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Knowledge sharing in project-based organizations: Overcoming the informational limbo

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ABSTRACT

Project-based organizations (PBO) are nowadays widespread in almost all the activity sectors. This type of organizations poses complex problems for information and knowledge management due to the fragmentation and lack of uniformity of organizational structures, processes, practices, and technologies. The ineffectiveness of knowledge sharing over time, between project teams, is perhaps the most prominent issue that PBO must deal with. This strongly affects organizational learning, which seems to under-deliver value to PBO. Therefore, relevant knowledge is trapped in an "informational limbo" out of reach, not being capitalized for the organization. This is particularly true in research and development (R&D) institutions, where knowledge sharing can be hindered by conceptual misunderstandings resulting from different disciplines, cultures and ways of working of project participants. This paper addresses such issues by analyzing, in a comprehensive way, how information and knowledge management can better suit project team's needs and at the same time improve organizational learning. An ethnographic study, based on immersed participant observation, is performed at a Portuguese R&D Institute, in order to understand the link between the way information is managed in a project and how people interact and learn by sharing knowledge between projects. Results provide a set of enterprise information management (EIM) recommendations. Findings also suggest that a PBO-wide EIM strategy, balancing knowledge codification and personalization mechanisms, is a feasible solution to overcome the problems of knowledge sharing in PBO.

1. Introduction

Knowledge sharing is today recognized as of utmost importance to support organizational learning (Liebowitz & Megbolugbe, 2003). An organization that continuously increases its knowledge is better prepared to face the uncertainties of the organizational environment – market dynamics, economic cycles, technological escalation, and social needs – and stays competitive and sustainable. In project-based organizations (PBO), however, effective knowledge sharing remains a challenge (Bartsch, Ebers, & Maurer, 2013). PBO involve the creation of temporary systems of action for the performance of project tasks (Thiry & Deguire, 2007) where knowledge is created (Boh, 2007). The challenge of a PBO is thus to ensure effective processes of knowledge sharing and integration, within and between projects, to avoid the risk of reinventing the wheel or repeating past mistakes (Pemsel & Wiewiora, 2013). In other words, PBO need to capitalize what it is learned in each project in order to continuously improve the organizational performance (knowledge as the main resource supporting the capabilities of the organization). Trying to face this challenge, there are evidences that PBO face substantial obstacles in capturing and reusing, organization-wide, project's knowledge (Jackson & Klobas, 2008; Prencipe & Tell, 2001). These obstacles stem from the relatively self-contained, idiosyncratic and finite nature of project tasks (Bresnen, Edelman, Newell, Scarbrough, & Swan, 2003) that make difficult to adopt and deploy effective information and knowledge management strategies.

Knowledge sharing problems of PBO derive mainly from what we call the "informational limbo". Projects execution generates information at a high pace, from formal, official documents to informal, unstructured personal or group notes (Caniëls & Bakens, 2012; Prencipe & Tell, 2001). This information is usually structured and organized according to the immediate needs of the project management, being completely meaningful within the project operational and social context. Once the project ends, its context is dispersed and so it is the meaningfulness of the information structure and organization. This information loses its direct usefulness

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(the project ended) and may lack utility for other projects as its structure and organization may not be adapted to the new project contexts. Explicit and codified knowledge (information) generated in the project is then "trapped" and hardly shared between projects (Bakker, Cambré, Korlaar, & Raab, 2011).

On the other side, the project's social system is also dispersed at the project end, which means that an amount of tacit knowledge, stemming from the team social relations, is not active anymore. This is nonetheless less problematic as teams or parts of them can be reassembled in subsequent projects (Fong, 2003). However, and considering projects as contexts for intensive social activities (Wang & Noe, 2010), troubles in knowledge sharing should also be analyzed upon other behavior and social organizational concepts. The existent culture and the organizational social networks and ties can facilitate or hamper project-to-organization learning, by positively affecting motivation, opportunity and ability (Argote, McEvily, & Reagans, 2003). By reinforcing social capital, the organization can help to overcome barriers to learning that stem from project teams' lack of opportunity, motivation and ability to make project-based knowledge available to the organization as a whole (Bartsch et al., 2013).

The informational limbo is upheld by an escalation in the diversity of the information and communication technologies (ICT) available today for project management, which fosters a high speed of content creation and absorption (Karim & Hussein, 2008). Also, because of the unique and temporary nature of project tasks, the sedimentation of knowledge is difficult if the project is dissolved without conveniently document, organize, disseminate and make accessible all the generated information. On the other hand, the typical idiosyncrasies of project teams pose difficulties to the development of common understandings, which should be the basis of project's collective activities (Jackson & Klobas, 2008) and very important for knowledge creation and sharing.

Current information management principles and tools, as promoted by professional areas like Enterprise Content Management (ECM) (Päivärinta & Munkvold, 2005), and knowledge management approaches addressing tacit knowledge exploitation (Hansen, Nohria, & Tierney, 1999; Jackson & Klobas, 2008), are surely an important contribution to shrink the informational limbo. Nevertheless, the bridge between such related disciplines is still missing (Bakker et al., 2011; Bouthillier & Shearer, 2002; Coakes, Coakes, & Rosenberg, 2008). Also, very little is still reported in the literature about how ICT and information management strategies can enable effective knowledge processes of creation, transfer and sharing (Neels Kruger & Johnson, 2010).

Clearly the connection between information management, knowledge sharing and organizational learning in PBO needs to be deeper understood. Our attempt is, therefore, to bridge this gap by analyzing, in a comprehensive way, how information and knowledge management and sharing can better suit project team's needs and at the same time improve organizational learning. Following this drive, this paper reports the findings obtained through an ethnographic study within the specific and challenging contexts of projects of an R&D institution (where the creation of new and innovative products or results enhances the information overload). The goal of this research was to understand in detail the link between the way information is managed in a project and how people interact and share knowledge between projects. Findings suggest that a PBO-wide enterprise information management strategy, balancing codification of knowledge with its personalization, is a feasible solution to overcome the problems of knowledge sharing in PBO.

The remainder of this paper is organized as follows. Section 2 synthesizes the main Project Management and Information and Knowledge Management research results in the context of PBO and how they crosslink, particularly in their shared concerns about information and knowledge management in project contexts. Section 3 describes the ethnographic study applied as well as the data collection and analysis methods. Sections 4 and 5 present and discuss the empirical results, drawing meaningful recommendations for an inclusive EIM strategy for the purpose of organizational learning in PBO. The last chapter provides some conclusions and points future research work.

2. Literature review

2.1. Projects, information and knowledge management in PBOs

Projects became the most important delivery vehicle for products and services in a global economy, characterized by a strong competition and radically shrinking lifecycles (Jackson & Klobas, 2008); organizing work by projects allow organizations to respond flexibly to changing organizational needs (Boh, 2007). A project is defined as a temporary endeavor incorporating the work of heterogeneous professionals undertaken to create a unique product, service or result (Project Management Institute, 2008). Key characteristics of projects are: the significant interdependence of different kinds of knowledge and skills, the complexity and unpredictability of many tasks and problems, and the time-delimited nature of project goals and, often, of employment (Ajmal, Takala, & Kekäle, 2008). Projects are becoming more complex, requiring the integration of diffuse partners who are often physically separated and from different cultural backgrounds, and precision, timeliness and congruence of communicated meanings become increasingly important and challenging (Jackson & Klobas, 2008).

Because of their volatility, different from the usual organizational tasks, projects became an interesting informational problem: they are transient settings, most of the times using distributed resources, partial or totally virtualized in respect to interaction, involving intensive information flows, and resulting in big amounts of content to managed. IT platforms to support information management and communication are nowadays present in every project, although in different scales. Projects are frequently multidisciplinary contexts for action and its members can have several degrees of social relationships with each other, which can pose further challenges in managing information. Different professionals have different cultures and ways of working which can be conflicting with the other participants or project culture (Ajmal et al., 2008). At the same time, project teams move from one project to another usually without the time to conveniently assimilate and document all the knowledge that was acquired during the project (Bakker et al., 2011).

Although sparsely, research literature has consistently linked project management with information and knowledge management topics (Table 1). In PBO it is important that the information produced in one project will be accessible by a subsequent one, contributing to an effective knowledge sharing and linkage to avoid repeating mistakes or wasting resources in reinventing the wheel (Pemsel & Wiewiora, 2013). Nevertheless, it appears that PBO face substantial obstacles in capturing knowledge and in the re-cycling of project-based learning that stem from the relatively self-contained, idiosyncratic and finite nature of project tasks (Bakker et al., 2011; Bartsch et al., 2013; Bresnen et al., 2003).

The practical implementation of information management (IM) in organizations has been tackled, to a large extent, by the professional area of Enterprise Content Management (Päivärinta & Munkvold, 2005), having also been addressed in the research literature, although more sporadically (see e.g., Alalwan & Weistroffer, 2012). Borrowing some concepts from this area, the more specific term "EIM strategy" will be used in this paper to refer to the specification, orchestration and coordination of goals, models, processes, and technologies (EIM artifacts) for information acquisition,