Factors Affecting Knowledge Transfer
in Project Environments

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Abstract

Most project teams consist of knowledge workers, and the issue of how to better transfer knowledge across individuals and groups becomes a central concern. The main purpose of this article is to study the factors affecting the knowledge transfer process and their importance for project's success. The factors analyzed in this article are trust among individuals, members of the team, project culture, values and the beliefs of the individuals and motivation of those involved in the project, both intrinsic and extrinsic. In order to overcome the barriers affecting the knowledge transfer process, project managers must create an environment where knowledge workers must feel free to share and re-use their knowledge.

Keywords: *barriers, knowledge transfer, motivation, trust, project management*

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Introduction

Knowledge management in a project management environment faces many challenges. Projects differ substantially from one another and significant gaps in personnel, material, and information flows often occur. Frequently, personnel changes occur during the project, involving individuals with diverse backgrounds, cultures, and languages. Projects become temporarily limited and people involved are often dispersed when the project ends. It becomes difficult to develop steady routines that maximize knowledge flow and capture learning, both within a project and from one project to the next. Creating, transferring, and sharing knowledge is a central challenge (Karlsen, 2004) to both organizations and project environments. Management of knowledge becomes even more challenging because of the diverse content of the concept. When considering the transfer of knowledge the managers have to deal with facts (know-what), cause and effect relationships (know-why), skills (know-how) (Leonard, 2007). Managers must take into consideration both the tacit dimension of knowledge as well as the explicit one. Polanyi (1983) outlined the fact that "we know more than we can say", introducing thus the tacit dimension of knowledge, the one that comprises intuition, beliefs, values, skills, ideals, lessons learned from practice. On the other hand the explicit dimension is represented by the knowledge gained through education, knowledge that can be easily articulated and transferred to others.

Knowledge sharing practices and initiatives often form a key component of knowledge management programs, in terms of organizational and individual learning (Nonaka, 1994). Therefore, better and purposeful sharing of useful knowledge translates into accelerated individual and organizational learning and innovation, leading to better product development and enhanced market performance (Riege, 2005).

However, the ease of transferring knowledge from one individual to others can be affected by many factors. The size and the nature of the gap of knowledge between source and recipient is one example (Leornard, 2007). Knowledge has a very subjective nature. What may constitute knowledge for one person, can constitute information or even data for another person. The most common definition of knowledge is information processed in order to understand the surrounding events produced in the external environment (Bratianu, Orzea, 2010). In order for information to be transformed into knowledge the stimuli received has to encounter some prerequisite knowledge, present in the receiver's memory, in order to decode the stimuli received. For example, when an expert is trying to transfer his knowledge to a novice colleague, the transfer process can be difficult because of the lack of receptors to decode the stimuli received from the emitter.

In a study undergone in eight companies, Szulansky (1996, 1995) analyzed the internal stickiness of knowledge transfer. Stickiness refers to the difficulty of transferring knowledge. The study revealed that the most important barriers to the internal transfer of knowledge within a company are recipient's lack of absorptive capacity, causal ambiguity, and arduous relationship. Absorptive capacity is a function of the recipient's knowledge endowment prior to the transfer, causal ambiguity reflects the recipient's depth of knowledge and the quality of the relationship affects the recipient's ability to acquire knowledge when needed.

The problem of knowledge transfer becomes even more acute in project environments. To overcome the difficulties arose by the transfer of knowledge within projects, managers must first understand the factors that affect the process of transfer. Thus, the main purpose of this article is to underline the factors acting as barriers in the knowledge transfer process in project environments.

1. Barriers to knowledge transfer

Knowledge sharing is believed to be influenced by factors both at individual and organizational level (Szulansky, 1995, 1996, Jensen, Szulansky, 2004, 2007 Bratianu, Orzea, 2010). At the individual level, one of the most important factors affecting the knowledge transfer process is *trust*. Most people are unlikely to share their knowledge and experience without a feeling of trust. People must have the feeling of trust that the people will not misuse their knowledge, and that the information that one receives is accurate and credible due to the source of information. The level of trust that exists between the organization, its subunits, and its employees greatly influences the amount of knowledge that flows both between individuals and from individuals into the firm's databases, best practices

achieves and other records (De Long, Fahey, 2000). In a relationship, trust reduces uncertainty and complexity and develops incrementally and accumulates, making trust history-dependent. In other words, trust is a structure of meanings embedded in a team member's worldview. It is rather permanent, but can be quickly destroyed when something negative happens in a person's situation that puts an end to expectations concerning the other party's behavior (Koskinen, Pihlanto, 2008).

Trust, on the other hand, must be accompanied by a *culture* where people can feel safe, confortable to share their knowledge with the colleagues. Culture resides in the values, beliefs, and assumptions, norms that people have and use every day to guide their work; it also influences the dynamics of how people perform, relate and perceive the project's impact on their work. De Long and Fahey (2000) suggested that culture influences behavior central to knowledge creation, sharing, and use in several ways. First, culture shapes assumptions about what knowledge is worth exchanging and also defines relationships between individual and organizational knowledge, determining who is expected to control specific knowledge, as well as who must share it. Last but not least, culture creates the context for social interaction that determines how knowledge will be shared in particular situations shaping the processes by which new knowledge is created, legitimated, and distributed in organizations.

In our opinion when talking about a culture we have to also take into consideration the flexibility and the control that people have to exercise their jobs. Thus, the best requirements for a culture that supports the transfer of knowledge are a flat organizational culture and the decentralization of the decision-making process. Internal forces such as the management style can also affect the project culture. Rigid, formal and command-and-control structures, for example, can promote functional efficiency at the expense of collaborative and innovative activities.

Values, an important component of the project culture, refer to the goals of the project and the means to attain those goals. The values can also apply to the personal level referring to personal goals. They can be used in order to explain the behavioral differences among the members of the team. The success of the project is influenced by the link between the personal values of the team members and the project values. The stronger the link between the two the more chances of members identifying with the project and accomplishing the overall goals. If the personal and the project values are interconnected the project member can easily identify with the overall goals of the project and this enhances the willingness of the member to share the knowledge that the person possesses. In close connection with values are *beliefs* which represent what people think to be true. Sometimes values and beliefs can be hard to distinguish, especially where the value and belief, such as learning styles, are closely related.

The culture of the project is a very powerful integrator since it acts on the individual intelligence and individual core values, thus generating the spirit of excellence (Brătianu, Jianu, Vasilache, 2007). Of course, project culture can produce also adverse results if its core values are based on fear, punishment and

there is a mismatch between corporate interests and individual core values. Brătianu and Orzea (2010) have proved the adverse results of a culture based on fear, punishment by studying the knowledge sharing process from the Romanian business environment after twenty years from the fall of the socialist regime. Unfortunately, the study reveals that the mentalities of the people are still affected by the reminiscences of the socialist regime and the fear of losing one's job, the mistrust of the colleagues are hoarding the employees from freely sharing their knowledge.

Because knowledge is intimately and inextricably bound up with people's egos and occupational meanings, it does not emerge or flow easily across roles or functional boundaries. Therefore, the presence of *motivation* to create, share, and use knowledge is an intangible critical success factor for virtually all projects (Davenport, DeLong, Beers, 1998). Two types of motivation can be distinguished, the extrinsic and the intrinsic one. On one hand the extrinsic motivation serves to satisfy indirect needs, such as the need for financial comfort. But, due to the fact that in projects we are dealing with knowledge workers, the extrinsic motivation is not enough. It must be accompanied by the intrinsic motivation. Intrinsic motivation is fostered by the commitment to work or as the saying goes "If you want people motivated to do a good job, give them a good job to do" (Osterloh, 2007). Motivational approaches to encourage more effective knowledge transfer behaviors should be long-term and tied in with the rest of the evaluation and compensation structure. In a company and in life in general, people perceive rewards as measures for a behavior appreciated by the management or by their peers. In order to acknowledge the sharing of knowledge as important component of their job attributes, a person has to be rewarded for that behavior. It is not sufficient for managers to rely on the willingness of employees to share their knowledge. In order to increase the degree of shared knowledge within a company a specific behavior has to be educated and rewarded.

2. Overcoming barriers and practical recommendations

With regard to project management company leaders must remember that project work is based on the knowledge of individuals. Other individuals, either internal or external to the project at hand, can use that knowledge if and only if it is applied and transferred effectively. As stated above, in order for knowledge to be successfully transferred, the managers must focus their attention towards creating the mechanisms and climate for effective knowledge sharing.

The problem of creating an environment where employees can easily express their ideas and knowledge in order to foster knowledge creation was heavily treated by the Japanese authors Nonaka and Takeuchi (1995). The solution proposed consists of creating an environment where knowledge can flow freely from people who own it to people who are in need. In order to create this type of environment, business leaders must supply the necessary conditions: autonomy, creative chaos, redundancy, requisite variety and trust. *Autonomy* is considered to

increase the chances of finding valuable information and motivating the members to create new knowledge. Autonomous individuals set task boundaries for themselves in the pursuit of the goal set by the organization, customer etc. In project environments, autonomy is a prerequisite condition. An autonomous team can perform many functions, amplifying and sublimating individual perspectives to higher levels (Grant, 1996). Closely connected with autonomy is *creative chaos*, which stimulates the interaction between the team and the external environment. The main purpose of creative chaos is to impose a sense of crisis among the members of the team by proposing challenging goals, thus breaking routines, habits and cognitive frameworks and transcending existing boundaries. One of the biggest problems in any team, organization is knowledge inertia (Liao, Fei, Liu, 2008), and the difficulty to diverge from the course set by previous experience. The main problem with creativity is that it lies on the thin border between chaos and order. In order to maintain the balance between the two, *requisite variety* is a helpful instrument. One possible way to realize requisite variety is by developing a flexible structure with multiple interlinks, thus giving fast and equal access to information, or by a redundancy of information. *Redundancy* is regarded (Nonaka, Takeuchi, 1995) as the intentional overlapping of information about business activities, management responsibilities. The main purpose of using redundancy in project environments is to speed up the process of knowledge creation, because, team members can easily understand their role in the team, which in turn, functions to control the direction of their thinking and actions, thus leading to a self-control mechanism for achieving the desired goal. For knowledge to be shared and created there should be strong love, caring, trust among the members of the team. It is very important for them to feel that there is an atmosphere in which they are safe to share their knowledge.

An efficient knowledge transfer does not only dependent on the climate, but also on the systems and procedures in place. Knowledge is valuable if accessible when needed, making it necessary for managers to develop structure, systems and procedures of transfer. A practical example of a support structure is the reward system. In order to encourage people to share their knowledge, they need to be adequately rewarded (Szulanski, 1996). It is important to develop performance appraisal systems (substantial gratuities, wage increases, promotion and so forth) that take knowledge sharing into consideration. Systems for reward of those who possess considerable technical expertise, without considering those who use their time to share knowledge, does not encourage the dissemination of knowledge (McDermott, O'Dell, 2001). Very important from a managerial point of view is the remark that most project teams consist of knowledge workers, especially in high-skilled fields such as Information Technology or engineering, whose satisfaction does not necessarily come from financial compensations. For rewards to be efficient in motivating employees to transfer their knowledge and experience a proper design and customization is required. The customization of rewards is very important due to the fact that people react differently to stimuli (Brătianu, Orzea, 2010).

Conclusions

Knowledge transfer, a key element in knowledge management, has nowadays achieved recognition for the important role it plays in creating sustainable competitive advantages and organizational efficiency. Knowledge transfer within an organization enables employees to work efficiently together. But making employees to transfer and share their knowledge, contributing to the organizational efficiency is not without cost. Managers must not rely on the willingness of employees to transfer and share their knowledge. The managers must motivate their employees to maximize knowledge transfer not only due to extrinsic motivation, but also due to intrinsically held ideals, such as a strong commitment to the organization. Employees need to perceive that their organization values them by providing suitable work conditions that allow them to progress, both personally and professionally, and also, they need to feel satisfied and perceive a sense of well-being with the activities performed. For these reasons, understanding the characteristics and factors affecting the knowledge transfer process reaches a high importance for managers.

Therefore, the main purpose of this article was to analyze the factors that can hinder the process of knowledge transfer within a project environment and propose some practical recommendations for managers in order to make the knowledge flow easier between project members. Some of the factors analyzed were trust, values and beliefs as component parts of the culture of the project, the motivation systems.

In order to further develop the study of knowledge transfer within project environments it is possible to study the influence of other variables, such as leadership, management style, information technology and so on. The framework proposed by this article suggests that for the knowledge transfer process to be an effective one a multi-levered approach has to be taken into consideration, where the importance of potential barriers is not ignored.

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