

Conception of Knowledge Management Supported by Information Technologies

Inga Beleviciute

(Vilnius Gediminas Technical University, Lithuania
inga@gama.vtu.lt)

Abstract: There are many technologies calling themselves knowledge management systems in the market but most of them deal only with information management. The main difference between them is that knowledge management systems are oriented into people and participated in tacit knowledge capturing. The paper describes set of information technologies which could take part in all process of knowledge management and especially in collecting tacit knowledge.

Keywords: Knowledge management technologies, knowledge creation, knowledge transfer, knowledge applying, knowledge store, retrieval

Categories: H.1, H.3, H.4.2, H.4.3, H.5.1

1 Introduction

Knowledge includes both the experience and understanding of the people in the organization and the information artefacts, such as documents and reports, available within the organization and in the world outside [Marwick, 2001]. Polanyi divided knowledge into two types [Polanyi, 1962, 1996]: explicit knowledge, the knowledge included in documents or books and tacit knowledge, the knowledge that can be acquired by experience, communication.

Knowledge management considers mainly the four basic processes: knowledge creation, storing, transferring and applying [Alavi, 2001]. Each of these steps could be supported by technologies which are detailed further. These processes do not present a monolithic set of activities, but an interconnected and intertwined set of activities.

There are many technologies calling themselves knowledge management systems in the market but most of them deal only with information management. The main difference between knowledge management and information management is that working with *objects* (data or information) is information management and working with *people* is knowledge management [Grey, 1998]. Also knowledge management deals with tacit, unstructured knowledge which is one of the hardest tasks for information technologies, to capture it and convert it into an explicit and searchable form.

The paper describes set of information technologies which could take part in all process of knowledge management and especially in collecting tacit knowledge.

2 Knowledge creation

Knowledge creation Nonaka [Nonaka, 1995] describes as the conversion between explicit and tacit knowledge and divides it into four stages: socialization, externalization, combination, internalization. IT could participate in this process by collecting tacit and explicit knowledge during knowledge creating, then to structure and convert them into a searchable form and use it in other KM processes.

Socialization happens when people interact with each other and share their knowledge. This is one of hardest tasks for IT to take part in this process, but still some technologies could be applied such as Chat, Videoconferencing and etc. [Figure 1] shows the conversion of tacit knowledge within a Chat. Each chat participant chats and writes his tacit knowledge in text which after could be summarized, structured by text mining technologies. A mechanism should be provided to let participants choose themselves which chat should be handled by technologies not to make people avoid communication.

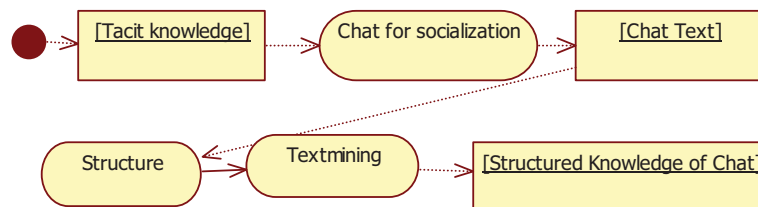


Figure 1: Socialization using chat

Socialization can be supported by videoconference. Persons discuss and share their tacit knowledge in videoconference. Voice records collected in this process could be arranged by speech recognition and after processed by text mining tools. With the examples of technologies which could be used for socialization mentioned above only a small part of tacit knowledge could be collected by IT.

Converting tacit knowledge to explicit is externalization. Information technologies could support this process by Forums, Questions-Answers bases, Web 2.0 social software and etc. [Figure 2] shows an example how the social software Blogging takes part in externalization processes.

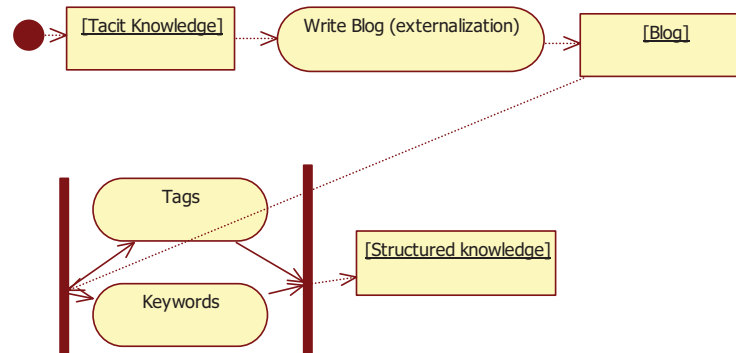


Figure 2: Externalization in Web 2.0

Combination could be influenced by IT the most because it is an interaction between explicit knowledge. Here many information management technologies play a big role. For example an explicit knowledge artefact document could be processed by many technologies shown in [Figure 3] to get more structured knowledge which could be easier to search and use for other purposes like detect experience of a person in a particular area .

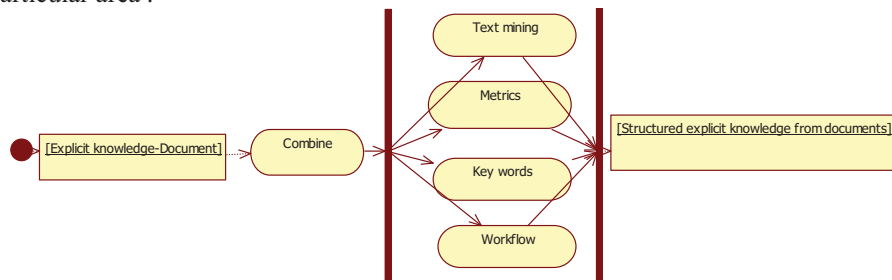


Figure 3: Combination of explicit knowledge

Internalization happens when people learn from documents, books and etc. and explicit knowledge becomes tacit. This process could be supported for example by learning technologies [Figure 4].



Figure 4: Internalization via learning activities

3 Knowledge storing/ retrieval

Organizational knowledge is stored in various forms like documents, multimedia bases, knowledge artefacts which come from knowledge creating process and etc.

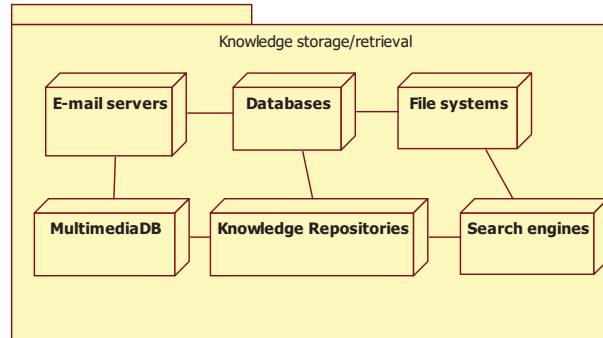


Figure 5: Knowledge storage/retrieval

4 Knowledge transfer

Knowledge transfer occurs in different levels: between individuals, from individuals to explicit knowledge, from individuals to groups, between groups, across groups, and from the group to organization. Information technologies can support knowledge transfer by creating collaboration environments, video conferences and etc.

5 Knowledge applying

Knowledge applying happens when existing knowledge are added, used and reused by other knowledge. IT can have a positive influence on knowledge application. Examples are workflow, knowledge bases and etc.

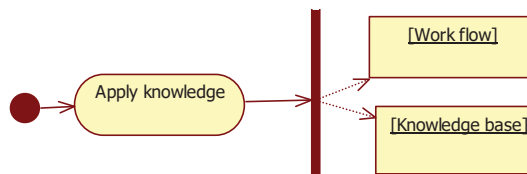


Figure 6: Knowledge application process

6 Conclusion

Many technologies could be applied in different steps in knowledge management to facilitate these processes. The particular set of them depends on situations, requirements and needs and could vary in different ways. KM applications could be used to solve or improve one particular problem or be comprehensive solutions in organizations. Though, despite growing information technologies possibilities to influence and improve knowledge management in organizations, successful implementation of the latter depends on the culture and understanding about the necessity of it in organization. The structured knowledge from chat, videoconference, documents, forums and individual person profile (which could be filled up by the person himself and combined with data from personal DB) could be reused to estimate experience and knowledge in particular fields.

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