Exploring PMOs through Community of Practice Theory

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ABSTRACT ■

This article explores project management offices (PMOs) through community of practice theory. Preliminary results from a national health care case study are used to confirm the legitimacy of this approach. Today's knowledge-based economy calls for mechanisms to share knowledge. The issue of making more with less is at stake in order to reuse good practices, support innovative practice, and prevent the reinvention of the wheel. Members of these communities are at the heart of the learning process. The originality of this research is that it sheds light on PMOs in a new theoretical perspective within the field of knowledge management.

KEYWORDS: community of practice theory; PMO; community of PMOs; learning; project management practice.

INTRODUCTION ■

Knowledge management is recognized as an important issue for organizations to succeed in a highly competitive environment. Today's knowledge-based economy calls for mechanisms to share knowledge. This is particularly true in the context of internationalization of business where services or products are developed, managed, or supported in multiple countries. This is also true for national companies that compete in a global market. The issue of making more with less is at stake in order to reuse good practices, support innovative practice, and prevent the reinvention of the wheel (Glückler, 2008). For project-based organizations, this represents a major challenge, since projects are temporary organizations (Turner & Müller, 2003). Moreover, projects and project management have come to play a central role in international economic growth (Bredillet, 2007; Bredillet, Ruiz, & Yatim, 2008). Therefore, project-based organizations should be highly concerned about knowledge management. One promising approach is to explore the role of project management offices (PMOs) and communities of PMOs as a locus of learning.

From the project management literature, knowledge management can be presented based on its level of analysis: project or organizational level. Research undertaken at the project level has explored as the main issue the transfer of knowledge from one project to the other. Different perspectives have been taken, including postproject reviews (Williams, 2007), social practices (Bresnen, Edelman, Newell, Scarbrough, & Swan, 2003; Sense & Badham, 2008), and quality management (Kotnour, 2000). At the organizational level, Bredillet (2004) proposed an overview on knowledge management, organizational learning, and learning organizations. Other research has drawn attention to particular perspectives such as human resource management (Bellini & Canonico, 2008; Keegan & Turner, 2001) and the role of non-financial capital (Arthur, DeFillippi, & Jones, 2001). Some authors have looked at knowledge sharing between industries (Fernie, Green, Weller, & Newcombe, 2003), while others have examined the methods to capture and validate relevant knowledge (Abril & Müller, 2009).

Based on the PMO definition, many entities fall under the categorization that leads to the coexistence of multiple competing PMOs, particularly in large organizations. PMOs are not autonomous or isolated units within an organization but they are frequently intertwined with other PMOs in the same corporation. This is in line with results from a recent research showing an increase in the interdependencies between PMOs after a PMO structural change (Aubry, Müller, Hobbs, & Blomquist, 2009).

Parallel to this, governance has become an emerging topic. After a number of corporate scandals, guidelines for corporate governance, such as Sarbanes-Oxley Act (SOX), the Higgs report, or Basel II, were developed in order to protect investors. The aim is to reduce risk through transparency of business conduct and extended reporting requirements. Project management and its governance is a subset of corporate governance (Crawford & Cooke-Davies, 2005; Müller, 2009). PMOs are part of project governance, independent of their specific role, mandate, or location within the organization. Altogether, these entities form what has been defined in organizational project management as "a new sphere of management where dynamic structures in the firm are articulated as means to implement corporate objectives through projects in order to maximize value" (Aubry, Hobbs, & Thuillier, 2007, p. 332).

What we now observe in large organizations is the creation of communities of PMOs aimed at learning and sharing knowledge in the management of projects. These communities form one pattern of organizational project management. The community of PMOs consists of internal networks of PMOs that cross organizational boundaries. Networks can be formed implicitly or explicitly in order to create value by sharing knowledge in the management of projects.

In this article, we borrow from the theory of community of practice (CoP) (Lave & Wenger, 1991) to explore the PMOs' social networks as communities of practice. This approach offers the opportunity to build not only on the grouping role of PMOs around multiple projects but also on the practice of project management and the practitioners. This phenomenon of community of practice has already been acknowledged within the field of project management researches. A rapid look at the publications from the three specialized academic journals shows that since 2002, 40 articles on the topic have been published. Interestingly, the Project Management Association of Japan introduced the management of a community of practice as part of the project and program management (Project Management Association of Japan, 2008). However, none of these articles addresses the role of the PMOs in the making and sharing of knowledge on project management practices.

Following what has been said earlier on the current organizational context, the main objective of this research is to provide an understanding of PMOs as communities of practice. This leads to the research question "What are communities of PMOs?" and its subquestions:

• How can communities of PMOs be described?
• Do PMOs interact and if so, why?
• What are the related project governance mechanisms?
• What links PMOs and project management governance?
• Why are communities of PMOs formed?

Missing Links in PMO Performance

The review of the literature is presented in three major themes related to the research question: project management office, communities of practice, and governance.

How Do Project Management Offices Support the Circulation of Knowledge?

Past research on PMOs mainly looked at one instance at a time. Research has shown an extreme variety of PMO structure, mandate, and function (Hobbs & Aubry, 2007). More importantly, this variation cannot be explained easily and, for the moment, a reliable typology has yet to be developed (Hobbs & Aubry, 2008). Recent research confirmed temporality as a dimension of the PMO and that this temporality could be better understood within the external and internal dynamics of the organization. Results confirm that external and internal factors and idiosyncrasies drive the transformation of one PMO to the next. The temporality dimension reflects an organizational ambidexterity (Gibson & Birkinshaw, 2004) between transformation and sustainability. Both coexist in the sense that sustainability should be understood within the transformation process.

A descriptive PMO model has recently been proposed to make sense of the variety of configurations that are found in reality (Hobbs & Aubry, 2010). This model includes two main groups of elements to describe the PMO: structural characteristics and roles or functions within the PMO mandate. Organizational knowledge management refers to one specific function part of the PMO model. It includes such activities as:

• Monitor and control the performance of the PMO.
• Manage archives of project documentation.
• Conduct postproject reviews or postmortems.
• Conduct project audits.
• Implement and manage a database of lessons learned.
• Implement and manage a risk database.

The organizational knowledge management function is one of the least important when compared with others (Hobbs & Aubry, 2007). This low result should be looked at in the light of other research undertaken on knowledge management at the project level. Williams (2008), for example, showed that project team documentation on lessons learned was poorly done. Often, members of a team are dispatched to a new project prior to the closing of the current project. It is well acknowledged that lessons learned are a good means to transfer knowledge, but it is usually not performed.

However, there is another perspective when looking at knowledge management in the context of the PMO.

Exploring PMOs Through Community of Practice Theory

Seminal work from Nonaka and Takeuchi (1995) proposed a framework based on the distinction between explicit knowledge (e.g., documents, patents, statutes) and implicit knowledge. Implicit knowledge refers to the individual know-how as a capability or competence to solve problems. This knowledge is difficult to articulate or explain and, therefore, hard to transfer in the pure sense of duplication (Gertler, 2003; Nonaka & von Krogh, 2009). Within projects, explicit knowledge can often be related to the project life cycle (Project Management Institute, 2008). However, tacit knowledge is created as learning (Kotnour, 1999), focusing on the active actor being responsible for its own progression instead of focusing on the object of knowledge (J. S. Brown & Duguid, 2001). In other words, "people do not simply learn about, they also learn to be" (Bruner, 1996, as cited in J. S. Brown & Duguid, 2001, p. 200). Learning in action (rather than after the fact) puts the practice at the front.

The basic definition of a PMO refers to the relation with multiple projects and, as such, a PMO is involved directly or indirectly in the practice of the management of unique projects or in the practice of one or multiple functions as defined within the PMO model. The new phenomenon of multiple PMOs working together raises questions about knowledge, learning, and practice in the social networks of project managers.

Organizational Learning: A Community of Practice Approach

Definition. A *community* is defined as a group of people with common characteristics or interests living together within a larger society, while *practice* is defined as the continuous exercise of a profession (Merriam-Webster, 2007). The community of practice theory was introduced as a theory of learning from studies of apprenticeship. The initial thoughts on communities of practice have emerged from a profound questioning on the learning process that is

the object of the seminal book from Lave and Wenger (1991). These authors proposed the concept of situated learning as a legitimate peripheral participation within a theoretical perspective of social practice, which includes learning. They write, "We are, then, trying to furnish the social world in a way that begins to do justice to the structured forms and relations in which legitimate peripheral participation takes place. Relational, historical conceptions have emerged from this exercise, and this decentering tendency is characteristic of the means we have explored for grasping 'person,' 'activity,' 'knowing,' and the 'social world'" (Lave & Wenger, 1991, p. 122). The person is considered as a practitioner involved as both a member of a community and as an agent of activity. The person dynamically progresses (as does the community) from a newcomer to becoming an old-timer, leading to what can be seen as a contradiction between achieving continuity for the community of practice on one hand and the replacement of old-timers on the other. Within the situated learning activity, transformed in legitimated peripheral participation, newcomers move in a centripetal direction under their motivation to become full practitioners. Knowing is a social reality where participation is a way of learning. It takes the form of "relations among practitioners, their practices, the artifacts of that practice, and the social organization and political economy of communities of practice" (Lave & Wenger, 1991, p. 122).

Wenger and Snyder (2000) proposed to define communities of practice as "groups of people informally bound together by shared expertise and passion for a joined enterprise" (p. 139). Communities of practice are now entering the virtual mode, making use of open communication technology such as wikis, webinars, blogs, and the like. For example, the Project Management Institute recently launched eight communities of practice through its website (Project Management Institute, 2009).

Yet, a community of practice is anchored in learning. It adopts an integrative constructivist epistemology where different types of knowledge (tacit, explicit, individual, team/organizational) are seen as inseparable and mutually enabling (Bredillet, 2004). Bredillet writes, "Thus knowledge can be seen as an input of knowing, and knowing as an aspect of our interaction with the social and physical world, and therefore the dynamic interaction of knowledge and knowing can generate new knowledge and new ways of knowing" (Bredillet, 2004, p. 1114). It is opposed to the more traditional positivist epistemology that assumes knowledge is something people have.

Community of practice and other types of groups. Distinction between different types of groups is proposed by Wenger and Snyder (2000, p. 142). The PMO community of practice is distinct from a formal work group from which specific outcomes are expected, from a project team from which deliverables are expected within a specific budget and period of time, and, lastly, from an informal network formed loosely between employees that share some common interest. While this grouping is useful to distinguish between different groups encountered within the organization, it misses major learning fundamentals based upon the community of practice theory. Bredillet (2004) suggested a typology to distinguish a community of practice and project team based specifically on the learning experience. Following Bredillet (2004), members within a community of practice "learn by participating in the community and practicing their jobs" (Bredillet, 2004, p. 1130). Conversely, in a project team, "members practice their jobs and learn by participating in the project team. Project team is a place where knowledge is created, where members learn knowledge that is embedded, and where knowledge is utilized" (Bredillet, 2004, p. 1130). Knowledge occurs in project teams as well as within a community of practice.

Community of practice is an emergent concept, and multiple forms are found in reality. Scarbrough and Swan (2008) argued for accepting diversity in the forms of communities of practice. They see the concept of the community of practice as denoting not a discrete social grouping but rather historically specific expressions of the self-reinforcing relationships between learning, identity, group formation, and social practices. They have shown that the project team and community of practice represent different sources of learning and that they overlap, reinforce, and sometimes conflict, depending on the relation between project work and existing social practices.

Managerial paradox. However, precisely with the wide diffusion of the concept comes a sort of distortion of the initial thoughts (Duguid, 2008a; Lave, 2008). Duguid (2008a) pointed out that the community of practice is now an instrument of management: "We also get a theory that appeals strongly not only to business schools, but also to management consultants: it is instrumental, operational, and promises only beneficial results" (p. 7). Initial thoughts on learning as improvisation and autonomy are forgotten and replaced with just the contrary: to follow the rules and avoid any improvisation (Lave & Wenger, 1991; Wenger & Snyder, 2000). Duguid (2008a) saw in this managerial approach to the community of practice the traditional but still strongly alive of the Taylorism where control overcome any form of improvisation and autonomy. In this sense, the community of practice can be said as being rapidly domesticated (Duguid, 2008a, p. 7). Nevertheless, Duguid (2008a) and Lave (2008) both admitted that, as any other construct, this one is following its own itinerary.

An example of managerial domestication of the community of practice is given within Wenger and Snyder (2000). They promoted communities of practice as a new managerial instrument to reach business results such as helping to drive strategy, starting new lines of business, and so on. They defined communities of practice as fundamentally informal and self-organizing, and at the same time, they benefit from cultivation. For these authors, cultivation refers to supporting communities of practice and sustaining them over time. This is where the management paradox comes in: on one side is the emerging and self-organizing inherent character of the community of practice and on the other side the managerial involvement in developing them and integrating them into the organization. In this context, up to what point is a community of practice not becoming a formal working group?

One other dimension of this paradox relates to knowing *what* and knowing *how*. In community of practice theory, codification of knowing *what* in an artifact is possible. However, the knowing *how* needs practice to make it actionable (Duguid, 2008b). This paradox frequently takes the form of best practices diffusion. Best practices refer to explicit knowledge that can be transferred from one organization to the next. But, what is critical in knowledge is not so much the *what* but the *how*: "[. . .] the explicit is worth relatively little" (Duguid, 2008b, p. 81). To solve this paradox, best practices should be re-embedded within the community.

Managing Situated Learning: The Governance Challenge

From an organization theory perspective, this development resembles the *time-paced evolution in relentlessly shifting organizations,* as described by S. L. Brown and Eisenhardt (1997). This theory migrates the well-established theories of punctuated equilibrium (such as agency theory and transaction cost economics) into the dynamics of today's organizations and their markets using the structural and communication approaches of successful companies. Results from this research show that successful organizations use neither extremely mechanistic nor

extremely organic structures, but adapt their structures to the projects' needs, combined with intensive communication across projects (also shown by Turner & Müller, 2004). S. L. Brown and Eisenhardt (1997) showed that process-oriented project management approaches (i.e., those prioritizing process over project outcome) are associated with less successful organizations, whereas outcome-oriented approaches are associated with the more successful organizations. This may serves as a starting point to investigate the current move from control-oriented PMOs to project-outcome and results-oriented PMOs, and the roles of PMO networks in this type of project governance structure. The theoretical lens taken in the present study is that of S. L. Brown and Eisenhardt (1997), where organizations continuously change and so do their structures—PMO networks develop in order to effectively and efficiently balance the changing needs for project management governance within corporations.

Recent work by Müller (2009) identified governance paradigms through integration of governance theory and organization theory. By overlaying the shareholder versus stakeholder orientation of an organization (Clarke, 2004), with outcome control versus behavior control (S. L. Brown & Eisenhardt, 1997; Ouchi & Maguire, 1975), four project governance paradigms were identified. Table 1 shows the related paradigms.

The *Conformist* paradigm ensures strict compliance with existing processes, rules, and policies in an attempt to ensure lowest project costs in environments with a relatively homogeneous set of projects. Here tactical PMOs implement one particular project management methodology within the organization. The *Flexible Economist* paradigm aims for low project costs through a well-informed selection of project management methodologies that ensure economic delivery by only marginally compromising other success criteria. PMOs working in these

Exploring PMOs Through Community of Practice Theory

Control Focus	Shareholder Orientation	Stakeholder Orientation
Outcome	Flexible Economist	Versatile Artist
Behavior	Conformist	Agile Pragmatist

Table 1: Four governance paradigms (Müller, 2009).

environments build a range of skills and a toolbox for project managers to use. Under the *Versatile Arti*st paradigm, the benefits are maximized by balancing the diverse set of requirements arising from a number of different stakeholders. PMOs support project managers in the development of new or tailoring of existing methodologies, processes, or tools to balance economically the diversity of requirements. Organizations subscribing to the *Agile Pragmatist* paradigm maximize usability and business value of a project's product through a time-phased approach to product release of functionality over a period of time. These projects often use Agile/Scrum methods, with the sponsor prioritizing deliverables by business value over a given time frame. These organizations rarely have PMOs, but if they do, the PMOs perform tactical process improvement activities (Müller, 2009).

Governance paradigms differ within larger companies and are contingent upon the idiosyncrasies of the different organizations that make up the company. The limits to project governance are set by the corporate governance framework and the legitimacy of actions within the social context (Müller, 2009). Communities of PMOs can thereby be made up of PMOs with very different charters.

Toward a Community of PMOs Approach

This section proposes a conceptual framework for the study of communities of PMOs within large organizations. Within an organization, a community of practice of PMOs can be defined as a group of people (PMO managers or employees) informally bound together by shared expertise and passion for a joint enterprise. In other words, it offers a platform for learning to experienced members and newcomers. It forms a community in the sense that members share a common interest and passion for the success of projects. It is oriented toward practice.

The raison d'être of any PMO, whatever its functions or structural characteristics, is mainly associated with projects. But what is a community and what is a practice when considering the PMO as a community of practice? The practice of project management is at the heart of a PMO's community, but the PMO practices are specific and differ from the project management practices. The former refers to the functions within the PMO model (Hobbs & Aubry, 2010), while the latter refers to managing a single project as described in Bodies of Knowledge (Association for Project Management, 2000; Project Management Institute, 2008). About half of all PMOs do include project management as their primary function (Hobbs & Aubry, 2007). The object of learning in a PMO community of practice may bear on the management of a single project or to a PMO's specific set of functions.

Members of a PMO community are the ones who believe in and have a passion for the project management practice. It may include people working within the PMO as a manager or employee, or people working within a single project, including a project manager, project controller, and others involved in project work. Interest and expertise surely differ when considering the management of a single project versus PMO functions. This may lead to the coexistence of multiple networks. It is already acknowledged that each project can be seen as a social network that crosses the hierarchical boundaries of the organization (Blackburn, 2002). Adding to these project networks are the ones related to a community of practice. As PMOs show a wide variety of configurations, communities of PMOs might as well show this diversity where practices will differ depending on PMOs' functions and characteristics. By participating in project management governance, these PMOs form either one or multiple networks. Understanding these networks by means of their relationships will shed light on the global picture of organizational project management.

The suggested conceptual framework for this research is proposed in Figure 1. It is not expected that this framework will cover the overall phenomenon of communities of PMOs, but it will be helpful in capturing basic components from the review of the literature. The first phase of this research is based upon case studies that will provide new data to enrich this model (see the Methodology section).

Research Design

The network of PMOs is our unit of analysis, as it represents a formal and idiosyncratic articulation of project management in multiproject organizations. Robustness in empirical research design puts emphasis on mixed-method approaches. This research design combines the advantages of case studies, qualitative and quantitative methods, and social network analysis. This approach offers the opportunity to gain alternative access to empirical observations. Triangulation (Jick, 1979) will allow us to minimize method-specific biases in the analyses (Miles & Huberman, 1994). In addition to the descriptive results from the cases and mixed methods, the subsequent social network analysis will account for the dynamics and structure of the phenomenon under investigation. The strategy
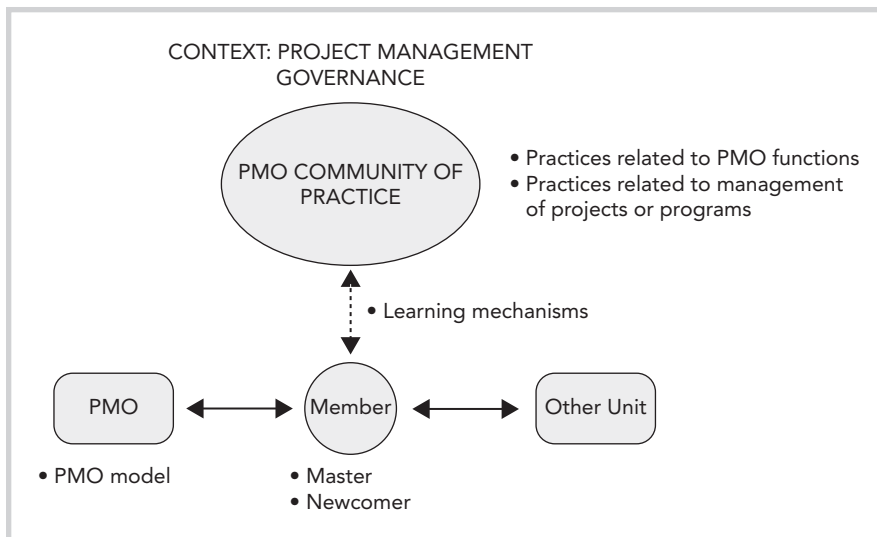
Figure 1: Conceptual framework for communities of PMOs.

to accomplish the goals for this research includes three phases.

Phase 1: In-Depth Case Studies

The starting point to a better understanding of a complex phenomenon is a case-based grounded theory approach (Corbin & Strauss, 1990; Yin, 2003). We propose to describe four case studies, each one being a large organization where there are multiple PMOs, including interviews with 10–15 persons from upper management to project managers. As shown in Table 2, the choice of the organizations accounted for diversity in countries (North America, Europe, and Asia), industries (health care, manufacturers, telecommunications, banking), and financial structures (private, public, and mutual).

Globally, the research design provides a strong mix of similarity and diversity (Eisenhardt, 1989). The result will be a rich description and a map of related components of organizational project management within their dynamic context and in different cultural settings. At the time of submitting this article, one case study had been completed, and two were in progress.

Phase 2: Social Network Analysis

In phase 2, the selected corporate case studies will be analyzed by means of a social network analysis (SNA). The basic approach of SNA is to construct topological networks and analyze the positions and roles of individual nodes, as well as the overall structure of linkages within the network. Generally, a social

network "is a specific set of linkages among a defined set of persons, with the additional property that the characteristics of these linkages as a whole may be used to interpret the social behavior of the persons involved" (Mitchell, 1969, p. 2). This methodology uses relational information about the connections between actors, projects, and organizations to assess the specific structures and social opportunities that these structures convey (cf. Scott, 2000; Wasserman & Faust, 1994, for a detailed introduction).

Within organization science, methods of social network analysis have been increasingly applied to studies of knowledge management and knowledge transfer within large organizations (Reagans & McEvily, 2003; Tsai, 2001), informal governance (Lazega, 2001; Lazega & Pattison, 2001), and the geography of innovation (e.g., Almeida & Kogut, 1999; Breschi, Lissoni, & Montobbio, 2007; Powell, Koput, & Smith-Doerr, 1996; Sorenson & Waguespack, 2005). Within the project management field, research based upon the social network analysis is now produced using methods of social network analysis (cf. Brookes, Morton, Dainty, & Burns, 2006; Manning, 2005; Mead, 2001; Pryke & Pearson, 2006). So far, research into the new realities of project management and the highly interwoven webs of project management offices have not been the focus of network analysis. It is a central tenet of this study that a more profound examination of the relational structures of projects and PMOs in large organizations will benefit from the application of SNA.

Phase 3: Synthesis and Validation of Empirical Findings

This phase integrates results obtained from empirical data in the two previous phases. By integrating the results, this phase should offer the possibility of finding revealing patterns across and between organizations of the same and different industries. The results will be validated through a combination of

	Case #1	Case #2	Case #3	Total
Geographical location	North America	Europe	Asia	3
Economic sector	Health Care	Telecommunications	Manufacturing	3
Number of PMOs investigated	11	7	5	23
Number of interviews	21	7	10	38

Table 2: Case studies description.

focus groups consisting of managers of organizations with similar PMO networks (or patterns), and subsequent working sessions with senior managers from diverse industries that will (a) validate the cross-industry findings and (b) foster cross-sectional learning of the participants.

Data Collection and Data Analysis Strategies

We used a multiple-case design, which implies replication logic (Yin, 2003) within which a case is treated as an idiosyncratic expression of the phenomenon under study. We gathered information from several layers of the management hierarchy and incorporated company- and industry-level forces and circumstances. Data for the case studies are collected through inter-

views, questionnaires, observations, and reviews of existing documents. Each case will be described and internally analyzed before cross-case analysis takes place, following Eisenhardt (1989).

Then, following Miles and Huberman (1994) and Eisenhardt (1989), we will do cross-case analysis to develop the underlying concepts. While this will be done without underlying hypotheses, there will be a steady back and forth between the cases and the identified concepts in order to ensure that the concepts are consistent with the data (and valid).

The interviews done as part of the case study will follow a grounded theory approach for each individual case. In line with the abductive approach described for the cross-case analysis,

the grounded theory approach will follow the Strauss and Corbin (1998) school. This implies an analysis after each individual interview and a continuous comparison approach to identify commonalities, as well as ruling out one-time events, thus ensuring a robust theory.

In addition to interviews, questionnaires have been completed within the SNA approach. Questions relate to PMOs, projects within the mandate of the PMO, and employees working on these projects. Altogether, the data collected will lead to the representation of social networks.

Preliminary Results From a Health Care Case Study

This section presents the results from a health care case study through exam-

Name of the Organization Within the Healthcare Network	Number of Interviewees	Precisions Regarding the PMO	SNA Questionnaire		
			Number of Projects Surveyed	Number of Employees	Total Number of Projects in 2008
IT Department Within Ministry	2	No PMO as such; functions are assumed within the financial division	12	12	25
Personal Health Record Project	2	PMO including three units	6	9	18
IT Supplier	2	PMO	11	11	35
Regional Agency 01	2	PMO recognized externally as a success but decision taken to dismantle it	13	14	13
Regional Agency 02	1	Small number of people	N/A	N/A	N/A
Regional Agency 03	2	PMO in a transitory situation	N/A	N/A	N/A
Regional Agency 04	4	PMO within IT department but is on the way to creation of a PMO at the strategic level	11	11	56
Regional Agency 05	2	PMO in IT department	11	4	51
Local Level 01	2	PMO within IT department but involved in business decisions	5	35	N/A
Local Level 02	2	PMO specialized in real estate	N/A	N/A	N/A
Total	21				

Table 3: List of participants from health care organizations.

ples of situated learning from two PMO communities of practice. The first one refers to a PMO coordination committee that has been put in place at the ministry level, the second relates to a PMO within a regional center that interplays with other PMOs at the regional level and PMOs at local centers. Table 3 gives more details on participants from health care organizations that participated in this study.

Description of the National Health Care Network

This case describes the social networks between PMOs within a national health care system. The major particularity of this public case study is that the entire system constitutes a network of quasi-autonomous organizations spread over three structural layers: national, regional, and local. A first hierarchical look at this national health care network is illustrated in Figure 2. Boxes in bold indicate the units that were investigated within this research regarding their PMO. At the national level, three PMOs were investigated: (a) a PMO dedicated to a major national project; (b) a PMO within the information technology (IT) department; and (c) a PMO within the IT dedicated supplier. At the regional level, four PMOs have been investigated. At the local level, four PMOs were explored, one located in a first university hospital and three in a second university hospital. Projects can be initiated at each of these three levels. National and regional projects are financed by the national health budget. The distribution of the regional envelope through the local institutions is under the mandate of each regional agency. Local projects can be financed by this envelope but also by local financing (e.g., a hospital foundation).

A second contrasted look can be presented from the same case study, this look obtained from the SNA approach (see Figure 3). The intent of presenting this figure is not to provide an in-depth interpretation through SNA, but rather to propose a first explo-

ration of the potential of this approach to complement the case study. Network (a) displays the collaborative linkages between the seven focal PMOs. PMOS are focal (black) if they responded to the survey. Six PMOs maintain collaborative relationships, while one PMO operates in isolation. Network (b) illustrates the number of projects (grey) reported by each of the seven PMOs (black). Note that only three projects were realized under joint responsibility by two PMOs. These projects are so-called cut points in the network because their removal would cause the network to break up into isolated groups of projects. Networks (c) and (d) represent the project networks based on two different criteria of connection. Network (c) converts the bipartite network (b) into a network of projects where projects are connected based on the joint support by the same PMO. Network (d) connects projects based on the co-occurrence of project members. Whenever a team member has worked in two or more projects, these projects receive a link between each other. In contrast to one PMO, where all projects are interconnected through at least one joint member, most other projects are separated though they belong to the same PMO.

Situated Learning at the National Level

Many waves of restructuring have been going on in the last few years trying to make better use of limited resources. The last major reorganization occurred in 2004 and affected the entire health system, adopting at the same time more rigorous governance rules and, among others, the establishment of better performance indicators. Numerous projects were then undertaken, some of which needed to be managed in a coordinated way throughout all regions. One of these cross-regional major projects was the implementation of a personal health record (PHR). It is being developed at the ministry level, but the resulting solution will affect each regional, local center and

health establishments. Moreover, the success of this project is not uniquely technological. New processes need to be developed, and the implementation will need formal change management. In this perspective, a recommendation from the ministry was made to implement a PMO in each regional center. From the national level, a generic organizational structure model has been strongly proposed for the regional centers that suggests the existence of a PMO within the IT department. However, this model has many variations depending upon the size of the region (population) and its current project management assets.

In addition to the implementation of PMOs at the regional level, two committees have been created at the national-level grouping: (1) all regional project managers responsible for implementation (the *project managers committee*) and (2) all regional PMO directors (the *PMO coordination committee*).

The PMO coordination committee is managed at the national level by the IT department. The short-term objective of this committee is to facilitate the implementation of the PHR project. But it also has a long-term objective of implementing a coordinated project management over all health care institutions, crossing all the regional and local borders. This second objective is the equivalent of implementing a national portfolio management. Both objectives would be unreachable if undertaken without the full engagement of the regional and local institutions.

Eighteen people participate in the PMO coordination committee. The PMO director within the IT ministerial department is the initiator and is responsible for the PMO coordination committee. He is in charge of the administrative support, the logistic organization, and the fees related to the face-to-face meeting. PMO directors from the 18 regional agencies are important members. Their level of expertise varies widely, from many years in PMO management to almost new to

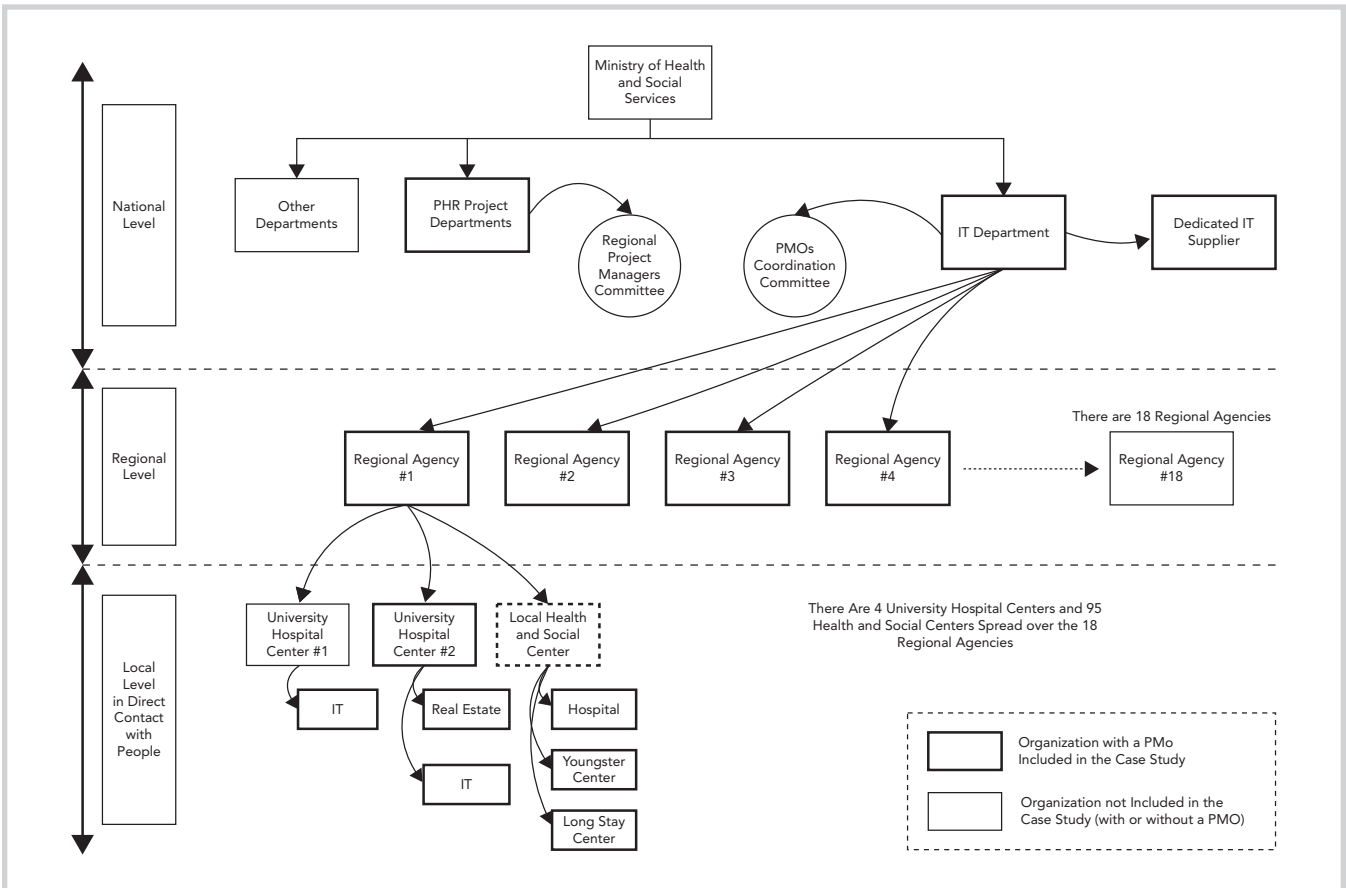# Exploring PMOs Through Community of Practice Theory

Figure 2: The three layers of national health care organizations.

(a) The network of PMOs

(b) The PMO-project network

(c) The project network (PMO-managed)

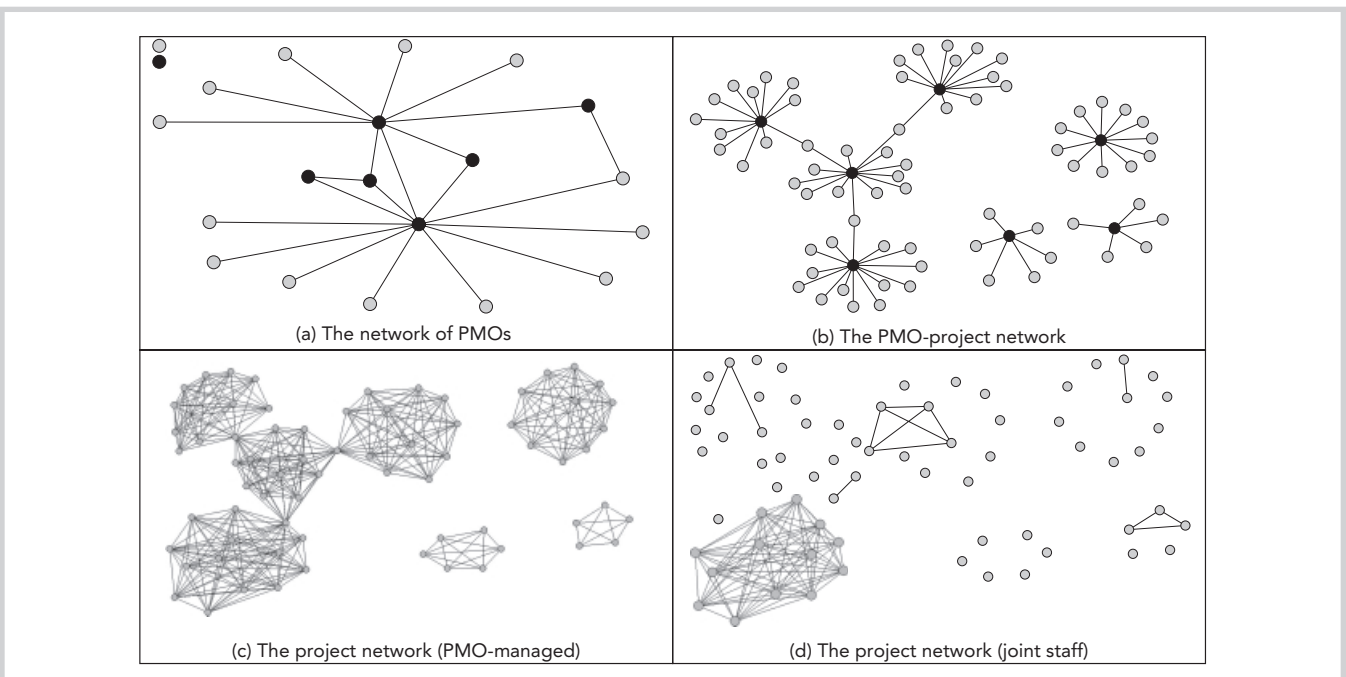(d) The project network (joint staff)

Figure 3: The networks of projects and PMOs in the national health care organization.

the project management profession. These members reflect the terms *newcomers* and *masters* in the language of community of practice (Lave & Wenger, 1991). From interviews, masters describe themselves as having a distance in front of others, which seems to be acknowledged by newcomers. Masters want to share; they have the taste of it, and they like to share their own experiences. Other members of this committee come from the IT department, the dedicated providers, and the PHR project.

There are very practical objectives from this committee, such as project management methodology and processes, project management software tools, templates, and so on. A national project portfolio embryo is also in construction. The agenda aims to produce all that is needed to succeed in the implementation of the project. A list of requirements has been first established with the members and priority assigned. On a voluntary basis, members are part of subcommittees that work on specific deliverables—for example, the granularity of the methodology and the details needed for each level. The current practices in regional agencies are put together to orient the future. It is not only a matter of sharing actual practices; it is also expected that working together will bring solutions further along from where they actually are. The work done in subcommittees is then presented at the committee for consensual decision. At the end of the process, the project management environment in health care will have been discussed and will be the result of consensus. Outcomes (e.g., templates, risk management process) are progressively available for every regional PMO to make use of it and experiment it. Feedback is then taken into consideration for the next version.

This committee could also be defined as a virtual community of practice because not all members are located in the same area in their daily work—quite the contrary. Members are widespread over the national territory. They share a common position as all members are PMO directors or the equivalent. However, they differ when taking into consideration the regional context and their relative experience in the implementation and management of a PMO. Members of the PMO coordination committee meet face-to-face once a month, or less depending on the agenda. All interviewees referred to this committee when they were questioned on PMO communities of practice.

Two different learning mechanisms can be observed within this PMO coordination committee (see Table 4). There is no doubt that the PMO coordination committee has been decided at the ministry level with the aim of succeeding in the implementation of the PHR. Therefore, it is quite far from the initial concept of community of practice where practice is at the heart of a community (Lave & Wenger, 1991). The approach is rather one of instrumentalism of the concept and integrated as a management tool as pinpointed recently by both Duguid (2008a) and Lave (2008). However, the PMO coordination committee forms a real social network that aims to construct new knowledge from established practices within regional levels. It also plays a role in disseminating practices from the master to the newcomers. The objective here is to identify the events that provide a group learning situation, even if they refer to an actualization of the initial concept of community of practice.

The second learning mechanism from the PMO coordination committee is the creation of new networks. One single case has been reported during interviews, but more may exist. Three PMO regional directors decided to work together outside of the committee. Even though they did not know each other before the committee was put in place, common interest has been identified between them. They quickly recognized that they shared a common way of looking at PMO problems and solutions outside the scope of the PMO coordination committee. So, they identified a few of these elements and met several times to

Learning Mechanisms	Person Directly Involved	Object of Knowledge
Participation in the PMO Coordination Committee	PMO director within the IT department at the national level	PMO implementation
		Standardization of processes; tools
	PMO directors (or the equivalent) from the 18 regional agencies	Common language
	Internal experts	Not reinventing the wheel
	Consultant that provides methodology and associated tools	Inventory of projects at regional and local levels (portfolio embryo)
	PMO director from the PHR project	
	PMO director from the dedicated IT supplier	
Creation of New Networks (Outside the Committee)	Three PMO directors at regional agency	Sharing on solution

Table 4: Learning mechanisms from the PMO coordination committee.

work out solutions together. This approach is more in line with the initial approach of a community of practice. But it would have no chance to happen without the opportunity given by the PMO coordination committee.

Situated Learning at the Regional Level

The regional centers have a mission to maintain and improve the health and the well-being of their population and to provide people with adapted access to health and social services. The regional center under study coordinates 16 local health institutions. The governance mechanisms other than the internal instances (such as the board) include four consulting regional committees, one of which recently formed to work specifically on IT orientations.

A PMO has been put in place prior to ministerial recommendation. The regional center organizational chart shows the PMO as an entity responsible for a high-priority project financed by the Ministry, the PHR. This PMO has five employees, of which four are project managers, with a majority of them being consultants. A dynamic climate existed within the PMO. A common working room was installed with many technological features helping in the group work (Internet link, e-board, etc.). The PMO from this regional center was cited throughout the health care network as a PMO success story. However, the PMO's reputation of excellence did not prevent its dismantlement. At the time of these interviews, there was one week left in the life of this PMO. The aim of this article is not to discuss the structural change in the management of projects within this regional center, but it must be taken into account in the discourse.

Five learning mechanisms could be identified from the analysis of the interviews at this regional agency (see Table 5). First, the PMO director participated in the PMO coordination committee. At the implementation of their own PMO, they received advice and support on the methodology proposed by the Ministry. Now, they are perceived as being a PMO model of success. They have implemented a PMO for a longer period of time than other regional entities. They share their regional experience within this committee with PMO directors from other regional agencies.

The second mechanism relates to the internal regional agency organization. The regional center PMO, at the time of interviews, was under the finance department. The major project within the PMO mandate was the PHR for which a special expertise was needed. An employee from the IT department had this expertise precisely. Not only did this employee have the opportunity to join the PMO as a project manager, but he also had experience with the methodology and tools and constructively challenged them. The fresh look from this newcomer to the PMO resulted in improved methodology and tools.

Third, the mission of this PMO is to accompany and support the project management within the region—in particular, projects that are undertaken in local establishments to implement the PHR project. Two large health centers exist in this particular region. One is a university hospital and the other is a youth center. Each one has several projects, but in fact, the university hospital grabs the largest part of the regional budget envelope. A PMO already existed at the university hospital center. The relationship between this PMO and the one at the regional center mostly involved directors of these PMOs and aimed at sharing experiences informally.

The fourth learning mechanism belongs to the relationship between the youth center and the PMO at the regional center. This situation is quite different from the previous one where the youth center was looking for support in the implementation of its first PMO. A senior

Learning Mechanisms	Person Directly Involved	Object of Knowledge
Participation in the PMO Coordination Committee	Director of the PMO	Obtain knowledge on specific methodology
		Share experience on this methodology and other project management tools and systems
Newcomer to the PMO	Project manager within the PMO and a new project manager from the IT department	Experiences by a newcomer of the PMO methodology and tools in order to improve them
Ad-hoc Meeting	PMO director at the regional agency and the PMO director at a local establishment	Sharing experiences in PMO management
Action Within the PMO Mission: To Accompany Project Management	Senior project manager at the regional agency PMO and PMO director at a local establishment	Transfer of knowledge in implementing a PMO
Isolated Island	Clinical experts and IT project management experts	Management of clinical projects

Table 5: Learning mechanisms from a regional center.

project manager from the regional center PMO worked closely with the new PMO director at the youth center to accompany and support her in this new PMO implementation and in the related cultural change.

The last learning mechanism challenges the well-being of a community (Lave & Wenger, 1991). In the overall health care system, projects and PMOs are widely associated with IT, reasons for this being the history of project management and the importance of the IT budget over all other project components. However, within the health care system, IT projects should not have legitimacy if not related to a clinical raison d'être. Recently, in this particular regional agency, the clinical experts are trying to assume the project leadership, and in doing so, pushed aside the IT experts who have the project management expertise. The result is that clinical experts have formed a regional working committee on specific projects where they do take major orientations for project in a kind of *isolated island.* There is neither an IT representative on this committee or a project management expert. Consequently, this creates some confusion in the implementation of solutions and all the knowledge developed in project management has been forgotten.

Discussion and Conclusion

The national health care case study included rich data that helps understand how a community of PMOs works.

Community and Practices

The examples presented show two different situations to observe both the sense of a community and the practices. The first one, the PMO coordination committee, has been created officially under a top-down by the IT department in an instrumental view of a community. However, a learning mechanism occurred; the participants manifested their passion to share and learn from each other. Practices were mostly oriented toward the PMO's functions, such as methodology and standards and portfolio management. In the second example, learning mechanisms emerged bottom-up from the participants. Practices varied depending on the need from managing one specific project, helping in the implementation of a PMO, and sharing in the management of a PMO.

Network of Practice

In the field of project management, the term *community of practice* is used openly in all sorts of situations either intraorganizational (e.g., communities of practice for project managers) or interorganizational (e.g., communities of practice within a local PMI chapter specifically on construction projects, PMOs, etc.). The interpretation of what a community of practice is depends on the nature of the community itself; it is, therefore, a product of the community of practice (Duguid, 2008b). Duguid (2008b) went back to the earlier approach on apprenticeship and suggested a distinction between communities of practice and networks of practice. These are two forms of knowledge networks that may coexist within large organizations. The distinction is based upon learning *to be* versus learning *about:* "The former requires knowing *how*, the art of practice, much of which lies tacit in a community of practice. Learning *about* requires the accumulation of knowing *that*, which confers the ability to talk a good game, but not necessarily to play one" (Duguid, 2008b, p. 77). Explicit knowledge contains only partially the knowledge embedded in the community of practice. In this perspective, face-to-face interaction is almost necessary to access the knowing *how.* However, Duguid (2008b) proposed the concept of *network of practice* to take into account wide practice sharing within large and decentralized organizations: "The *network* of practice designates the collective of all practitioners of a particular practice" (p. 78). Practices and tools (know what) from the network of practice are then reintroduced in a process of embedding at the local level (know-how) and within a local community of practice.

Community of PMOs and PMOs in Transition

A community of practice lasts as long as the interest is vivid within its members. But a question arises when the short life of PMOs is considered, as shown in the specific case of the national health care organization. What happens to the knowledge and the learning activity going on within existing communities of practice? What happens to the community? What happens to the practice? The PMO transition challenges the concept of situated learning where the history of a community of practice is taken into account. What happens to the masters? Is the commitment maintained over transformation of the situation? Future research should address these questions. Therefore, knowledge management within organizational project management should directly correlate with the challenge of the economic-based economy.

Variety of Communities of PMOs

As PMOs show a wide variety of configurations, communities of PMOs might as well show this diversity where practices will differ depending on PMO functions and characteristics. Practices are tightly linked to the functions PMOs perform. From the present case study, the more visible differences regarding practices are related to project management practices, as well as the more specific PMO functions. Learning mechanisms seem to be differentiated based on the persons involved and on the object of knowledge.

Cultural Influence

Communities of practice are embedded in the cultural life in which they evolve (Lave & Wenger, 1991). There is no single definition of culture, but following Henrie and Sousa-Poza (2005), we adopted Hofstede's definition: "the collective programming of the mind which

distinguishes the members of one group of category of people from another" (1997, p. 5). In our research, cultural groups could be identified at two levels: the country and the communities of PMOs.

At the country level, this article examines communities of practice within a single-case study. Four organizations have been targeted as part of our data collection design. They were chosen for their cultural diversity in terms of: (1) countries (four); (2) private (two)/public (one)/mutual (one); (3) industry (health care, manufacturing, telecommunications, and banking); and (4) physical (three) and virtual PMO (one). To that end, we contextualize the case—analyses within cultural commonality as opposed to cultural differences, especially as neither case studies by themselves nor the sampling approach chosen would allow for more than speculative results about cultural influences or differences (i.e., one data point per country). When the full data collection and analysis is done, this cultural aspect will be taken into consideration.

The cultural aspect should also be taken into account within the communities of PMOs. As shown in the health care case, communities of practice allow individuals from different internal or even external units to participate in a common social network. Even within the same type of organization and the same country, each of these individuals comes from a culturally different mindset within their own local innovation field (J. S. Brown & Duguid, 2001). Cultural issues seem to play an influential role in the knowledge dynamic process within communities of practice.

In conclusion, preliminary results from this research seems to shed light on the role that PMOs can play as drivers of knowledge management within organizations. Qualitative case studies within the national health care network described previously illustrate the interplay between PMOs being part of communities of PMOs. Multiple social networks have become visible in sharing concrete practices within learning mechanisms. More work still needs to be done. Yet, results from this research confirm that the community of practice theory presents legitimacy in the study of knowledge management within organizational project management. ∎

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