

A Literature Review of Knowledge Management: History, Concept, and Process

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Abstract: *The rapid development of science and technology today, making organizational management to face challenges and keep innovating. One of the areas in management field that develops in its implementation is knowledge management. In this paper, we will describe the knowledge management which includes history, concept, and process. Understanding knowledge management can be concluded as the management of intellectual property owned by members of the organization and will be utilized for achieving competitive advantage for the organization. The principal process that will be the conclusion in this article is creating knowledge, processes knowledge, distributing knowledge, and using knowledge.*

Keywords: Knowledge management, organization, intellectual property

1. Introduction

In the 21st century, the development of science and technology are increase rapidly. This increase forces a business continue to growth to face new challenges. The emergence of new business challenges and innovations makes the management has to continue to manage the organization well. One of the areas of management that has a rapid development of implementation is knowledge management. All businesses and organizations in the world are competing to implement the knowledge management for their organization members. Since 2005 it has been found that the greatest development in the business industry is the shifting from industrial society to knowledge society. Baets (2005) informed that the knowledge society is based on the growing importance of knowledge as the so-called fourth production factor.

The importance of the existence knowledge now pursued through the management of knowledge. According to Salwa & Susanty (2016), one of an organization benchmark to have the ability to compete from its opponent is take more attention to its knowledge. In this case, the knowledge possessed by an individual in an organization is one of the most important sources to be managed further. The existence of a person's ability in acting and activities is considered as important things to know together, so that the idea of knowledge management is defined as follows: "knowledge management is about managing information to make the most of the knowledge in an organization in order to benefit from finding and applying innovative answers to old and new questions" (McNabb, 2007). Susanty *et al.* (2016) noted that the classic view of knowledge indicates that knowledge is the process or action of knowing an experience or something associated with an experience through an individual's participation, while the modern view of knowledge is associated with competitiveness and power. Xue (2017) also explained that the world business is starting to grow now, which once used a lot of utilizing the use of natural resources, now widely utilize the knowledge resources. In other words, the existence of knowledge is the

strength of organizations now to compete in the era of globalization.

In this research will be described with detail related to history knowledge management, understanding knowledge management, and knowledge management process. Thus, the authors hope this article can facilitate the reader to learn more deeply related to the field of knowledge management.

2. History of Knowledge Management

Prior to the development of science of knowledge management field, a lot of discussion material was found related to the difference between data, information, and knowledge. The explanations related to the three things are as follows:

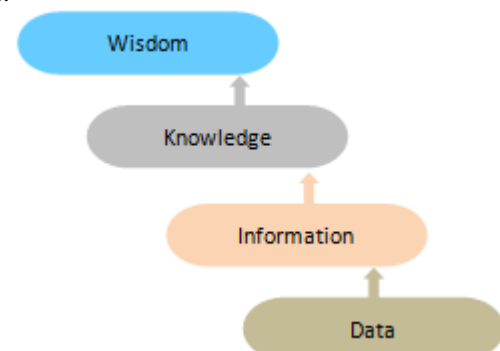


Figure 1. Knowledge Hierarchy

Bergeron (2003) explained that there are five hierarchies related to knowledge. Data is a symbol, signal, or stimulus related to something. Information is the conclusion of the data obtained. Knowledge is the meaning of information that has been controlled by humans. Wisdom is the highest hierarchy shown by the ability of a person to use his knowledge effectively and properly. Nonaka (1994) argued that any organization that faces environmental change should not only process information efficiently, but also information and knowledge.

After the development of the hierarchy can be accepted by many parties, then comes the idea related to the type of knowledge. Various references mention that knowledge is divided into two, namely explicit knowledge and implicit knowledge. The division of knowledge into the two groups was originally introduced by Michael Polanyi in 1958. According to McNabb (2007), tacit knowledge is knowledge held in the minds of the men and women who hold, use, and share what they know about things and how to do what they do. Explicit knowledge is knowledge that has been or can be written down and contained in documents and other media. Tacit knowledge is knowledge held in the minds of the men and women who hold, use, and share what they know about things and how to do what they do.

However, in a book written by Jetter *et al.* (2006) mentioned that knowledge is divided into three parts, there are explicit knowledge, tacit knowledge, and latent knowledge. Latent knowledge is information about people with their personal knowledge (of course the personal knowledge stays personal, but the representations of the people are feasible so that they can be found) (Jetter, Kraaijenbrink, Schrooder, & Wijnhoven, 2006). Schwartz (2006) describes the part of knowledge as follows.



Figure 2: Type of knowledge according to Schwartz (2006)

The beginning idea of knowledge management was initiated by the highest leader in a banking company called Canadian Imperial Bank of Commerce (CIBC). Since 1980 research on knowledge management has been widely practiced in medicine by a team from Harvard Medical School and has been widely published in the National Library of Medicine. After developing his research on knowledge management quite rapidly, in 1990 a financial company named Skandia recruited someone who was positioned as Chief Knowledge Officer (CKO) in charge of optimizing the intellectual property owned by the organization. Since that time more and more developed the discussion both in theory through research and practically by the organization to discuss knowledge management. Notable figures of knowledge management are Kant, Plato, Aristotle, Polany, Marsha, Maimonides, Hegel, Descartes, Kuhn, Popper, Ryle, Heidegger, Gadamer, and Minsky (Schwartz, 2006). Other figures who do research related to knowledge management are Ikujiro Nonaka (Hitotsubashi University), Hirotaka Takeuchi (Hitotsubashi University), Thomas H. Davenport (Babson College), and Baruch Lev (New York University).

In addition to being associated with the type of knowledge, the implementation of knowledge management is also often

associated with technology-based information systems that are used as tools for data storage. Various organizations in the western countries are creating knowledge repository projects that are used to capture knowledge and facilitate the dissemination of knowledge within the organization (Grover & Davenport, 2001). However, Salwa& Susanty (2016) argued that although it is very closely related to information technology and portal usage, the key to the implementation of good knowledge management is from its owner that is human. One of the American organizations that highly focused with implementation of knowledge management is the American Productivity and Quality Center (APQC). In 1995 the Knowledge Management Symposium was held for first time and collaboration with Arthur Andersen Companies. Over time, knowledge management then implemented by Xerox company to establish customer relationship management program. Since that time, then knowledge management has been widely implemented by other companies in medicine, law, engineering, and information technology (Bergeron, 2003). In 1997, there were 31 studies that discussed about knowledge management project (Grover & Davenport, 2001). Until 2017, many private and government organizations have implemented knowledge management in their organizations. The seminars and conferences were also increasingly being held with the knowledge management topics. Among the events in the world that discuss about knowledge management are as follows.

Table 1: World events about knowledge management

No	Name of Event	Organizer	Date and Place
1	The Knowledge Management and Enterprise Solution Conference.	KM World	Date: Nov 6 - 9, 2017 Place: JW Marriott, Washington DC.
2	Knowledge Management Forum	Thomson Reuters	Date: March 9, 2017 Place County Hall, London.
3	Knowledge Management Conference 2017	USAID	Date: June 21-24, 2017 Place: Faculty of Information Studies (FiS) in Novo Mesto, Slovenia

3. The Concept of Knowledge Management

Along with the development of research on knowledge management, and more widespread definition. Understanding knowledge management is defined with various points of view. Associated with the definition of knowledge management, some authors give their views to describe into two syllables that is by defining knowledge and management. Schwartz (2006) cited in the book Davenport and Prusak entitled Working Knowledge defines the following knowledge:

Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in

documents and repositories but also in organizational routines, processes, practices, and norms.

In that sense, knowledge is interpreted as intellectual property owned by a person that can be described in the form of organizational documents and routine organizational life. On the same occasion, Schwartz cited the meaning of knowledge management that evolved around 2006 as an integration and systematic approach by management to identify, manage and disseminate the wealth of information including disseminating documents, databases, policies and procedures in order to the capabilities by people previously can be transferred to new people in the organization. Nevertheless, Schwartz disagrees with that meaning, but Schwartz (2006) argued that the wealth of one's knowledge is impossible to transfer in the form of documents or implemented in the form of social norms within the organization. If someone wants to explore the wealth of knowledge of others, then the only way that can be done is to interact face-to-face with that person.

Knowledge management is a management approach to the management of intellectual assets and other information to support the achievement of the company's competitive advantage (Bergeron, 2003). Knowledge management is the capacity to translate research results (knowledge) into policies and practices that can improve the quality of life and lengthen survival (Schwartz, 2006). According to McNabb (2007), knowledge management is managing information to make the most of the knowledge in an organization in order to benefit from finding and applying innovative answers to old and new questions. According to Chao & Korte (2014), the knowledge management is the capability management by the organization for the organization to provide the best performance. Susanty & Salwa (2017) argued that the main objective of the implementation of knowledge management is to ensure that the individual's knowledge can be owned by the organization, so it will not be a big problem if someone who has valuable knowledge is no longer in the organization. According Mills & Smith (2014), Knowledge management is to build a knowledge capability that facilitates the effective management and flow of information and knowledge within the firm.

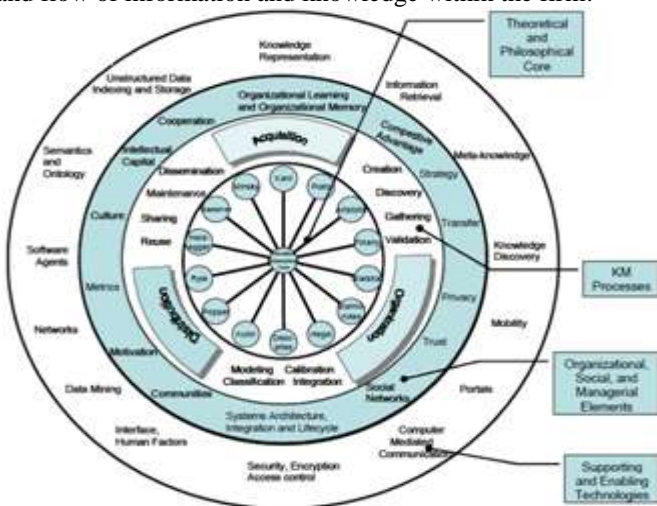


Figure 3: Area of knowledge management field (Schwartz, 2006)

Schwartz (2006) described the areas of knowledge management in the figure above. Based on the Figure 3, we know that knowledge management is the field of study which created by word leaders: Kant, Plato, Polany, Marsha, Maimonides, Hegel, Descartes, Kuhn, Popper, Ryle, Heidegger, Gadamer, and Minsky. Schwartz (2006) stated that knowledge management process is about acquisition through knowledge creation, knowledge discovery, knowledge gathering, and knowledge validation; knowledge organization through knowledge calibration, knowledge integration, knowledge modeling, and knowledge classification; knowledge distribution through knowledge reuse, knowledge sharing, knowledge maintenance, and knowledge dissemination.

Knowledge management described as 13 elements, those are: social networks, system architectures, communities, motivation, metrics, culture, intellectual capital, cooperation, organizational learning and organizational memory, competitive advantage, strategy, transfer, privacy, and trust. Knowledge management supported as 14 technology enabler, those are: computer, network, security and control, interface and human factors, data mining, software agents, semantics and ontology, unstructured data indexing and storage, knowledge representation, information and retrieval, meta knowledge, knowledge discovery, mobility, and portals.

4. Process of Knowledge Management

Through this type of knowledge, then Nonaka & Takeuchi is the first researcher to mention that knowledge management consists of four series of processes. In the research that has been conducted by Salwa & Susanty (2016), all of processes can be analogous to the dimension of knowledge management. The four knowledge management processes are socialization, externalization, combination, internalization (Nonaka, 1994). Nonaka & Takeuchi described all the process through this graphic:

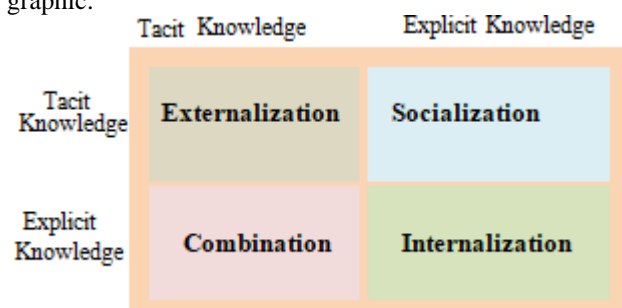


Figure 4: Knowledge management process by Nonaka (1994), figured by Authors.

Based on Figure 4, socialization is the process of converting somebody's tacit knowledge into tacit knowledge by social interaction, face to face sharing, emotional touch, and public speaking about experience (Kaur, 2015). Externalization is the process of converting somebody's tacit knowledge into explicit knowledge through of image, documentation, and visual language (Kaur, 2015). Combination is the process of

converting somebody's explicit knowledge into explicit knowledge through the use of computerization and systemization. The last part of this process is Internalization, it means the process of converting explicit knowledge into tacit knowledge through continuous individual and collective interactions. One of example to show the process of Internalization, when somebody read all the text book and then share to others by face to face interaction.

There are four processes of knowledge management those are generalization, codification, transfer, and realization (Grover & Davenport, 2001). Knowledge generation is the first process to get the knowledge. Grover & Davenport (2001) stated that this process includes all processes involves in the acquisition and knowledge development. Knowledge codification is the process conversion of knowledge into accessible and applicable formats. Knowledge transfer is the process transfer includes the movement of knowledge from its point of generation or codified into the point of use. Knowledge realization is the last process that can be identified if all the members of the organization use the knowledge into daily activity.

According Susanty & Salwa (2017), three basic knowledge management processes, namely knowledge acquisition, knowledge sharing, and knowledge utilization. Knowledge acquisition is the first step shows that member of the organization capture another knowledge through various activity. Knowledge sharing is the movement process of knowledge from its owner to another. Knowledge utilization is the usability of organization knowledge through the action for decision making.

According to Jetter *et al.* (2006) there are four knowledge management processes, namely identifying, acquiring, and using external knowledge. Identifying knowledge means that people in the organization identify all the knowledge needed. Acquiring knowledge means that people in the organization start to take the knowledge through the various system, program, and event. Using external knowledge means that people in the organization implement the knowledge into organization's activity.

Based on the literature stated that knowledge management is a process of creating, disseminating, and applying organizational knowledge (Al-Husseini, Elbeltagi, & Dosa, 2015). The process of creating knowledge means organization have to trigger all the people to realized that they have knowledge. The process of disseminating means that organization have to make a program to make sure that knowledge in the knowers can be distribute to other and also accessible. Applying knowledge means that people in the organization using the knowledge to the efficiency of work daily activity.

According Schwartz (2006), three knowledge management processes, namely (1) knowledge acquisition through the program of the organization in knowledge creation, knowledge discovery, knowledge gathering, and knowledge validation;

(2) knowledge organization through the program of the organization in knowledge modeling classification, and knowledge calibration integration; and (3) knowledge distribution through the program of the organization in knowledge dissemination, knowledge maintenance, knowledge sharing and knowledge reuse.

5. Conclusion

Based on the description of knowledge management mentioned above, it can be concluded that knowledge management is a field of study that has existed since 1980 and continues to grow rapidly until 2017. One of the knowledge management development benchmarking is many activities and research was held related to knowledge management. Understanding knowledge management can be concluded as the management of intellectual property owned by members of the organization and will be utilized for achieving competitive advantage for the organization. The process of knowledge management is expressed in various terms. However, the principal process that will be the conclusion in this article is creating knowledge, processes knowledge, distributing knowledge, and using knowledge.

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