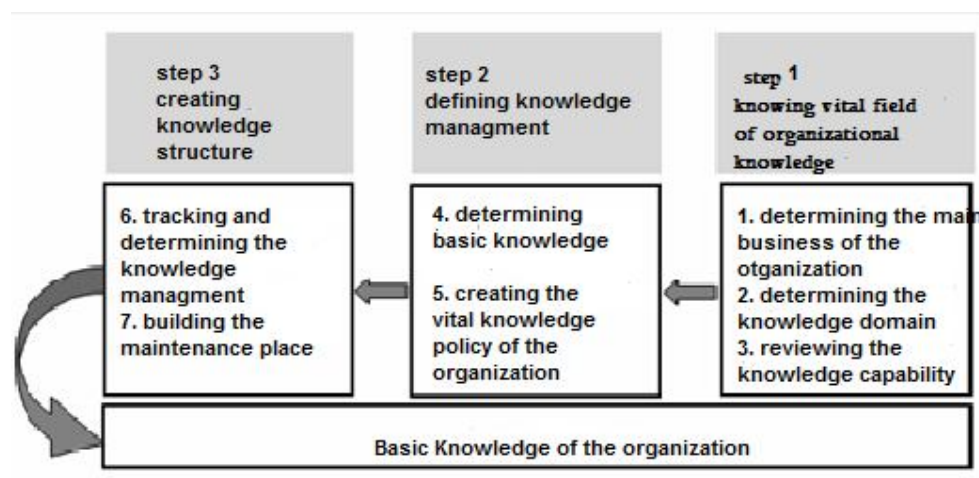


Figure 2: creating a framework for basic Knowledge of the organization

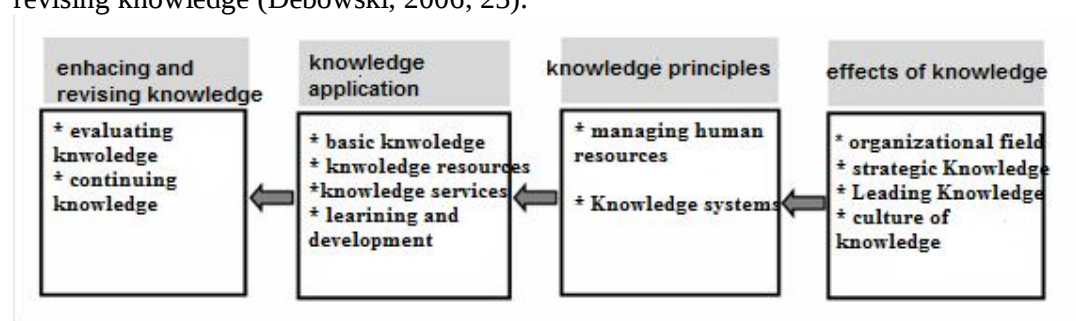
The first step defines the knowledge realm needed by the organization and different types of it are discovered and the way of its use is defined, too. At this step, three aspects of organizational activity are recognized: the main business of the organization, knowledge realm and knowledge capabilities. In this stage, three aspects of organizational activity are tested: the main business of the organization, the realm of knowledge, the knowledge capability. First, the organizational activity and the priorities that need supporting are done through correct and comprehensive knowledge. At this stage having information about the relationship among the existed knowledge and is an important based for knowledge management. After recognizing the main activity of the organization, the realm of knowledge is recognized. It means that knowledge is defined in the frame of the work sections. Then, by applying the knowledge about the basic knowledge, the human source capacity is revised in sharing and creating the knowledge (Debowski, 2006). At this stage, the parameters that were recognized in the previous stage are defined as the policy and definitions of organization.

First, the knowledge parameters of the organization define the limit of the knowledge that should support the organizational activities. Without this stage, the knowledge management of the organization will be weak. The guidance lines show that how basic organizational knowledge should be related all over the organizational system to be useful. These lines along with the cooperation of the staff lead to development and creating the knowledge. It should also mentioned that these parameters while should follow an ordered and organized process, they should also be flexible enough to agree with the priorities of the organization. Finally, at the third stage, a collection of knowledge is designed. The basic knowledge structures are the systems and processes that help the management of basic knowledge by organization and finding the way of knowledge. These structures can include maps of structured system that help the classification and naming of knowledge. Routing knowledge is a main step toward identifying explicit knowledge and tacit knowledge and connecting them through a unified system.

Similarly, the creation of local storage and maintainig the knowledge causes to gather all the related resources in a single search process and obtain an effective management of knowledge.

4. Model of Knowledge Management Strategy

This model focuses on different factors such as knowledge management that is consistent with the overall philosophy of knowledge. This model is based on four main elements of diffusion of knowledge, knowledge principles, application of knowledge, enhancing and revising knowledge (Debowski, 2006; 23).



Each of these stages are discussed below: The effects of knowledge: in the above model, the issues related to organizational knowledge management model are shown. The effects of knowledge of the organization, both internal and external aspects of knowledge management will be examined in practice.

In this regard, knowledge is the expression of strategic issues in which key principles and methods of knowledge management linked to the organization's strategic orientation are identified and explored. Such a task requires effective leadership knowledge. Establishing and maintaining knowledge of the values and beliefs of the organization is concerned with the challenges.

Knowledge bases: effective management of knowledge is based on entirely consistent robust systems, processes, structures, and policies and practices. Knowledge management must identify and create structures and systems that reasonably create, share and use knowledge effectively.

The ways in which individuals are encouraged to support knowledge management programs should be considered. Recognizing the value of supporting and nurturing the human resources organization are organized under management of human resources. Knowledge

Management technology supports management through the identification and implementation of effective management systems and technologies which aims to provide knowledge.

Application of knowledge: the way in which the implementation of organizational knowledge, support, and education is given is the main topics in the organizational knowledge management. Foundation an established the basic framework for knowledge creation and management of knowledge repositories, the development of effective knowledge, discovery of ways that encourage knowledge users to integrate knowledge activities are the issues that must be considered in applying knowledge.

Furthermore, learning and organizational development that study the learning styles of the users in the group deals with knowledge and is among the topics discussing the application of knowledge in organizations.

Enhancing and revision of knowledge: knowledge management is a new topic that still needs both national and organizational development and evaluation.

Evaluation and applying the knowledge in ways that enable the organization to maintain its growing trend, requires constant monitoring and permanently adapted to the circumstances under which it is used. The factors influencing the development and management of knowledge should not be ignored In line with the organizational and governmental policies (Hall, 2001: 139).

5. Knowledge Chain Model

In this model, knowledge management is shown as the various stages (Johnson, 1991). Each of the stages of knowledge management starts by identifying a need (or opportunity) and it finishes when the need is eliminated. Knowledge management processes can be independent or dependent.

Each of these steps can affect other processes. In every stage of knowledge management, knowledge management and organization of some subset of processors can accept various activities and act on the basis of relevant sources to eliminate the need for knowledge.

These processors may be of human, social, computer, or a combination of these elements. These models show what happens at each stage of knowledge management. Each of these steps can be coordinated through interaction.

This coordination eliminates the set of activities and sub-activities that affect knowledge management.

The knowledge chain model is created from ontology of 30 years knowledge management. This ontology defines five classes of activities (knowledge acquisition, selection, generation, absorption and assimilation, and dissemination).

The primary activities created the knowledge in one stage and four classes of secondary activities that coordinated knowledge management processes including measure, control, coordination and leadership of the cause (Holsapple & Jones, 2005). Applying a combination of activities in 9 stages based on this model results in learning and emergence of the organization. Learning expresses the condition of knowledge resources and the emergence of organizational knowledge in the real world (such as products, services and activities). The ways that the activities of knowledge management are applied can affect the competitive condition of the organization. In other words, efficiency, innovation, speed and credit are the four aspects of competition that can benefit the organization through doing each of these 9 activities.

As it is seen in the figure, the knowledge chain model shows that an organization's resources and environment affects learning and crystallization of the organization and ultimately the competitiveness of the organization.

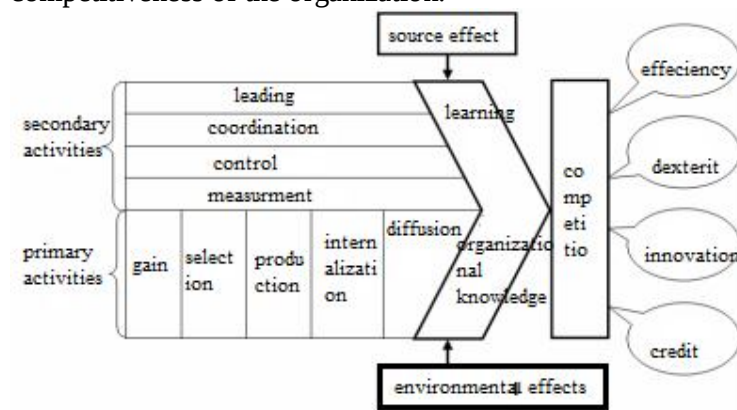


Figure 4: Chain model of Knowledge (Holsapple & Singh, 2000)

Following stages are mentioned below:

Knowledge: knowledge in this model is defined as a processor of acquiring knowledge from external and relevant sources as it is for other domain.

Knowledge Selection: it means selecting the required knowledge of local resources and making appropriate use of domain.

Knowledge production: it means creating the knowledge from the existed ones. It can be done through discovery or extraction.

Knowledge attraction: refers to the activities that change the proper condition of organizational knowledge through storing and distribution of internal knowledge.

Knowledge distribution: means entering the knowledge in outputs of the organization for entering the environment. These outputs are not only traditional ones but include the knowledge itself.

Knowledge measurement: Measuring knowledge is a secondary activity or a set of coordinated activities that deals with the values, knowledge resources and processors to assess how the organization deals with knowledge management in various stages of deployment processes.

Knowledge management: Knowledge management refers to activities that have the necessary resources to ensure the quality and quantity of knowledge. There are basically two types of knowledge management: quality assurance, and support.

Coordination of knowledge: knowledge coordination means to manage dependencies between knowledge management activities allegedly sought to ensure that the appropriate processes and knowledge resources are sufficiently available at the appropriate time.

Knowledge leadership: leadership means learning, knowledge management that facilitates and accelerates the management of knowledge. Types of activities that are involved in student leadership analyze the business condition for innovations.

6. Multi-factor model of knowledge management systems

A knowledge management system should do the knowledge management activities that include the creation, storage, retrieval, transfer and application of knowledge.

Multi-factor model of knowledge management system indicates which of knowledge management activities should be supported. The first three stages are presented in knowledge management cycle of the most proposed models. But the transmission and evolution have also been added in this model.

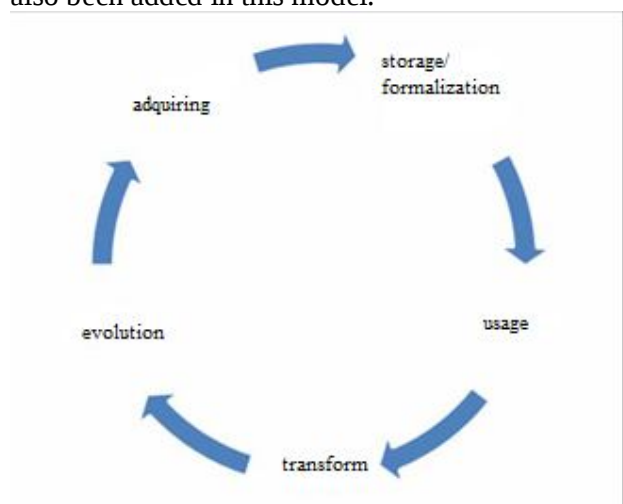


Figure 5: the cycle of five stages of knowledge life (Vizcano, et al, 2009)

Each of these stages is mentioned below:

Knowledge acquisition: it is one of the key components in the architecture of knowledge management systems.

Storing and formalizing knowledge is a stage in which all the activities focusing of organization, structuring, introducing and coding the knowledge are grouped to facilitate the application (Davenport & Prusak, 1998).

Using knowledge is one of the main processes of knowledge management activities since knowledge is useful when used. The main enemy of knowledge usage is ambiguity. The staffs usually complain that there is no consultation related to knowledge resources and they cannot use the advantageous of the knowledge they have in hand. The knowledge management systems should provide the possibility for the staff to search the information and even give suggestions for helping the users to perform their tasks by the previous lessons.

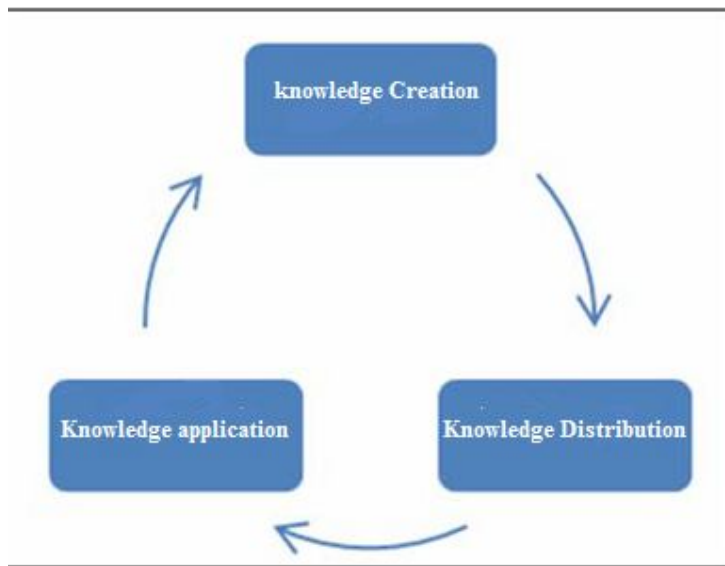
Knowledge transfer is the most studied issue among the knowledge management activities. At this stage, the focus is on direct knowledge transfer. Transfer stage can be used by the informing mechanisms of people about the new knowledge that is added to the knowledge resources of the organization.

Knowledge evolution is a stage that supervises the knowledge to assure the updating of knowledge.

7. Life Cycle of Knowledge

The best way for thinking about the knowledge structure is to understand its life cycle. The processes that knowledge is created by then are distributed and applied. Different scholars have mentioned various stages about this but the life cycle is shown in three stages here.

Figure 6: life cycle of Knowledge

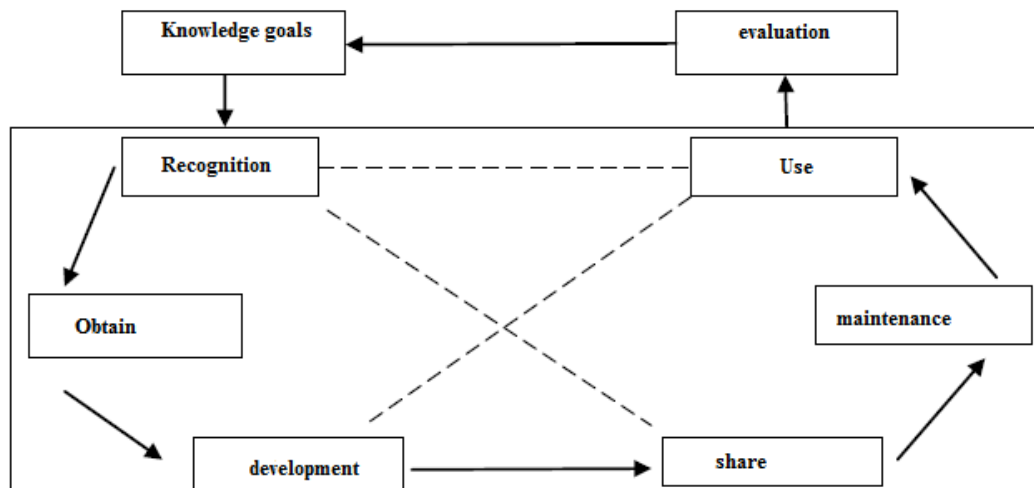


1. Creating knowledge is usually seen in a complex and unmanageable form. While the desire of many organizations is to support this special process and a lot of attempts have been done in this field to create this freedom for the staff to have more creativity. The knowledge of organization about creating knowledge is limited to some limited aspects. The process of knowledge creation can be done by the knowledge management systems such as cooperating instruments and expert networks for relating the people who have shared interests for an emerging idea. Discussion forums can also be applied as a useful instrument for finding ideas and opinions of different people (Benbya, 2008).
2. Knowledge distribution: different views exist for collecting knowledge. However, if companies spend a lot of time on coding the knowledge and put it in access for the staff, it does not mean that knowledge is correctly interpreted or valued. Now, the high volume of information and documents exist in the companies that are expired. In fact what is important in knowledge distribution is the fact that only a series of valuable views are produced so that it can be easily transformed to the others. The most valuable type of transferring and knowledge interaction is a mutual interaction which happens while talking and discussing with coworkers.
3. Knowledge application: one of the main challenges related to knowledge application is the fact that knowledge has changed by the users, work processes and organizational changes. So, all the roles and structures of organization must consider the continuous changes of environment. Another point in applying knowledge is the fact that in some cases the knowledge at the hand of staff is the knowledge that is not related to the issue and this point should always be considered that staff access is met to provide the condition for applying knowledge on time (Karamipour and Davoodi, 2007).

8. The Basic Model of Knowledge Structure

This model was called “the building block of knowledge management building” by Probst, Raub and Romhard (2002). As it was mentioned before, according to the practical aspect of this model, it is considered as a nearly complete model which includes the positive aspects of all other models.

Figure 6: The building block of knowledge management building



Designers of this model consider the knowledge management as an active cycle which in continuous cycle. The stages of this model include eight components of two internal and external cycles. The internal cycle is built of recognition, obtaining, development, share and usage and maintaining the knowledge. The external cycle includes the knowledge goals blocks and its evaluation which determines the cycle of knowledge management. Finally, feedback completes these two cycles. Figure 1 shows the components of this model. The performance of the model can be described as follow:

1. Determining the goals of knowledge: goals of knowledge originate from the main goals of organization and determined in two strategic and operating levels. A) Strategic level: changing and maintaining the organization based on knowledge management and also creating culture and necessary policies in this field. B) Operating level: the way of recognition, use, distribution, applying and maintaining knowledge is determined and required plans are designed and operated.
2. Knowledge recognition: by asking the question that: do we know? And what we know? We have to perform the task of discovering the knowledge. Many organizations face problems in decision making due to not knowing their knowledge. It should also be mentioned that the knowledge resources inside and outside the organization are done along with each other.
3. Obtaining knowledge: at this stage, knowledge is provided from internal and external markets such as knowledge related to the customers, production, coworkers, and rivals from the discovery stage and the capabilities to be bought or used from external sources are determined, too.
4. Knowledge development: according to the existed bases, knowledge of organization should be developed. Of course this includes capability, product, new ideas, processes and other issues.
5. Sharing knowledge: the issues such as how to share the existed knowledge and transfer it to the proper place so that it is accessible and how to transform it from individual to group level and finally the level of knowledge are the issues considered at this stage.
6. Using knowledge: making sure about proper use of knowledge in the organization is related to this stage. At this stage, the obstacles in using new knowledge are recognized and removed so that it can be used in providing services.

7. Maintaining knowledge: storage, maintenance and up-dating knowledge is related to this stage. This method prevents knowledge destruction and let it to be used. however, proper strategies should be taken into account for up-dating the system.
8. Knowledge evaluation: the way for obtaining determined goals and using its results as feedback for determining or modifying the goals is done at this stage. By looking back to the results of this process, it is necessary to evaluate the qualitative results and costs spent in this field (Benbya, 2008).

Conclusion

By having information about knowledge and knowledge management, a question is raised in the mind of people who are interested to the issue that which models exist for the knowledge management in the organizations and what are the bases for forming these models.

Based on the approaches and methods that the scholars have taken toward knowledge management, different models are formed some of which are investigated in this article. The goal of proposed models for knowledge management is that the organizations act consciously in applying knowledge management and have a proper framework for creating knowledge, distributing and using it. Knowledge management models help the organizations to have a systematic approach for studying knowledge since any kind of inconsideration will face the knowledge management with various problems. The most important point in these models is paying special attention to the interpersonal interaction in creating and increasing organizational knowledge which is shown in the interaction between hidden and visible knowledge.

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