



## Mechanisms for Managing Competencies in Project-Based Organizations: An Integrative Multilevel Analysis



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This paper focuses on examining the mechanisms used to manage competencies in project-based organizations (PBOs). We define project management competence (PMC) mechanisms as those used to identify and develop competencies of individuals, groups and organizations that will aid in the performance of project tasks. Based on a multiple case study within four PBOs operating in different sectors (IBM, Hewlett-Packard, Arkopharma and Temex), our results detail the three conceptual dimensions of PMC mechanisms (knowledge management, human resource management and strategy), and emphasize the links between these mechanisms and the three levels of PMC (individual, collective and organizational). We thus develop an integrative multilevel analysis of mechanisms for managing competencies in PBOs. This holistic insight does not exist in the literature and, for researchers and managers, fills an important gap to improve understanding of competence management in PBOs.

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### Introduction

In the current competitive environment, where intensive and repeated innovation plays a fundamental role (Brown and Eisenhardt, 1997; Lew and Sinkovics, 2013), projects are often the major business endeavor and the normal mechanism for executing new business opportunities (Brady and Davies, 2004; Söderlund and Tell, 2011). In project-based organizations (PBOs), the competencies are built up through the execution of major projects. On the one hand, a PBO is recognized as a learning organization, because it requires comparisons and coordinations between different competencies and allows competence development in action (Hobday, 2000; Söderlund, 2008). On the other hand, competence is appreciated as a key factor for project effectiveness (i.e., for achievement of schedule, cost and quality objectives) (Jha and Lyer, 2007; Ruuska and Teigland, 2009).

This paper focuses on examining the mechanisms used to manage competencies together with projects. From the work of Söderlund et al. (2008) and Canonico and Söderlund (2010), we define PMC mechanisms as the mechanisms used for identifying and developing competencies of individuals, groups and organizations that will aid in the performance of project tasks. We present a framework that details different PMC mechanisms and emphasizes the links between these mechanisms and the three levels of PMC: individual, collective (team project), and organizational competencies. Indeed, several authors have pointed out the need for simultaneous development of these three levels of competencies in projects (Muffatto, 1998; Frame, 1999; Gareis and Huemann, 2000; Ruuska and Vartiainen, 2003; Melkonian and Picq, 2011). In particular, Frame (1999) states that if the company focuses on only one of these levels, it will be unable to achieve the desired results. Similarly, Ruuska and Vartiainen (2003) revealed that competencies in projects must be seen as a quality of individuals, teams and organizations.

Concerning mechanisms, prior research has highlighted the need to understand those that enhance knowledge and competencies in PBOs (Kasvi et al., 2003; Crawford, 2005; Suikki et al., 2006; Söderlund, 2005, 2008; Söderlund et al., 2008; Bredin, 2008; Melkonian and Picq, 2011). In this literature, we observe three conceptual dimensions of PMC mechanisms: knowledge management, human resource management, and strategy. Nevertheless, these three dimensions are analyzed separately and disconnected from the three levels of PMC. However, these two perspectives (PMC mechanisms and levels of analysis) coexist and are interrelated in PBOs, but to our knowledge very few studies address both mechanisms and levels of competencies, especially in PBOs. According to us, nowadays it is important to have a holistic insight of different mechanisms and levels of competencies that coexist in PBOs. Söderlund (2005) also argues that competencies in PBOs must be understood in a more holistic manner. In his work, he has included the different types of project activities (generation, organizing,

leadership and teamwork). According to Lampel (2001), what is lacking is a holistic approach that gives managers an understanding of how to tackle the complexity of projects as evolving systems strongly influenced by their real-world context. In our research, the holistic insight means studying the PMC mechanisms globally — with the three dimensions (integrated) and their links with the levels (multilevel) — and not just separately. This holistic insight does not exist in the literature, and this is a significant gap for researchers and managers seeking to improve understanding of competence management in PBOs. To address this gap, the purpose of our study is precisely to reconcile these two perspectives (PMC mechanisms and levels of analysis) in order to provide answers to the central question: *How are the different mechanisms for managing competencies used in project-based organizations, and how are these articulated with competence management of individuals, teams and organizations?* More precisely: *What are the different micro-practices detailing general PMC mechanisms (knowledge management, human resource management, and strategy)? What kind of links do they maintain with the three levels of PMC (individual, collective and organizational)?* In other words, our paper aims to develop an integrative multilevel analysis of mechanisms for managing competencies in PBOs.

To address these two sub-questions, our research is based on a qualitative approach centered on a multiple case study in four companies organized by projects and operating in different sectors — including computer services, computer software, food supplements and electronic components. The four PBOs are IBM, Hewlett-Packard, Arkopharma and Temex.

The contribution of this paper is threefold. First and foremost, by interweaving these two distinct perspectives (mechanisms and levels of PMC), we propose a deeper understanding of competence management in PBOs. Secondly, our study improves each stream of research on mechanisms and levels of PMC. And third, we are able to give managers an illustration of PMC mechanisms used by companies recognized as competitive in their sector, and to propose a debate around the perfect, “ideal” project manager, this “magician manager” who would possess all necessary critical competencies for projects (Napier et al., 2009).

In the next section, we review the literature of competence management within PBOs. A distinction is made between the different mechanisms identified in the literature and the three levels of competencies required in PBOs as independent analyses of competence management in PBOs. The framework results from articulating the two analyses. We then briefly describe our research methodology. We report our findings, highlighting micro-practices detailing general PMC mechanisms (knowledge management, human resource management, and strategy) and their relations with the three levels of competencies. Finally, we discuss and comment on the theoretical and managerial implications of our research.

## Competence management in project-based organizations

Since the 90's, the study of competence management has produced a vast amount of research, due to the transversal character of this concept. Basing our assumptions on the works of many authors (Sanchez et al., 1996; Javidan, 1998; Nordhaug, 1998; Drejer, 2001; Delamare Le Deist and Winterton, 2005), we define “competence” as the ability of an individual, a collective work or a company to mobilize and combine resources (knowledge, skills and attitudes), in order to implement an activity or a given process of action. Also, we understand competence management to be the set of managerial actions taken by one organization (or more) to identify, construct and develop competencies, using one of the two modes of learning referred to as exploitation and exploration<sup>1</sup> (March, 1991).

Much like competence management, PBO has received increasing attention in recent years as an emerging organizational form (DeFillippi and Arthur, 1998; Hobday, 2000; Gann and Salter, 2000; Keegan and Turner, 2002; Lindkvist, 2004; Sydow et al., 2004; Söderlund, 2005). However, the interest for PBOs reflects a complex and multiform reality of this organizational form. Mike Hobday identifies two types of project organizations — project-led organizations, “in which the needs of projects outweigh the functional influence on decision-making and representation to senior management, but some coordination across project lines occurs” (Hobday, 2000, 878); and PBOs, where “the project is the primary business mechanism for coordinating and integrating all the main business functions of the firm (with) no formal functional coordination across project lines” (Hobday, 2000, 874). Moreover, DeFillippi and Arthur (1998) talk about “project-based enterprises” as organizations that manage production functions within a temporary project organization setting — e.g., cultural industries (film production and theatre) and professional services (public relations and event management). Söderlund (2005) calls these project-based enterprises “pure temporary organizations”, and defines them as temporary ventures designed and implemented for a one-shot and non-repetitive operation. In this paper, we will concentrate on PBO, which seems to be the most accepted term used to refer to firms that conduct the majority of their activities in project mode and/or privilege the transversal dimensions of projects more than the functional dimensions in their structure and processes (Lindkvist, 2004). More precisely, our study focuses on the activities of new product development projects (NPD) and services. The products and services considered are new for the company that develops them, but not necessarily for the markets. The innovation lies mainly in the modification of an already existing product or service within the company.

Researchers in project management and organization recognize the need for thinking simultaneously in terms of “competencies” and “projects” (Frame, 1999; Gareis and Huemann, 2000; Kasvi et al., 2003; Crawford, 2005; Suikki et al., 2006; Söderlund, 2005, 2008; Bredin, 2008; Melkonian and Picq, 2011). In this literature, we identify two completely

<sup>1</sup> Briefly, exploitation learning consists of exploiting regularities, learning through repeated practice, and makes it possible to face certain recurrent management situations. Exploration learning allows the search of new possibilities for development of competencies (March, 1991).

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