

The importance of knowledge management technologies in performance improvement of organizations

Shahram Mirzaei Daryani¹, Yadollah Khodaverdi², Eshagh Rasouli¹, Bahman Shareghi¹

¹Department of Management, Ardabil branch, Islamic Azad university, Ardabil, Iran
E-mail: Shahram.daryani@yahoo.com, bshareghi@yahoo.com

²Department of Management, Zanzan branch, Islamic Azad university, Zanzan, Iran
E-mail: dr_y_khodaverdi@yahoo.com

*Corresponding Author: Shahram Mirzaei Daryani, E-mail: Shahram.daryani@yahoo.com

Abstract: Human systems in every level from its existence to human societies have found knowledge based approach more than before as the basic of sustainable competitive advantage. Based on this belief the precursor organizations give more importance for attracting or training knowledge or learning personnel. Knowledge management has been able to show its effect on appearing and training scholars by its suitable establishment. In present paper, knowledge management technologies by emphasis on its hardware have been discussed. Of course, technology in every area of science, subjects and knowledge of management in organization can be discussed in its four sections, techno ware, human ware, info ware, orgaware. Various tools of knowledge management technology have been able to cause its suitable establishment and continuity with easier better, faster form by mediator and facilitator role. Strengthening of creativity and innovation of personnel in making these tools and application of effective strategies in their power increasing and motivating in optimized using of knowledge management technologies can be one of the most essential and vital duties of leaders and managers of organizations who have not had methodological and objective actions.

[Shahram Mirzaei Daryani, Yadollah Khodaverdi, Eshagh Rasouli, Bahman Shareghi. **The importance of knowledge management technologies in performance improvement of organizations**. *Life Sci J* 2012;9(4):4695-4699] (ISSN:1097-8135). <http://www.lifesciencesite.com>. 706

Keywords: knowledge management, technology, knowledge management technologies, success and dynamics of organization.

Introduction

By studying and analyzing knowledge and importance of its features in organization performance we can find that having update knowledge and information has been changed in to undeniable necessity for life continuity of organizations. Today, knowledge is considered as a strategic resource and wealth and presenting product, with suitable and economical quality, is difficult and impossible without correct and suitable management and application of this valuable resource. Ultra industry society is information society in which, power increase technologies are replaced with knowledge increase technologies [Ahmad poor daryani, (2002)]. Critical and study resources, and competitive perspectives of organization, indicate the effects of this view point in strategic fields of social organizations, especially commercial organizations. Today in knowledge management it is emphasized that the people must have the ability to think and analyze the problems, they must be leaded to think about duties and improvement more than handy activities, the personnel should have thinking freedom to comment on their works:

Evolutional and transitional process of knowledge management

In 1979, A Swedish accountant, Carl Eric Siobi understood that the value of physical wealth can be considered as two forms, physical and intellectual wealth by thinking about calculation of organization values. According to his idea, the real value of organization depends on personnel's merit and what the all personnel form as a collaborative thought. Siobi at al, introduced this finding as intellectual wealth and intangible wealth. The number of literatures, seminars, etc in this field developed and the subject has discussed by management scientists and managers of organizations [Afrazeh, (2005)].

Skandia financial Service, a precursor Swedish company in financial services thought to quantify intellectual wealth and show its importance in quality and calculation aspects [Roding. Allen, (2004)].

By this way, the importance of knowledge as an intangible and spiritual wealth developed fast. Stewart believes that the intellectual power has not been very important in the past, but in present condition, companies rely on knowledge, invention registration, processes, management skills, technologies, and their own experiences. Wriston expresses that the position of

new economy and technology is not the same as micro processor and world communication network but it is in his/ her mind and knowledge [Wriston,. (1992)]. Rading, of main knowledge management consultant defines knowledge as two types: knowledge which according to information gets content.

Researchers who believe in this definition are grouped in object- knowledge group and consider the knowledge information based which produced through information management. The other group defines knowledge as contextualization process which is grouped in knowledge – process group.

This group considers the knowledge as an entity.

Based on the increasing importance of knowledge, the early papers and books about knowledge management published in 1991 and 1993.

The first conference of knowledge management was held in 1994 [Afrazeh, (2005)]. About growth and development of knowledge specialists defined knowledge and its position. In spite of various definition of knowledge, specialists defined knowledge and its position. In spite of various definition of knowledge, thinkers believe that there is a close relationship between data, information, and knowledge. Sharp believes that data are simple realities which are changed into information by processing and when these structures are places in specific field to be used are changed in to knowledge.

Davenport and Prusak have defined knowledge as a combination of experience, values, existent information and systematic approach which provide a framework for evaluation of experiences, values, and new information [Davenport et al .,(1998)]. Doutha (2001) has discussed knowledge in 3 levels of individual, group and organizational levels [Doutha, (2001)].

Polanyi has divided knowledge in two implicit and explicit groups [Polanyi,. (1997)]. Malborta (1997) has discussed knowledge as two forms of centralized, and generative [Malbotra,. (1997)]. In conceptualization of knowledge and determination of its position in organization, it was the time for discussing structure, planning, evaluation and continuous improvement in the organization. This phenomenon has been proposed as knowledge management in new designs and theories in recent two decades.

Haws expresses that the content of knowledge management has been formed of researches related to organizational learning approach includes facilitating creating and dividing knowledge, together with providing suitable work environments and effective rewarding system [Haws,. (2001)]. Gansy believes that knowledge management can be known as a dynamic cycle process including recognition, obtaining, ordering, combining, dividing, developing, applying, keeping, and evaluating knowledge [Gansy,. (2004)]. Ovol indicates that knowledge management determines

principle policies for finding, understanding, using value and creating it [Adlesberger, ,etal. (2002)]. By reviewing and studying above definitions, we can consider a definition of knowledge management which concentrate on human, structure and technology.

Knowledge management is a process of discovering, obtaining, developing, creating, dividing, keeping, evaluating, and applying suitable knowledge in suitable time by suitable person in the organization.

Which are done by making a link between human resources, information and communication technology, and making a suitable structure for achieving to organization objectives [Afrazeh, (2005)].

In studying definition and settlement models of knowledge management, each of modelers based on their researches, considered some factors as the elements of knowledge. Although in form structure of definitions and models, technology element is observed less, but when the specialists take an action to explain and describe knowledge management and related models, they have considered creating and developing technology as important elements of settlement, continuity and effective elements of knowledge management.

Knowledge management technologies

Alvin Toffler writes that world modern economy and its work environment cannot be last without computer more than 30 seconds [Toffler,. (1990)]. Technology requires that management must manage knowledge instead of people. Technology changes what the personnel learn, how they learn and why they learn. Human resources requires to learn themselves by self directed learning, on work place learning, is not done within the group in fixed times, in specific places and only for some specific objectives, but is done based on needs on time and only where it is required [Markwart, (2006)].

We are accustomed to a world in which, Virtual realities, audio-video and interactional technologies are usual. Personalized digital hardware, personalized Digital assistants, telecommunication and network developments, group wares, video conferences, neural networks, intranet, internet, integrated services digital network (ISDN) lines, are progressive technologies which have changed our lives and workplaces.

Knowledge management tools and technologies are powerful search motors or browsers, marketing, and processing of data and communications. They can search wide variety of structured and nonstructured information resources. Information technology and information and communication technologies of subset tools of organization technology and knowledge management technology by using computers have been effective in structure, levels of organization, power concentration degree, the quality of personnel

promotion, management styles of improving processes, creativity and innovation, optimizing personal or group decision making, forming marketing and electronic commerce, growth and development of information systems of management and personnel, increasing performance and effectiveness and improving competitive power or capacity of organizations.

Obtained capabilities of information and communication technologies include:

- Information presented simultaneously in most of needed sections.
- Generalists are been able to do specialists works
- Organizations can have the advantages of centralization and lack of centralization simultaneously.
- Decision making can be a part of each employee job.
- Operational personnel can receive or send information from every place.
- Designs can be reviewed permanently.

Markwart believes that technology in organization can be classified and studied in two subsystems under titles of knowledge management technology and learning development technology. Technology for knowledge management includes computer based technology for collecting, coding, processing, saving, transforming and using information in machines, people and organization, learning development technology includes video, audio learning, multimedia learning based on computer and sharing knowledge and development of skills in every place and time [Markwart, (2006)].

Knowledge management technology can be studied and discussed under technology elements such as orgaware, info ware, techno ware, and human ware in related to knowledge management.

Management style and leader and manager view points, rate and quality of data and information, feature of personnel such as their attitude, personality perception and learning, techniques, methods, and systems in knowledge management technologies can be recognized, evaluated and studied. Some of these elements are explained in this section.

Orgaware and knowledge management

Believing in coaching and leadership role, continuous learning and teaching, creating reliance, motivation, using liberalized management style, taking action to new structures such as team and network structures of power distribution through cooperation of personnel, suitable and on time feedbacks for desirable efforts and results, improving and strengthening creativity and innovation are of cases that are placed in orgaw are technology and are effective in settlement and desirable continuity of knowledge management.

Info ware and knowledge management

Data is as identical and abstract facts of symbols, picture, sounds, about occurrences and happenings,

information as an objective, formed, summarized, organized, structured, translated, classified data and knowledge as a combination of experiences, values, guider of decisions and actions, arrangement and combination of networking of power making information, group and organization in taking action of activities are cases that are placed in info ware technology and are very effective in dynamics of knowledge management.

Techno ware and knowledge management

Management and organizational methods, procedures, techniques, and systems such as decision making and problem solving, programming, establishing new designs, performance evaluation, trans portion, reserving, producing, presenting products, creativity and innovation, learning and teaching are placed in techno ware technology and have specific importance in suitable establishing and continuity of knowledge management.

Human ware and knowledge management

Human ware and knowledge as the most essential elements of technology according to view points of some scholars and is very important in every change such as optimized establishing and keeping of knowledge management and accessing to profits and effectiveness. Factors such as job satisfaction, obligation, motivation, self reliance, self changing, perception, attitude, learn ability, and learning compatibility, flexibility, hard working, having multi dimensions of intelligence, such as emotional intelligence, cultural intelligence, moral intelligence are required to be studied, identified, and evaluated in management level and personnel level. The collection of these elements leads in mental changes of people, so that managers and personnel change their mental models methodically for realization of organization strategy. Balanced and compatible combination and effective and objective interaction of these elements of technology in optimized form results in appearing knowledge personnel or scholars. Knowledge management technologies are discussed by emphasis on hardware tools. Hardware technology is discussed in two kind of technologies, presentation technology and distribution technology. These two technologies which classified and introduced by American education and development association in 1998 are:

- Electronic text or publication: Distribution of text through electronic tools
- C. BT: computer based training
- Multimedia: Using computer for textual, audio-video / animation works
- Television: One sided video which may be combined with two sided audio systems or other electronic responsible systems.

- Tele conferences: fast audio, video or text exchange between people or groups in two or several places.
- Virtual reality: Using computer for presenting interational, deep and three dimensional learning experiences by using completely application or functional and real models.
- Electronic performance support system: Using integrated computer by using aware systems, hypertext or hypermedia for helping for doing work duties.

Distribution technologies are the following:

- Cable television: Transforming television signals through cable technology.
- CD. Rom: A type of tool and system for recording, saving, and restoring electronic information on compact disk which is read by optical drive.
- Electronic mail: Exchanging message through computer
- Extranet: A cooperation network which uses internet technology for making a connection between organizations and suppliers, customers or other organizations which have common information needs or objectives.
- Internet: Free confederations of computer networks in world wide which are connected with others.
- Local area network (LAN): A network of computers which shares the resources of one or several processor within a relatively small geographical area.
- Wide area network (WAN): A network of computers which shares the resources of one or several processors or servers in relatively large geographical area.
- Satellite television: Transferring television signals through satellite.
- Simulator A tool or a system which replaced with a real tool or system.
- World wide web: All resources and internet users use hypertext transmission protocol:
- Each of presentation technology can use some of distribution technologies. For example, computer-based training can be done by local area network or wide area network, web, internet, intranet, CD-RAM, CD-ROM, computer disks.
- Groupware: This tool provides means for collecting and distribution of implicit knowledge and is smoothing more than electronic mail. Group ware provides means for collecting, saving of information, organizing, searching of information and accessing information in a

general form or selective base in addition to sending message [Roding. Allen, (2004)].

- Fulcrum knowledge network: This enables users to do unique search in all of different and multi information resources such as Lotus nutus, Microsoft Exchange server, websites and other resources. Users can make factors, monitor data resources, use related information automatically based on defined measures. This network presents a preview page from summary of documents without opening document itself by the user.

This tool can Search the matter, which are similar to previous matters and highlight related sections of documents. The main key of fulcrum is its knowledge map which is an usual information model.

- Verity search of 97: It allows users to organize and study different kinds of information resources.

This tool searches the created documents by usual desktop computer such as Adobe Acrobat, ASCII, E-mail, HTML, Lotus nutus, Micro soft exchange, Micro soft office, lotus SmartSuite folders, compliant ODBC data bases. Users can use review devices and filters to set them in more than 200 formats through the contents of saved documents. Verity search of 97 tool is based on contents and data and use FUZZY logic for searching and presenting and restoring.

- Interactive distance learning system (IDIS). It has features such as mechanization and multitasking control desk. Control desk is used for maximizing interaction by a teacher as a multimedia interactive platform (MIP) and response key page provides the possibility of continuous interaction with learners.
- Interactive video training system: It is a combination of video- Television with high quality, analogue and digital audio, text and graphics by using laser and CD-ROM disks. Users interact with system by using touch monitors or keyboards.
- Quality using Electronic systems Training, QUEST: This program is run by creating focus groups consists of teachers, managers, learner. These groups based on their knowledge, design questionnaires which cover key job duties or functions. Then ask personnel to order their job duties or functions based on their importance. Computer does all works related to scoring, recording, saving, analyzing the cases, and reporting the scoring. QUEST program causes a lot of time to be saved during the activities of personnel and managers.

Conclusion

The organizations which don't have knowledge management technologies or the capability of using them, they have loss of getting, saving, and transferring knowledge. If knowledge is considered as a trip, the technology is a road which it cannot be done without it. Knowledge management technologies, make collection, getting, saving, processing and updating of data and information simpler and provide the access of people better. Electronic performance support systems are being usual as a hardware role of knowledge management in the organizations.

These systems enable people to have learning and teaching in every time or place which is the best for them. Success in using knowledge management technologies along with other factors related to knowledge management have been able to change organizations into learning organization faster and better, the organizations which have shown suitable reactions against environmental actions and have the ability of continuous reform or modification of existent status. Success in establishing and continuity of knowledge management and using suitable technologies are required to develop human resources which this development results in optimized use of technologies. Making a unit which can establish knowledge management and its related elements, specially the related technologies, is a guarantee for success in this matter. Under these conditions, knowledge base and knowledge increase in organizational condition will result in knowledge personnel, who will be self aware, self motivation, self change and will guide their organizations in dynamic route with existent knowledge a long with managers, leaders of organizations, more comfortable, better and faster.

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