THE IMPOSSIBILITY OF MANAGING KNOWLEDGE: THE PRACTICE PERSPECTIVE

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Abstract

The field of knowledge management has developed quickly over the last decade and the literature on the topic has demonstrated increasing diversity and specialization (Easterby-Smith and Lyles, 2003). In this development, some scholars have raised their concerns about the concept knowledge management, pointing out its ambiguity (Scarbrough and Swan, 2001), the controversies around it (Swan and Scarbrough, 2001a), and its contradictory nature (Alvesson and Karreman, 2001).

This paper presents one more critical view of the knowledge management concept by relying on the practice perspective. From the practice perspective, it is argued that knowledge is defined as embedded in situated practices of individual; it is self-managed by situated practices of knowledge production and reproduction (Gherardi, 2000), and learning is conceived as a way of becoming part of a social world, which is a system of situated practices (Gherardi, Nicolini, and Odella, 1998). It is impossible to manage knowledge by non-practitioner managers, who does not participate in the situated knowledge creation and sharing. In this paper, we define management as composed of two modes of intervention: coordination and control (Alvesson and Karreman, 2001). Our argument is supported by an empirical case study.

Our methodology is practice-based (Nicollini, 2009). We investigate the management activities of five knowledge managers in a multinational. The investigation had two steps. The first step involved three years of participant-observation in different knowledge management projects of the multinational. In the second step, five knowledge managers were interviewed during two sessions of two hours.

Our findings show that the knowledge managers are unable to manage knowledge of the company's practitioner community and they are marginalized from the community's work life. The knowledge managers end up managing the relationship with various organizational actors involved in knowledge management.

Key words: knowledge managers, practice perspective, knowledge management

I. INTRODUCTION

The field of knowledge management has developed quickly over the last decade and the literature on the topic has demonstrated increasing diversity and specialization (Easterby-Smith and Lyles, 2003). In this development, some scholars have raised their concerns about the concept knowledge management, pointing out its ambiguity (Scarbrough and Swan, 2001), the controversies around it (Swan and Scarbrough, 2001a), and its contradictory nature (Alvesson and Karreman, 2001).

This paper presents one more critical view of the knowledge management concept by relying on the practice perspective. From the practice perspective, it is argued that knowledge is defined as embedded in situated practices of individual; it is self-managed by situated practices of knowledge production and reproduction (Gherardi, 2000), and learning is conceived as a way of becoming part of a social world, which is a system of situated practices (Gherardi, Nicolini, and Odella, 1998). It is impossible to manage knowledge by non-practitioner managers, who does not participate in the situated knowledge creation and sharing. In this paper, we define management as composed of two modes of intervention: coordination and control (Alvesson and Karreman, 2001). Our argument is supported by an empirical case study.

The paper is structured as follows. The first section introduces the practice perspective and its view about knowledge and managing knowledge. The second section presents the case study to support the argument of the practice perspective. The paper ends with a discussion and conclusion.

II. PRACTICE PERSPECTIVE

1. Practice view of knowledge

Contemporary social theory has seen the arrival of a practice turn since the 80s (Schatzki, 2005). Practice theories share three core themes (Whittington, 2006). First, there is context. In their different ways, practice theorists are concerned with how context defines the practices –

shared understandings, cultural rules, languages, and procedures. Second, practice theorists hold on to individuality by asserting another sense of practice: people's actual activity 'in practice'. In practice, social practices are followed in rough and ready way, according to the exigencies of the situation. The distinction between practices and what happens 'in practice' points to a third core theme in the practice turn: the actors on whose skills and activity depends. Indeed, actors may be creative agents: they are potentially reflexive enough, and their social systems open and plural enough, to free their activity form mindless reproduction of initial condition.

Management and organization studies have become increasingly engaged with the practice turn and a body of research bearing the acronym practice-based studies has been generated (Gherardi, 2009). In the literature, one can observe a movement toward a practice turn in the discussion of knowledge and knowledge management.

The practice perspective criticizes the view of knowledge as a commodity and the assertion that it is possible to codify, store, and transmit knowledge between people. It argues that knowledge is not a representation, nor a commodity, nor scientific discoveries. It is in practice and as practice Gherardi (2000). In this approach, scholars have developed different concepts to better indicate the practice-based nature of knowledge. Brown and Duguid (1998) elaborate the distinction between "know-how" and "know-what". Know-what is to a significant degree something people carry around in their head and pass between each other. Know-how embraces the ability to put knows-what into practice. Know-how is revealed in practice and created out of practice. It is, to a great extent, the product of experience and the tacit insights experience. They go further to posit that know-how is held by work group rather than individuals because most work is of collective nature. Similarly, Cook and Brown (1999) argue for a perspective that focuses on the knowledgeability of action; that is on knowing (a verb connoting action, doing, practice) rather than knowledge (a noun connoting thing, elements, facts, and processes). Knowledge, in this view, is a tool at the service of knowing. With the argument that knowledge and practice are reciprocally constitutive, Orlikowski (2002) develops the notion of organizational knowing as a substitution for the notion of organizational knowledge. The author states that organizational knowing emerges from the ongoing and situated actions of organizational members as they engage in the world. We can

recognize the knowing-how by observing the practice but the practice has no meaning apart from the knowing-how that constitutes it.

2. The impossibility of managing knowledge from practice perspective

Management can be defined as composed of two modes of intervention: coordination and control (Alvesson and Karreman, 2001). Management in control mode involves designing work context so carefully constructed and heavily controlled that workers only can do the 'right' thing with a minimum of effort and movement. It reserves an active and influential role for management. Management in coordination mode represents the other end of a continuum, in which management is circumscribed in its impact. It refers to a support function and/or less powerful ways of organizing and supervising, denoting the minimal activities needed for orchestrating collective action.

From the practice perspective, it is impossible for non-practitioner managers to exercise such control or coordination activities over knowledge because "practice articulates knowledge in and about organizing as practical accomplishment, rather than as a transcendental account of decontextualized reality" (Gherardi, 2000). Moreover, knowledge is situated in the historical, social and cultural contexts in which it arises and embodied in a variety of forms and media. It is acquired through some form of participation, and it is continually reproduced and negotiated; that is, it is always dynamic and provisional (Nicolini, Gherardi, and Yanow, 2003). Only people, who use knowledge in their activities, are in the best position to manage their knowledge (Wenger, 2004).

Inspired by the practice perspective, some scholars have recognized the importance of communication and social interaction processes that will allow knowledge sharing to occur (Hislop, 2009). To this end, it advocates the coordination mode of management, which aims at developing communities of practice to manage knowledge. Scholars of this generation believes that non-practitioner managers can manage knowledge by promoting social networks and the cultivation of trust, norms and shared values amongst employees that constitute "communities of practices" (Bresnen *et. al.,* 2003). They play the coordinating role to facilitate the management of knowledge by practitioners (Wenger, 2004).

However, from the practice perspective, the notion of community of practice itself is problematic. Many authors have pointed out the ambiguous or ill-defined aspects of the notion (Handley et al., 2006; Robet, 2006). It has become popular in knowledge management literature because it marks the passage from a cognitive and individual vision of knowledge and learning to a social and situated one. It encompasses a plurality of concepts related to the practice perspective: for instance, the situatedness and sociality of practices, the central importance of practical know-how for work, the existence of collective identities, and the importance of learning processes within a community of practitioners (Corradi, Gherardi and Verzelloni, 2010). From the practice perspective, communities of practice are just one of the forms of organizing. Referring to a community of practice is not a way to postulate the existence of a new informal grouping or social system within the organization, but is a way to emphasize that every practice is dependent on social processes through which it is sustained and perpetuated, and that learning takes place through the engagement in that practice (Gherardi, Nicolini, and Odella, 1998).

It can be said that the possibility of managing knowledge by non-practitioner managers remains unachievable from the practice perspective.

III. THE CASE

In order to support our argument, we report a case study of a multinational, in which we rely on the practice perspective to investigate what the knowledge managers truly manage. The knowledge managers in this case are not part of the practitioners, whose knowledge is supposed to be managed.

1. Research design

According to Nicollini (2009), practice-based studies need a methodology that offers the actors the opportunity to become aware of – while also reorganizing in their own mind – what they already knew. The methodology must enable them to capture their experience as well as enrich it through reflection. Therefore, in this research, we adopt a phenomenological methodology. Phenomenological perspective was first developed by Heidegger (1962) and Husserl (1970). Phenomenology studies aims at producing rich and in-depth description of experience as it is lived in a particular context, including anything that appears or presents

itself (Sander, 1982). Hence, it is a suitable methodology to study what the knowledge managers manage from the practice perspective.

We investigate the management activities of five knowledge managers in a multinational. This sample size is reasonable for a phenomenological study. Although the ideal number will vary according to the topic under investigation, it is realistic to believe that sufficient information may be collected from approximately two to ten individuals (Boyd, 2001; Creswell, 1998). In general, thanks to the method of in-depth, phenomenological interviewing, stories from a sample of relatively few participants can have enormous power (Bogdan and Taylor, 1975; Patton, 2002; Seidman, 2006).

The investigation had two steps. The first step involved three years of participant-observation in different knowledge management projects of the multinational. It enabled us to have a comprehensive understanding of the context. The data sources of this phase include

- 10 official documents of the company
- 6 issues of its internal press
- 6 documents on knowledge management function
- field notes from 20 meetings and 15 interviews (of 1 to 2 hours) with the company's top managers, middle managers and operational staff
- 5 reports of the knowledge management consultants working for the company

In the second step, five knowledge managers were interviewed during two sessions of two hours. We relied on the guidelines of Seidman (2006) for the interviews. The interviews were semi-structured with open-ended questions. Each participant was asked on three main parts. The first part aimed at establishing the context for the participant's management activities: the researcher asked the participant about him or herself in light of the research topic up to the present time. The second allowed the participant to reconstruct the details of his/her activities within the context in which it occurs: the researcher asked the participant to reconstruct the concrete details of his/her activities. And the third encouraged the participant to reflect on the

meaning the activities holds for him/her: The researcher asked the participant to reflect on the meaning of his/her activities.

Our analytical framework has two dimensions. First, the working contexts experienced by the knowledge managers were identified. Second, we determined the management activities of the knowledge managers as well as the contextual and personal roots of such activities by asking the question of "why". These two dimensions were informed mainly by data from the second phase of investigation. The working context of the knowledge managers was seen through their own perspective rather than the researchers'. This helped explain better the situated practices of the knowledge managers. Our perspective about the organizational context obtained in the first phase of investigation served as a complementary source of data.

In the interpretation process, reading and re-reading our transcripts and other data sources were made to gradually piece together the different storylines of each knowledge manager for a thematic analysis. In seeking the themes, we were guided by van Manen (1990) in his suggested process for isolating thematic statements, including the detailed reading approach, the selective or highlighting approach, and the wholistic reading approach. Although the analysis started with the wholistic reading approach, continued with the selective/highlighting one, and finished with the detailed reading one, the approaches were used in an iterative rather than linear manner. Global themes were identified across interviews and field notes, but it was continuously referred back to individual data sources to ensure that global themes were not rendered in abstract terms removed from the participants' experience.

2. Findings

a. The knowledge managers

The knowledge managers in this study work in a multinational in the construction material market. Its plants are grouped into four different regions throughout the world. The company sets up in each region one Technical Center to bring technical assistance to the local plants. The Technical Centers report to the Technical Headquarters, which is responsible for leading the technical community toward maximization of plant performance.

The company adopts the codification approach, in which there is a clear distinction between knowledge providers, knowledge users, and knowledge managers. The technical experts working at the Technical Centers and Technical Headquarters are assigned the responsibility of providing codified knowledge for an intranet called Technical Portal, thus play the role of knowledge providers. Plant staff is considered as knowledge users because they are supposed to use the knowledge codified in the Portal to improve their performance. Experts and plant staff make up the technical community in the company and have frequent contacts and interactions with each other.

The knowledge managers include a knowledge management team composed of two people belonging to the Technical Headquarters and a network of five knowledge managers working at the Technical Centers. The knowledge management team is responsible for ensuring the exchange of knowledge between plant staff via the Portal, and maintaining the Portal by obtaining new documents from the experts. The knowledge managers in the Technical Centers are responsible for training and motivating plant staff to use the Portal and collecting plant contributions to the Portal. The organization of knowledge management is represented in the diagram in Appendix 1.

In our study, the interview participants included the knowledge management team (Alex and Christina) and three knowledge managers at the Technical Centers (Mary, Kathy, and Yvon). Their official role, direct interlocutors at work, and personal background are detailed in the table below. For the purpose of confidentiality, participants' names used here are not their true names and their working locations are not mentioned.

Table 2: Interview participants

Participants	**Official role**	**Direct interlocutors at work**	**Personal background**
Alex (full-time)	Leader of the Knowledge Management Team Coordinating the network of Technical Center Knowledge Managers	Top management Experts at the Technical Headquarters and Technical Centers	Young, new to the company No technical background Master degree in Knowledge Management

<table>
<tr><td>Christina
(full-time)</td><td>Collecting codified knowledge from the experts and archiving it in the Portal
Maintaining the Portal by making regular updates</td><td>Experts at the Technical Headquarters and Technical Centers</td><td>Previously administrative assistant</td></tr>
<tr><td>Mary
(part-time)</td><td rowspan="3">Training and motivating plant staff to use the Portal
Collecting lessons learned from plants for the Portal.</td><td rowspan="3">Experts at their respective technical center and plant staff at their region</td><td>Previously administrative assistant</td></tr>
<tr><td>Kathy
(part-time)</td><td rowspan="2"></td></tr>
<tr><td>Yvon
(part-time)</td><td>New to the company</td></tr>
</table>

It is important to note that these knowledge managers are not considered by experts and plant staff as members of the technical community. This is partly due to their lack of technical expertise. All five knowledge managers have no technical knowledge related to the company's production domain. This is partly due to their previous positions. Three of them (Christina, Mary, and Kathy) were just administrative assistants before becoming knowledge managers. Alex was previously a consultant before joining the company. Yvon comes from a totally different manufacturing domain. The knowledge managers at the Technical Centers are just part-time knowledge managers because they have other responsibilities besides knowledge management tasks. This is also partly due to the organization of knowledge management in the organization, which gives the knowledge managers the role of knowledge distributor apart from the practitioners.

b. The impossibility of managing knowledge

Not being part of the technical community, the knowledge managers are marginalized from the practitioners' work and not able to manage knowledge part of the technical community; they are not considered as one of the practitioners.

The knowledge managers have problems in collaborating with the experts to obtain documents for the Portal. The experts see knowledge management as their job because they are the holders of knowledge (the knowledge managers).The knowledge managers are just librarians, whose job is to store the technical documents in the Portal (Alex). Once the documents are written and stored in the Portal, the experts consider their responsibility for the

knowledge managers as over. They make no attempt to promote the usage of those documents among plant staff (Alex and Christina).

At the plant level, knowledge management encounters significant resistance from plant engineers, technicians, and workers, who claim that the Portal is theoretical and irrelevant to the problems they encounter at plant (Alex). Sharing just happens within small groups of people speaking the same languages, staying in close or the same locations, or knowing each other. They learn from each other by discussing via email, telephone, or face-to-face meetings. It is not natural for them to go to the Portal to look for a solution when they have a problem at work or to make their lessons learned available for others in the Portal (Yvon).

The many hurdles of the Portal also give plant staff the opportunity to claim that sharing knowledge via the Portal is impractical. For example, languages of the Portal are English and French, which are not spoken by many employees. Another problem is related to the IT issue. In the past, the Portal was so complicated that navigating to any new page required a different password, which changed every three months. This makes the Portal especially difficult for senior employees, who are technological illiteracy, to use. In addition, not all local plants have adequate network speed or computer to access to the Portal. The heterogeneity of documents in the Portal is also a commonly heard critique, which makes people get lost easily while looking for a document.

Moreover, the top management's adoption of knowledge management was simply a mimetic and normative response to the environment's pressures, in which the popularity of knowledge management fashion was at its peak. But the fashion has declined, the organization now pays attention to other strategic priorities and the knowledge managers no longer receive support from the top management like in the past. Consequently, the experts now consider codifying knowledge as an extra workload. They spend much less time on providing documents to the knowledge managers, blaming the lack of time for their unenthusiastic participation. Like the experts, plant staff concentrates their effort on the current organizational priorities; they claim to have no time to use the Portal.

In this situation, the knowledge managers see themselves as being abandoned by the organization. Alex expressed his feelings this way: "KM is considered as nice to have here… If one day the knowledge management team ceases to exist, that won't make any difference to

the company…" He is joined by Christina, who said: "we don't know if what we are making a contribution to the accomplishment of the organization's objectives…" Yvon felt that he is like "in the middle of a forest, without knowing how to get out". Mary shared similar view, telling us that she has to "have enough faith and be cold-blooded to do this job". The knowledge managers find themselves in the situation of "knowledge managers, where do we go?" (Kathy)

Therefore, the knowledge managers end up managing their relationship with the experts, plant staff, and the top management, as presented in the following section.

c. Management activities of the knowledge managers

Being marginalized in the organization, the knowledge managers then struggle to make a place for themselves in the organization. Their management activities consist of three main components.

First, the knowledge managers manage their relationship with plant staff by forcing knowledge management into their existing work life. The knowledge managers see that the best way to make people share knowledge, thereby having a stronger coordination role in managing knowledge, is by pushing knowledge sharing to become a part of what they have been doing. For example, thanks to Mary and Kathy, the technical training program for new employees now contains two hours on knowledge management. Contributing one document to the Portal has become one training assignment. Events at plants are the opportunities for the knowledge managers to come presenting about knowledge sharing and the Portal. The training content for plant staff is always adapted to the specific expertise domain of the audience. For example, training for quality engineers must always have examples and exercises on the topic of quality.

Moreover, rather than wait for plant staff to come for knowledge, the knowledge managers actively bring knowledge to them. This means each time a new document is posted, Christina finds a way to notify users through Mary, Kathy, and Yvon, by e-mail, newsletter, or presentation at employees' meetings. They also prepare monthly newsletter, which informs plant staff of updates and new documents in the Portal. Again, the notifications are sent to only interested users they identify beforehand.

Second, the knowledge managers manage their relationship with the experts to obtain help from them. The experts are legitimate practitioners in the technical community of the organization, the knowledge managers must get help from them to do their job. Christina relies on the experts to maintain and update the Portal. As they are considered holders of knowledge, only the knowledge they supply is seen as credible by other people. Mary, Kathy, and Yvon rely on the experts, who have direct contact with plants to promote the Portal to plant staff. With more than 150 plants throughout the world, the knowledge managers cannot "do anything" if they work alone (Yvon).

The main problem with the experts is that they consider helping the knowledge managers as an extra workload and the knowledge managers do not have any hierarchical power over them. What the knowledge managers do is to constantly seek for help from the experts. For example, Christina always has to keep following up with the experts, reminding them of the deadlines, otherwise, in her own words, "nothing will happen". Alex keeps actively participating in the experts' network meetings and in the organizational events, although "half of the meeting participants may fall asleep and the other half may just check e-mail on their BlackBerry", to explain to them their role in knowledge management. He regularly informs them of updates in the Portal and prepares a booklet to guide the experts how their documents can be distributed to end-users. Mary, Kathy, and Yvon have to rely on the personal network they have with the experts to do their job.

All the knowledge managers acknowledge poignantly that they have to be patient and accept to work with the amount of time the experts are willing to give to knowledge management, because "it is life" in the company (Christina).

Third, the knowledge managers manage their relationship with the top management by asking for sponsorship. Only with the sponsorship from the top managers will the legitimacy of knowledge management increase in the eyes of experts and plant staff. The experts will be more committed to collaborate and plant staff will pay more attention to the knowledge management discourse. Among the five knowledge managers, Alex is the only one having direct contact with the top managers. He has been begging for their support without success. The top managers have a myriad of preoccupations. Making knowledge management become part of their agenda is a challenging task. Alex explains: "in my boss' memory, the space that

can be devoted to knowledge management is already full. We cannot add in anything else. There are many other things like industrial performance or investments. They are a lot more important".

Alex has been undertaking two main actions. One is to constantly remind the top managers in periodical reports, in project prosals, or any form of internal communication that "knowledge sharing is part of the Principles of Action of the company". Another is to make knowledge management look useful for the organization by aligning the benefits of sharing knowledge with the organization's goals. That means the knowledge managers look for true success stories, "shining examples" in his words, to show how knowledge management contribute to the achievement of the strategic objectives, such as cost reduction or security improvement.

IV. DISCUSSION AND CONCLUSION

This study has presented a critical view of knowledge management based on practice perspective. From this perspective, knowledge is embedded in situated practices of practitioners, thus it is impossible for non-practitioners to manage knowledge from outside. The argument is supported by a case study, which shows how the knowledge managers in a multinational are unable to manager knowledge of the company's technical community. They end up managing the relationship with various organizational actors involved in knowledge management.

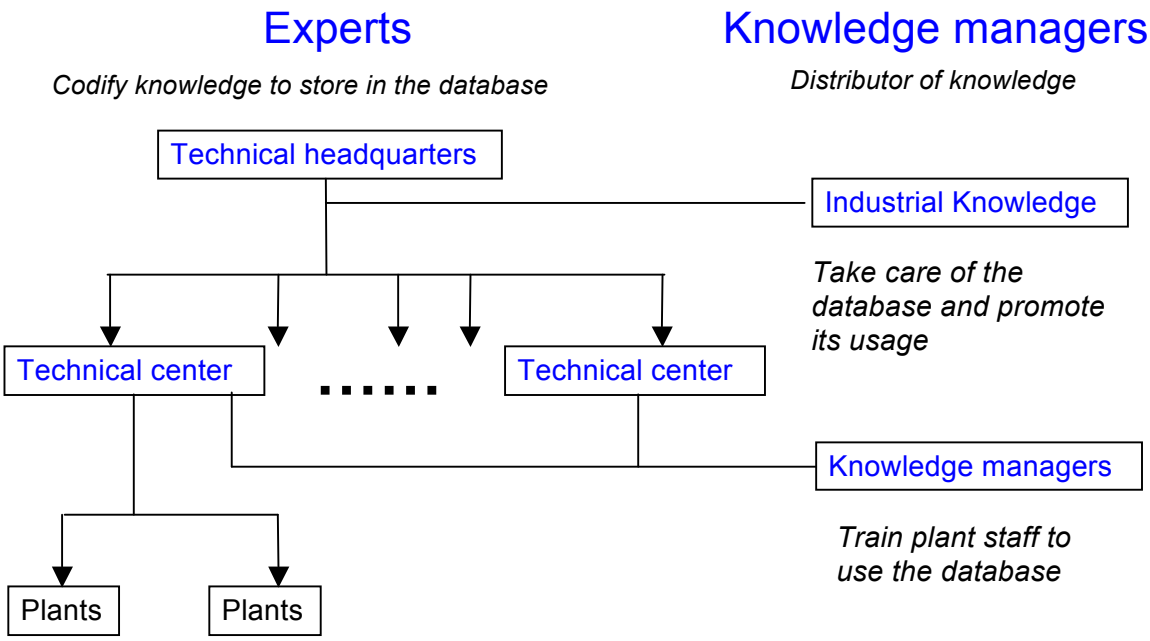
This study contributes to the literature on knowledge managers in several ways. First, it questions the taken-for-granted assumption that knowledge can be managed and presents an empirical evidence to support the legitimacy of this view point. Second, the literature has focused on proposing list of actions for the knowledge managers to follow and has conducted empirical survey to identify the activities of knowledge managers in practice. However, there is one underlying assumption of existing frameworks and empirical findings in the literature: the manager of knowledge is separated from the holders of knowledge. For example, Earl and Scott (1999) suggest that the knowledge managers should have broad mind-set, organizational reputation, and credibility. They should also have the competencies of an environmentalist, a technologist, a consultant, and an entrepreneur. Bontis (2001) argues that knowledge managers must be at the same time knowledge sharing icons, trust stewards, trainers, techno

nerds, and number crunching accountants. None of them mention about the necessity of being part of the practitioners.

The case of this study shows that the separation from the practitioners can be a significant barrier for the manager of knowledge and it should be taken into account in future development of implementation framework for knowledge management. Indeed, when we compare the action frameworks proposed in the literature (see Appendix 2) with the management activities of the knowledge managers in our case, it can be seen that these frameworks are not totally applicable in our case. Only some elements of the frameworks are present in the knowledge managers' activities, including obtaining management buy-in (Wiig, 1997), capturing of new explicit knowledge (Gore and Gore, 1999) or identifying and collecting knowledge (McCampbell et al., 1999) or acquiring key knowledge (Wiig, 1999), forming powerful coalition (McCampbell et al., 1999), making KM a requirement for training and evaluation (Bontis, 2002) or training of knowledge workers (McCampbell et al., 1999), and developing knowledge system (Mentzas, 2001). Each framework can propose only one or two activities relevant to the knowledge managers in our case study. The practices of our knowledge managers are not incorporated in any single framework.

From this study, several implications for future research can be made. First, studies can be conducted in other organizational settings to obtain more empirical evidence of the impossibility to manage knowledge. Second, actions frameworks that take into account the necessity for knowledge manager to be part of the practitioner community should be developed.

APPENDIX 1


Experts
Codify knowledge to store in the database
Knowledge managers
Distributor of knowledge
Technical headquarters
Industrial Knowledge
Take care of the database and promote its usage
Technical center
Technical center
Knowledge managers
Train plant staff to use the database
Plants
Plants

Appendix 2: Action frameworks for knowledge managers

	Authors	Frameworks/ findings	
Conceptual approach *System-oriented*	Holsapple and Joshi (2002)	• Knowledge resources • KM activities	• KM influences
	Jarrar (2002)	• Set a strategic priority for KM • Define and understand organizational knowledge	• Manage knowledge • Knowledge environment
	Gore and Gore (1999)	• Exploitation of existing tacit knowledge • Capturing of new explicit knowledge	• Creation of tacit knowledge • Conversion of tacit knowledge to organizational knowledge
	DeTienne et. al. (2004)	• Organizational leadership • Organizational culture	• CKOs • Technology
	Wiig et al. (1997)	• Review • Conceptualize	• Reflect • Act
Conceptual approach *Process-oriented*	McCampbell et al. (1999)	• form powerful coalition • communication vision of knowledge management • establish teams for needs assessment • analyze the needs of knowledge management • identify and collect knowledge • design a technological structure to warehouse knowledge • test the technology	• maintenance of the technology • retest the technology • training of knowledge workers • roll out the use of knowledge management practices • track usage • make systems go live • measure quality and productivity, measure the performance of knowledge management practices, conduct a need assessment review
	Bontis (2002)	• Conduct an initial KM diagnostic • Make KM a requirement for training and evaluation • Define the role of knowledge • Recruit a leader • Classify the intellectual portfolio	• Use document management system • Incorporate reward and recognition programs • Conduct intellectual capital audits • Identify gaps to be filled • Prepare and publish organization's knowledge portfolio
	Wiig (1999)	• obtain management buy-in • survey and map the knowledge landscape • plan the knowledge strategy • create and define knowledge-related alternatives and potential initiatives • portray benefit expectations for knowledge management initiatives • set knowledge management priorities • determine key knowledge requirements	• acquire key knowledge • create integrated knowledge transfer programs • transform, distribute and apply knowledge assets • establish and update knowledge management infrastructure • manage knowledge assets • construct incentive programs • coordinate knowledge management activities and functions enterprise-wide • facilitate knowledge-focused management • monitor knowledge management
Conceptual approach *Hybrid-oriented*	Rubenstein-Montano et al. (2001)	• Organizational culture • Learning • Strategy • Types of knowledge • Strategy	• Model • Act • Revise • Transfer
	Mentzas (2001)	• Knowledge assets • Knowledge strategy, process, structure, and system • Knowledge interaction networks	• Awareness • Plan • Develop • Operate • Measure • Training

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