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Knowledge Management: Differing Ideals, Differing IT Implications

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Abstract

By reviewing the literature related to knowledge management, we discuss the different concepts and dimensions involved in the subject, making it unreasonable to talk about knowledge management as a single entity. Instead, we would be better talking about different instances or ideals of knowledge management, each of them with particular characteristics and information technology implications, and ultimately a different firm outcome.

Introduction

The realization that production of knowledge is fundamental to the survival of the firm has become a common position in the literature (Davenport, De Long et al. 1998; Davenport and Prusak 1998; Grant 1996; Grant 1996). This realization is not without problems. Knowledge management (KM) has become another victim of conceptual “muddling.” IT is taking a facilitative, if not a leadership role in the propagation of KM. Given the amoebic clarity of KM, the question becomes one of “what is it that IT is conceptualized to do in KM?”

To examine this question, we reviewed a comprehensive collection of literature related to KM and several issues emerged:

1. Differing use and meaning of data, information, and knowledge.
2. Alternative subdivisions to explain the characteristics of knowledge and KM.
3. The issue of knowledge ownership and acquisition.
4. The role of transferability with respect to knowledge.

Consensus in the Literature

There is a general agreement in the literature that knowledge has more meaning and abstraction than information, which in turn has more meaning and abstraction than data. There is also some consensus with respect to the definitional usage of data. Data is associated with the symbolic representation of events, “a record of a transaction” (Prusak 1996). However, it should be noticed that this representation is “raw” (Choudhury and Sampler 1997), comprised by disperse elements (Saint-Onge 1996).

Information contains meaning for the receptor and this addition of meaning differentiates data from information

(Huber 1991; Choudhury and Sampler 1997). However, it should be noticed that the meaning is given by the receptor and what can be seen as information to one person may not be necessarily represent information for other (Von Hippel 1994).

The situation is much more confusing when we discuss a definition for knowledge, given the myriad of definitions in the KM literature alone. Knowledge may refer to the “stock of information possessed by an individual” (Melody 1987; Choudhury and Sampler 1997), to “information combined with experience, context, interpretation, and reflection” (Davenport, De Long et al. 1998), to “complex products of learning, such as interpretation of information, beliefs about cause-effect relationship, or, more generally, know-how” (Huber 1991), or to “justified true personal beliefs” (Nonaka 1994).

Another complicating factor is the abundance of definitions regarding sub-classifications of knowledge. The most pervasive subdivision of knowledge (used in (Nonaka 1994; Von Hippel 1994; Grant 1996; Grant 1996; Saint-Onge 1996; Roos and Roos 1997)) is the one proposed by Polanyi (1966). According to Polanyi, knowledge may be either tacit or explicit. The distinction is that tacit knowledge is that where there is an impossibility to *codify* the knowledge, and explicit knowledge is inherently codifiable. Some other authors, however, prefer to define tacit knowledge as that knowledge where the transfer process is very difficult. In other words, even the basis for subdivisions of knowledge is conflicting.

Another discussion is related to the ownership of knowledge. On one front we have authors that do not believe that organizations can possess knowledge. These authors believe that individuals, *not the company*, own and control the knowledge (Roos and Roos 1997). According to this position, knowledge exists only in the mind of “knowers” and the existence of knowledge that is external to the individuals who have it is a myth (Prusak 1996). In this perspective, the loss of an employee will make the organization lose the knowledge, which that individual, and only that individual, possessed. The opposing view believes that organizations can possess knowledge (Choudhury and Sampler 1997). This position states that the skills and insights of the individuals will become embodied in routines, practices and beliefs that

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outlast the presence of the individuals (Attewell 1992), creating a frame that is shared by the collectivity (Corner, Kinicki et al. 1994).

A similar conflict is seen in the issue about knowledge transferability. Again we have binary opposition, where one group argues that tacit knowledge, by definition and lack of codifiability, can not be transferred from one person to other (Roos and Roos 1997). It resides in the minds of people and is formed by the accumulated experience that is private to each individual (Davenport, De Long et al. 1998). In the act of acquiring tacit knowledge the person would be adapting that knowledge to his/her own body of knowledge, modifying the original tacit knowledge, as the person that previously owned it understood it.

Conversely, others believe that knowledge can be transferred, whereby knowledge is reconstructed after the transference of information (Cohen and Levinthal 1990; Corner, Kinicki et al. 1994). Other authors affirm that knowledge may be transferred directly. It may be transferred through storytelling, where the story acts as a repository of wisdom (Brown and Duguid 1991), through social integration (Dodgson 1993; Nonaka 1994), through organizational routines and directions (Levitt and March 1988; Grant 1996), or through the application of the tacit knowledge (Grant 1996).

Typology Dimensions

Our main objective is to point out the possible differences in opinions related to KM that may affect how we understand these constructs and how practitioners may operationalize them with IT.

As we have seen above, there are at least two knowledge issues that are far from consensual. First in the case of knowledge ownership, we have polar opposite opinions: one that states that *only individuals* can possess knowledge; the other position affirms that *both individuals and organizations* can possess knowledge. Second with respect to knowledge transferability, one position is that tacit knowledge cannot be transferred, while yet another position suggests that despite some difficulty, tacit knowledge *can* be transferred between entities.

We use these two dimensions, knowledge ownership and knowledge transferability, to create a typology of ways that an organization would operationalize KM, and the IT implications thereof. The figure below shows the typology.

		Tacit Knowledge Transferability	
		No	Yes
Knowledge Ownership	Organizational and Individual	Cell 1 Organizational and Individual Knowledge Ownership No Tacit Knowledge Transferability	Cell 2 Organizational and Individual Knowledge Ownership Existence of Tacit Knowledge Transferability
	Individual Only	Cell 3 Individual Knowledge Ownership Only No Tacit Knowledge Transferability	Cell 4 Individual Knowledge Ownership Only Existence of Tacit Knowledge Transferability

Individual and Organizational Ownership and No Transferability of Tacit Knowledge

Cell 1 presents an ideal type that is also a contradiction. As it was seen above, any proposal that organizations can acquire information directly should be seen as an instance of reification. Therefore, organizations only assimilate knowledge when those who acquire it primarily, the individuals, transmit this knowledge.

In this cell the dimension of tacit knowledge transferability suggests that the transmission of knowledge between two entities is not possible. Therefore, the organization cannot acquire knowledge and, as a consequence, cannot possess knowledge. Because of this contradiction in the conception of this cell we are not going to present any implication of the implementation of KM that relies in these specific dimensions.

Individual Ownership Only and No Transferability of Tacit Knowledge

In this perspective all knowledge resides in the individuals. If the individual were to leave the firm, the departure could bring unrecoverable losses to the firm. The firm would be losing an active knowledge agent, and not only their technical knowledge, but also their contextual knowledge about the firm.

New employees would take a lot of time before developing real contextual tacit knowledge of the organization and its operations. Since this knowledge is accumulated through experiences and cannot be transmitted by other employees, the new employee would have to develop its core of tacit contextual knowledge through the experiences and information to which he/she is subjected in his/her tenure in the organization.

Human resources management and policies would have to particularly strive to avoid the defection of a talented individual, since the knowledge this individual carries and the benefits that this knowledge could bring to the organization would be lost.

An organization would have only few things to attempt within this instance of KM. The organization may try to expose the new employee to a larger number of stimuli in

the hope this individual will be able to capture a large flow of information and build a personal, rich knowledge core based in these pieces of information and interpretations about them.

Information technology could be used in a number of ways. For example, a firm could develop a directory of employees/capabilities, in which the information about the talents and abilities of each employee could be stored and groups or task forces could be optimally assembled. However, these tools could not have the embedded capability to help in the selection of the best team for a task. The use of groupware systems and knowledge repositories would be limited to exchange of information such as technical advice (Pickering and King 1995; Constant, Sproull et al. 1996). They would expose the individual to a large amount of stimuli but they would not be useful in the creation, exchange and deployment of knowledge among the users.

Individual Ownership Only and Transferability of Tacit Knowledge

This instance of KM differs from the previous ideal type because of the possibility of transference of tacit knowledge among individuals. Each individual may act as a repository of tacit knowledge that can be shared with other individuals, at least in the long term and through many interactions. As mentioned above, this transference may occur through storytelling, social integration, organizational routines and directions, or the application of the tacit knowledge. It is not an easy process and needs a large amount of communication among individuals and practical experimentation.

The organization would facilitate the acquisition and transference of knowledge between the individual and those with whom he/she interacts. As it was said above, the transference of tacit knowledge occurs essentially through these interactions and hands-on experience. Communication tools would be the main focus in this knowledge management instance.

IT in this context would be more conscious of how it facilitates transference. Like in the previous cell, a directory of employee/capabilities may be useful to the company in determining the assembly of teams (again without any embedded routine helping in this task). Groupware tools, however, would have a much more significant role. Relatively recent developments of these applications (for example, multimedia capabilities and integration of problem-solving tools (Dennis and Valacich 1993; Boland and Tensasi 1995)) allowing a richer exchange among individuals could also carry knowledge from one individual to another. Knowledge repositories would again have a limited usefulness because these tools would not provide the level of communication necessary to exchange tacit knowledge.

Individual and Organizational Ownership and Transferability of Tacit Knowledge

In this perspective, both the individual and the organization can possess and transfer tacit knowledge. This is the instance where the individual has the least value. Because the organization can, at least in the long term, apprehend the knowledge one person has, the individual can be replaced after the organization's knowledge acquisition process is satisfied.

In this condition, when the individual is exposed to other employees and to diverse experiences, he/she not only is participating in a process that helps the sharing of tacit knowledge; he/she is also transferring part of this knowledge to mechanisms of organizational knowledge, such as organization routines (Grant 1996).

There are significant changes in the way IT is applied to enhance KM. Again a directory of employees/capabilities may be used. However, part of the knowledge necessary to compose a group can be embedded in the tool itself. Groupware applications and repositories and their accumulated knowledge would be seen as a possession of the collectivity, especially when coupled with expert systems. These collective instruments would provide a continuous source of easily accessed knowledge that could be used by the organizations and its members.

Summary

We built a typology of possible instances of KM based in its dimensions of ownership and transferability of tacit knowledge. We reached three possible instances as showed above. Each instance would bring a new perspective about how a firm may operationalize KM and how implications and applications are related to each given ideal type. We could see that the perspective about the role of individuals and information technology is significantly different in each type. If we consider that KM may become an important resource for the firm, allowing the creation of innovative and distinctive competencies, we should also consider the way in which the conceptual grounds of KM are defined. The expectations and consequences of a particular definition of knowledge and KM will bring certain outcomes that are associated with that particular instance.

Furthermore, if we (academics and practitioners) fail to provide a solid conceptual ground for the different types of KM, we may end up raising certain expectations that will not be fulfilled in a given KM implementation. Weak KM conceptualization may bring unanticipated consequences which highlight the need to step back and try to create some better definitions of the concepts involved in KM.

References

References available upon request from authors or at <http://www.pitt.edu/~alopes/referenc.htm>