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KNOWLEDGE VISION ON FORMALISATION VERSUS TACITNESS OF SHARING KNOWLEDGE IN INNOVATIVE LARGE ORGANISATIONS

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ABSTRACT

In the situated learning theory, we disclose the existence of some tensions that may arise from two opposite forces within a context of communities of practice: the need for formalisation (large enterprises) and tacitness (creativity and innovation). Our study focuses on how these tensions are dealt with in a case study of a Portuguese innovative large enterprise that has developed a knowledge strategy over the last decade.

The keys for overcoming this risky confrontation are related to a combination of "knowledge vision" and the coordinator and culture roles. A question to be addressed by firms in similar situation is "who-knows-what", in order to identify the key knowledge that must be transformed from tacit into explicit. This would avoid wasting too many resources on making explicit the wrong tacit knowledge. Further research is required in other firms and contexts, on a still underestimated problem within communities of practice.

Keywords: Formalisation, tacitness, communities of practice, knowledge sharing, knowledge creation, action research, innovation process, case study.

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1. INTRODUCTION

Today's competition is leading firms to increasingly base their competitiveness on two intertwined factors connected by learning: valuable knowledge and innovation (SWAN et al., 2002; GONZÁLEZ-LOUREIRO; FIGUEROA DORREGO, 2012). Each has its own characteristics that make it extremely difficult to extract the best of them (MOLLOY et al., 2011; GONZÁLEZ-LOUREIRO; PITA-CASTELO, 2012).

Knowledge, as a non-scarce intangible resource, should be managed differently compared to a tangible one: accessibility to recognise who-knows-what in the required moment is what really determines its value (SPENDER, 1996). Innovation, as a process, follows a similar logic, since the higher their efficiency, the higher their impact on competitiveness in terms of the rate of successful outcomes (BERTELS et al., 2011). Therefore, knowledge and learning play a critical role in boosting the efficiency of both processes (NONAKA et al., 2006).

The main proponents of the situated learning theory assert that learning happens within the contexts and conditions of practical engagement. Individuals learn in their daily work (LAVE; WENGER, 1991). Research has gradually evolved to the communities of practices (CoP) concept. On researching how to develop this efficiently, several antecedents and success factors have been disclosed. Examples like identities, social ties, mutual trust and motivation to participate have been proven to have an impact on learning performance, in short a set of individual, organisational and environmental factors (ZBORALSKI, 2009; LERVIK et al., 2010).

Although innovation and learning in a context of CoP has become a relevant research field from the situated learning theory approach (SWAN et al., 2002; FENWICK, 2008), the investigation is underestimated regarding the possible existence of two opposite forces shaping learning: formalisation and tacitness.

These firms are usually forced to be bureaucratic for the sake of efficiency (GRANT, 1996; NONAKA et al., 2006). The problem arises from the clash between the required formalised procedures underlying large organisations and the inherent creativity and latitude within CoP seeking to innovate (SWAN et al., 2002; BERTELS et al., 2011).

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Our research question is whether the forms of interaction within CoP help or hinder the knowledge creation and sharing. We examine how those forces operate within a context of an innovative large organisation: tacitness, which is related to creativity and innovation (SCHULZ; JOBE, 2001; BERTELS et al., 2011), and formalisation which is related to managerial procedures in large organisations (NONAKA et al., 2006; KIRKMAN et al., 2011).

Tacitness is also related to the concept of knowledge in action, long and wrongly assumed to require spatial proximity, evolving to relational proximity (AMIN; ROBERTS, 2008). This is a kind of psychological distance, emphasising the role of sharing in the knowledge creation.

Formalisation is implicit in the organisational forms, energised *bas*[1] in the words of Nonaka et al. (2006). Explicit, rather than tacit, knowledge is the basis for managing within a context of organisational units (HEDLUND; NONAKA, 1993).

Our contribution seeks to provide a better understanding of how those opposite forces act within an innovative, large organisation. This will enable an advance in the situated learning theory concerning the challenges that CoP face and how they overcome the tensions of tacitness and formalisation. This understanding will make it possible to suggest some successful trajectories to theorise in the future (NONAKA et al., 2006).

The remainder of the paper is organised as follows. In the next section, we introduce the theoretical background related to CoP in the case of innovation processes management. We also explain the tensions between those two forces. In a subsequent section, we introduce the model and methods that guide the case study we conducted. After that, we present the results. In the final section, we discuss findings, practitioner implications, limitations and suggestions for future research.

[1] *ba* is a Japanese concept for the context of knowledge creation (see definition in Nonaka and Konno, 1998). Nonaka et al. (2006) summarise it as "a shared space for emerging relationships", be this physical, virtual or mental.

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2. LEARNING AND MANAGING INNOVATION PROCESSES: THE NATURE OF KNOWLEDGE AS THEORETICAL BACKGROUND

Knowledge can be an enabler or a disabler of organisational innovation success, because individual knowledge transfer and use is a very complex, social interaction process (MCADAM; MCCREEDY, 1999; NONAKA; TOYAMA, 2002; VON KROGH et al., 2000).

Davenport and Prusak (1998) assert that "knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information". Polanyi (1962) associates knowledge to action: knowledge is the ability to act. Nonaka and Takeuchi (1995) explain that knowledge is created by the flow of information associated with the beliefs and commitments of those who possess it. Therefore, this is the notion of knowledge we use throughout our paper.

The nature of knowledge, either tacit or explicit, is relevant to the aim of our study. Tacit knowledge is highly personalized, context sensitive and informal, and very hard to measure and manage (FRAPPAOLO, 2008). It includes know-how, intuition and informal communications that make up a large part of the organisation's culture. On the other hand, explicit knowledge is defined as an object that can be codified and distributed outside of the individual who created it (NONAKA, 1994; FAHEY; PRUSAK, 1998).

Several authors (CLARK et al., 1993; BLACKLER, 1995; SWAN et al., 2002) suggest that implementing organisational innovation practices requires more than simply the translation of new knowledge from its abstract formulation into an organisational setting. Organisational routines can be seen as learning processes involving people doing things and solving problems, reflecting on what they are doing, and doing different things (or doing the same things differently) as a result of the reflection, i.e. knowledge in action (AMIN; ROBERTS, 2008).

This perspective on routines is consistent, in several ways, with the work of Nonaka and Takeuchi on knowledge creation (1995). They propose four modes of knowledge: socialisation, externalisation, combination and internalisation (SECI). The interconnection of these four modes in a continuous spiral represents the process of

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knowledge creation. In the case study we present, we will discuss forms of interaction in order to share tacit and explicit knowledge.

Nevertheless, several critiques on the SECI model pointed out the difficulties to implement it empirically, mainly because sharing and using knowledge can hardly be separated (EASTERBY-SMITH, 1997). Despite the lack of scientific evidence as criticized by Gourlay (2006), the categorisation of knowledge into tacit and explicit becomes crucial for a better understanding of the CoP and the learning process. The key critiques (GOURLAY, 2006; SCHÜTT, 2003) are based on the intertwined concepts of tacit and explicit knowledge following Polanyi's (1966) work. Rather than a discrete categorisation, Polanyi sees both distinctions as an interwoven continuum. This continuum can be rarely split into those modes. Yet, this distinction will help to understand the dynamic process of knowledge sharing and creation that blends all forms of knowledge (NONAKA et al., 2006), under the umbrella of formalisation versus tacitness tensions.

3. INNOVATION MANAGEMENT AND COMMUNITIES OF PRACTICE: THE TACITNESS CHALLENGE

From the CoP approach, a necessary but insufficient condition for innovation performance has been related to sharing knowledge by the team, both tacit and explicit (BERTELS et al., 2011). From them, we infer that tacit, non-codified knowledge is crucial to innovation performance. The individual is able to define a situation and solve a problem by a proper combination of sharing tacit and explicit knowledge (NONAKA et al., 2006).

Bertels and colleagues find that encouragement of CoP moderate the relationship between the proficiency of dispersed collaboration and innovation performance. It is assumed that, in the case of dispersed collaboration seeking to innovate, tacitness of shared knowledge is a key. Situated learning theory predicts that the more dispersed a CoP is, the less tacit knowledge it will tend to use (legitimated peripheral participation).

Here the source of tensions from the tacitness side emerges in the case of innovative large organisations. Likewise, large organisations are governed by a high degree of norms and formal procedures, which also decreases the attractiveness of using tacit knowledge (KIRKMAN et al., 2011). They propose that leadership,

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empowerment and interdependency among tasks matter for shaping organisational effectiveness.

Hence, two opposite forces seem to shape the learning capacity of the CoP when conducting innovation-based activities: tacitness-creativity and formalisation-effectiveness. There is some overlapping between both, as leadership and empowerment are mainly tacit forms of managing. Therefore, we propose that, theoretically, large organisations seeking to innovate efficiently will obtain a better performance if they realise this tension and then try to properly combine both forces.

These forces are implicit throughout the theory of CoP. These social structures are said to arise spontaneously (LAVE; WENGER, 1991). On reviewing the conditions under which this happens, Souza-Silva (2009) criticise the spontaneity assumption. The term evolves towards organisational communities of practices (KIRKMAN et al., 2011). This means that a vehicle to generate learning and enhance organisational performance can be groups of employees who share a concern or even a passion about a topic. Those are individuals who learn as they share, when masterminded by someone in an organisational context in search of improving now or in the future. Hence managing, in its widest sense, enters into the situated learning realm.

We must warn about the risk of all forms of joint work being labelled as CoP (WENGER, 2000), a hazard that has happened along with the evolving empirical research (ROBERTS, 2006). Under a focus on the dynamics of innovation and knowledge creation, these latter authors categorise up to four different types of varieties of knowing in action: craft/task-based, professional, epistemic/creative and virtual. They provide a comprehensive explanation of the characteristics of each one.

For the purpose of our paper, we may remark that radical innovation is usually addressed from professional and epistemic/creative communities, although virtual communities can also deal with it properly. Most of the communities falling into one of these categories are largely based on a mix of tacit and explicit, codified knowledge. The tool for governing the organisational issues is a key finding: hierarchy (VON KROGH et al., 2000), particularly in large firms.

According to Wenger (1998) and Roberts (2006), the key dimensions of a CoP are mutual engagement, sense of joint enterprise and a shared repertoire of

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communal resources. They give rise to fourteen defining characteristics of a CoP. Among them and concerning the binomial tacitness-formalisation, we must highlight the rapid flow of information and propagation of innovations, the very quick setup of a problem for discussion, and the sustained mutual relationships (harmonious or conflictual). Nevertheless, the formalisation of the CoP is virtually missed because of its natural rise. Virtually all the key characteristics have a high degree of tacitness: the CoP are, in essence, structures that emerge from practice (WENGER, 1998; MUTCH, 2003). It then follows that tacitness is critical for the speed of learning (NONAKA et al., 2006).

The critical review of CoP versus habitus provided by Mutch (2003) is, perhaps, one of the most fruitful views of the tension between a structure that conditions practice –Bordieu's (1990) notion of habitus – and structures that emerge from practice (CoP). Accordingly, that tension gives rise to the need of a resolution of the agency-structure dilemma (WENGER, 1998). Mutch (2003) proposes to solve this dilemma by recognising their mutual constitution and examining the interrelationships between the CoP and the original structure where they are supposed "to emerge". Therefore, the interaction between the CoP and their parental organisation should be more clearly developed in order to avoid the negative effects of an excess of formalisation on innovation management processes. Additionally, vertical and horizontal multileveled workgroups, workshops or any other type of tool enabling overlapping of CoP seem to be relevant for facing the challenge of formalisation while taking advantage of tacitness.

Other researchers have entered into the field of CoP to disclose what constrains learning in these structures. Time, pressure, deferral and centralisation within and across projects have been found as key constraints (KEEGAN; TURNER, 2001). Not only did they affect the speed of learning, but they also facilitate the explanation of the adaptation and reconfiguration of practices. A CoP may also be affected by group structure in terms of networks and competences, which are essential for managing innovation processes (BOGENRIEDER; NOOTEBOOM, 2004).

As far as CoP is defined as informal, horizontal groups across organisational boundaries (WENGER et al., 2002), the chances for developing a proper managing

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tool are slim. Notwithstanding this widely diffused and accepted definition, "co-ordination" is suggested as a plausible knowledge management tool, associated with the idea of empowerment (COX, 2005). A new form of normative control is required when every effort and attempt fail. Then, facilitation, technical mediation and even some type of incentives (a kind of reward system) can help.

The problem of formality/informality is also implicit throughout the key seminal works (LAVE; WENGER, 1991; BROWN; DUGUID, 1991; WENGER, 1998; WENGER et al., 2002), in terms of how learning is managed. The multi-membership as the key source of conflicts is implicit in virtually all of them. Even the latter one includes an insight on how it is assumed that the good of the organisations is the "good"; hence, managerialism arises. The informal method gives rise to creativity and to a kind of latitude for learning. The risk is associated with an unclear alignment between individual/CoP and organisational goals (VON KROGH et al., 2000).

Additionally, we must highlight the impact that several conditioning external elements have on the attempts of reconciling formalisation and tacitness. From the perspective of individuals, the broader socio-cultural context in which CoP are usually embedded implies high levels of fluidity (entailing creativity) and of heterogeneity, that must be properly managed at organisational level (HANDLEY et al., 2006). Hence, multi-membership is a source of conflict, mainly due to the "sense of agency" suggested by Mutch (2003), and the need for adaptation of different forms of participation (either peripheral or full). The interstices among CoP are supposed to be where there is a greater chance of higher levels of creativity, potentially leading to innovation (BERTELS et al., 2011).

In summary, literature on CoP seems to highlight that organisational issues are usually constraints for a fruitful development of these learning structures (Swan et al., 2002), particularly playing against the speed of creativity-innovation. Meanwhile, managers need to win over these spontaneous formations for the sake of the firm's common goal. The need for aligning practices emphasises the critical role of managers as coordinators, while, perhaps, decreasing the applicability of organisational policies (CONTU; WILLMOTT, 2000; BROWN; DUGUID, 2001), in a kind of de-formalisation.

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Therefore, a continuous unsolved conflict remains elusive to the understanding of scholars and practitioners. It calls for reviewing how this source of conflicts is dealt with from a practical approach, in order to provide evidence on which to underpin more solid theoretical bases in the future.

4. RESEARCH METHODOLOGY AND DESIGN

Following several authors in this field (WESTBROOK, 1995; COGHLAN, 2001, 2003; COUGHLAN; COGHLAN, 2002), to accomplish the empirical work, we applied the widely used “Action Research” (AR) methodology; the main technique to collect data was group recall sessions with all levels of employees of the organisation. AR was applied because our aim was not to discover generalisations, but contextual findings and rich insights. AR allows a deeper analysis and a different understanding of complex organisational problems (COUGHLAN; COGHLAN, 2002).

Data was collected through interviews with top management along with group recall techniques, which were also used for knowledge sharing among the researcher and the organisational players (SOUSA, 2010, 2013)

The group recall technique can be framed in social research, and the process is similar to a focus group process. It gives the researcher the opportunity to hear detailed revelations about people’s thoughts, ideas, and experiences. It has the potential to illuminate workers’ contrasting opinions and experiences and to help them get to know the organisation better, while sharing their experiences and work practices with colleagues.

5. DESIGN OF THE MODEL FOR RESEARCH ACTION

The research was conducted in one Portuguese company and involved operators, technicians and managers in separate group recall sessions where they shared experiences, ideas and gave suggestions about the knowledge creation and sharing processes. Five employees participated in each group recall session - totalling 30 persons from the company. For data analysis we used analysis grids based on employee’s quotations, as well as a questionnaire applied to all participants of group recall sessions. We did not want to find percentages or values and it was not our goal to make any kind of measures, but to understand the processes for knowledge creation and sharing in the company.

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Alpha company is a private company with a heavy focus on innovation, implementing a system like TPS – Toyota Production System – with a holistic approach through the optimization of not only partial processes and departments, but all course and organisational units, especially their teamwork. The Production System (PS) implies a systematic implementation of a multitude of devices designed to contribute to the improvement of quality, costs and delivery.

The implementation of the Production System is best described through a phase model beginning with preparation, then stabilization and finishing with reduction. It is the basis for every PS-oriented project work, whether in the reshaping of existing production lines, the planning of new lines or in the product creation process. The central idea of the PS is to develop and deliver the right part at the right time in the right amount and with the required quality.

In this context and to operationalize the knowledge sharing process, Alpha has developed several mechanisms for creating and sharing knowledge: workshops, workgroups with workers from different sections and departments, suggestion boxes, and communication corners that are spaces for exchanging ideas, opinions and thoughts, but also presenting structured knowledge through documentation, videos and other means.

The knowledge sharing process is explicit in Figure 1, where the mechanisms and tools implemented to facilitate and potentiate the process are depicted.

Workshops are exceptional vehicles for bringing together employees from different areas to discuss an issue. The invitation of customers for these workshops has an important role whenever Alpha is looking for new ideas or ways to improve products.

Workgroups are created according to the needs of the organisation. Sometimes a well-defined problem statement is discussed, and the workgroup generates the necessary analysis and review, formulating recommendations for going forward.

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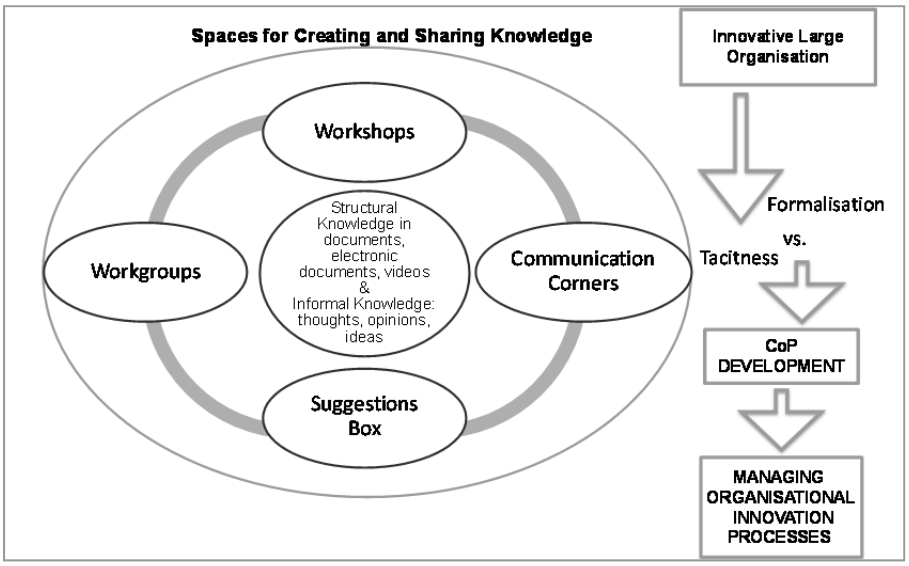

Figure 1: Tools to facilitate and potentiate knowledge sharing

At the moment, several workgroups of TPM (Total Production Management[2]) were created to improve the efficiency of the machines and processes.

Another, but less standard, mechanism for sharing knowledge is communication corners. A simple, 30-minute weekly meeting or a random meting when some kind of situation occurs can be invaluable. The idea is to jointly look at the operating results and discuss them, trying to understand them and finding new processes to reduce time or costs.

The development of competencies also helps to create a culture of knowledge sharing, and Alpha has several training routines. The main goal is to create a potential – they invest in their workers so they can assume more responsibilities and become more knowledgeable.

6. RESULTS FROM ACTION RESEARCH PROCESS FOR DISCUSSION

Embedding a culture of knowledge sharing and reuse is perhaps the most important challenge for Alpha Managers. It is less about managing knowledge and more about managing workers whose work depends on what they know and what they can learn from others.

The process of applying the Operators' knowledge with the help of the Technicians together with experimentation, observation and dialogue techniques allows the adaptation of existing knowledge to new and novel situations.

[2]TPM is a methodology used to optimize production, reducing loss and maximizing the use of equipment and machines.

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This represents an important and undervalued source of learning in the factory, and the processes of learning by observing are crucial for the new workers. They learn through socialization, observation and practice.

> "Our instruction sheets of operating procedures and competencies tables represent a form of explicit knowledge in the plant, which can be used by the workers. But first they need to learn with the older workers or even the shift Managers how to use our work routines." (Group recall – Production Managers)

To share more objective knowledge like rules, procedures and routines, Alpha uses several techniques: "We created a procedure sheet that new workers should follow." (Group recall – Production Managers)

Knowledge transference is often based on the organisation's explicit knowledge, in this case procedures sheets and knowledge databases for quality problems, and solutions and others repositories.

Explicit knowledge is expressed in formal and systematic language, and shared in the form of data specifications and manuals. Tacit knowledge is rooted in actions, procedures, routines and values.

In many situations, tacit knowledge cannot be wholly converted into explicit. Examples of this include life and work experiences and all the knowledge those workers develop and store over the years. It seems to be easier to share technical knowledge, because it is already explicit in manuals and it is easier to explain, then organisational knowledge that was accumulated along the years by the workers through work practices and routines.

Davenport and Prusak (1998) stated that the transfer of knowledge can be made by formalized transfer mechanisms and informal exchanges. The formalized transfer methods include documents, databases, Intranets and GroupWare. Informal exchanges refer to the more casual events that usually take place face to face, such as a conversation.

ALPHA main ways of making the knowledge explicit:

- Written: through e-mails, documents and discussion groups.

> "All the procedures are available through documentation and in the intranet. Workers can access computers in each section to consult the information or ask the section's Manager to access the information for him, because some Operators do not know how to access the intranet and make the search or even how to use the computer" (Group recall – Technicians)

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- Visual: using models, illustrations or data visualization tools.

> "The information is all registered in photographs and displayed in the sections' placards. The same happens with instructions, work plans, maps and tables, so that they are easier to read and understand." (Group recall – Technicians)

ALPHA takes photographs when they are going to make some changes in the plant, and then they display them in the plant showing how it was before and how it is now. This very powerful technique helps to involve the workers in the organisation and in their work. They create emotional liaisons with their workstations, when they analyse all the changes that they have faced and overcome.

Production Managers also referred to other kinds of information displayed:

> "In the communication corners we place all the important information: efficiency levels, competencies matrix, instructions and productivity data." (Group recall – Production Managers)

- Spoken word: through voice mail, recordings, the telephone or person-to-person interaction.

> "Communication corners are used for meetings. In some sections, the meetings are held weekly, with the goal to analyse all the issues that occurred in the previous week. With this we look forward to eliminate "Mr. Rumour" and involve the workers in all the factory situations and problems." (Group recall – Production Managers)

- Video/observation: video databases, body language, master-apprentice relationship, video conferencing.

> "For instance, we have problems and solutions databases and quality databases that are accessible to all workers, in each section of the plant." (Group recall – Production Managers)

- Combination: technologies adopted that include some or all of the previous.

> "When we have problems we register them in an internal tool together with all the information related to the problems." (Group recall – Technicians)

A main reflection from group recalls is that individual knowledge, if not shared with others, will have very little or no effect on the organisation. Therefore, one of the important tasks for organisations is to facilitate the process of interaction between employees promoting and encouraging the use/share as well as using the knowledge gained and stored in the form of explicit knowledge.

Alpha knowledge sharing routines involve not only internal players, but also external ones such as customers. Even a specialist in a certain area can help the

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discussion and create some knowledge that can help to implement a new practice, tool or technology:

> "The workshops sometimes have an external moderator, someone with specific knowledge. This helps us to develop ourselves in an organisational and technological way. Sometimes it is a specialist belonging to the group (from another factory with a different line of products); other times it is a consultant or someone from the Academy." (Group recall – Department Managers)

When they have a production problem, the workshops involve only internal players from different sections of the plant so that together they can all find a solution or a way to minimise the consequences of a problem.

> "The greatest advantage of workshops is that people who participate in them are an integrant part of the problem or situation. An example of a problem that we discussed in a workshop was regarding auto-quality – we intend to reduce the incidents of line 1." (Group recall – Department Managers)

The workshops in Alpha can be seen as knowledge creation processes, CoP in essence, linking workers to others with expertise. Relational competencies are a key to the capture, use and creation of knowledge and learning within organisations.

Cross-functional workshops and meetings are a crucial aspect of CoP to share perspectives and to facilitate discussions that provide invaluable knowledge. Organisational players share their opinions and insights, as well as their own questions, sharing and creating new knowledge. For added impact, outside specialists and even customers participate in these sessions. Their perspectives can be refreshing and break down the thinking routines of internal workers.

Reid argued that "the most effective way to disseminate knowledge and best practice is through systematic transfer" (2003). Likewise, Alpha has been creating a culture of knowledge sharing by implementing these routines and promoting collaboration in a systematic transfer.

To show its commitment for sharing knowledge, Alpha created a reward system taking into account workers' contributions and their participation in the organisational life. Their contribution is also recognized through information displayed in the plant.

Finally, we should stress the importance of sharing during the training programs that had prepared managers and workers to work within the new set of organisational dynamics imposed by the Production System.

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7. DISCUSSION

Our aim was to conduct a case study research on how innovative large organisations are dealing with the tensions between formalisation and tacitness, in a context of sharing and creating knowledge in communities of practice (SWAN et al., 2002; BERTELS et al., 2011). The main tensions arise from two opposite forces usually disregarded when researching CoP and the knowledge process. Tacitness boosts creativity and innovation (SCHULZ; JOBE, 2001; BERTELS et al., 2011) but managing organisational units calls for explicit knowledge and formalisation (NONAKA et al., 2006).

Coordination must be anticipatory and proactive in terms of providing a clear pathway to achieve the goals set previously. How these resources and capabilities are managed in CoP becomes crucial, since these structures are said to emerge spontaneously. Hence, translating governance and organisational procedures is a difficult task in that context (HEDLUND; NONAKA, 1993; NONAKA et al., 2006), even more so if we consider the main proposition of the situated learning theory (LAVE; WENGER, 1991): learning happens within the contexts and conditions of practical engagement. Therefore, overly bureaucratic procedures attempting to transform tacit into explicit knowledge may hinder this natural engagement.

Our study provides some insights to this problematic confluence of those forces. The fact that this firm began the whole innovation process by implementing a formalised and very structured system (TPM) is a determinant for understanding how to conceal those forces. Coordinators may play a key role for aligning practices of both organisation and CoP (CONTU; WILLMOTT, 2000; BROWN; DUGUID, 2001).

In our case, top management involvement and the role of a culture of innovation favours the approximation of formalisation towards tacitness. In the face of the fact that too much formalisation may nullify the advantages of knowledge in action, this firm responds with a combination of tacitness and formalisation such as the TPM within a context of CoP. We could even consider this as a particular case of the “knowledge vision” suggested by Nonaka and Takeuchi (1995) and Von Krogh et al. (2000). This is a kind of combination of formalisation and tacitness that includes the effectiveness of the *ba* —that could be assimilated to the CoP, in our case – and

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the perspective of the future represented by the knowledge visions (included in the TPM).

The above mentioned idea may fit well within the research line suggested by Von Krogh et al. (2000), based on the lack of a knowledge vision. As shown, the TPM, as well as the leadership and involvement of top managers aligned with the "knowledge vision" within the organisation, bring to the fore the economy of patience versus the economy of speed, already suggested by Nonaka and Toyama (2002). The *ba* is the key, whether this is a CoP or any other form (workshops, workgroups…). The problem of multi-membership to several CoP (MUTCH, 2003) can be managed by the role of the middle-line managers as facilitators and coordinators.

Situated learning theory predicts that dispersion of a CoP and the use of tacit knowledge are related inversely under the general principle of legitimated peripheral participation. As we have shown, "who-knows-what" is what must be explicit and available throughout the organisation. This implies a new way of combining the advantages of tacitness (quickness) and formalisation (management).

Therefore, the combination of tacitness and formalisation in a kind of "knowledge vision" can be noted as a key for overcoming those opposite forces shaping CoP within this type of firms. The role of "coordinators" instead of "coordination" can also be highlighted as a contribution for future theorising on these issues. Hence, the proper combination of tacit and explicit knowledge is required to overcome the tensions between tacitness and formalisation.

8. IMPLICATIONS FOR PRACTICE

Our study provides evidence on how innovative large organisations may deal with CoP while avoiding some of the risks related to the confrontation between tacitness and formalisation.

We must highlight that these organisations must pay particular attention to finding out to what extent this tension exists when searching for ways to seize upon the CoP.

Developing a "knowledge vision" in a context of CoP may help to effectively combine the advantages of tacitness and of formalisation while avoiding their

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confrontation. Moreover, the key lies upon the identification of what must and must not be explicit in order to boost performance in the learning process ("who-knows-what"). This becomes crucial for innovative, large organisations willing to properly manage (hierarchy and formalisation) these structures.

The involvement of top and medium-line managers can also be fruitful for encouraging the relationship between proficiency of dispersed collaboration (hierarchical and large organisations) and innovation performance.

9. LIMITATIONS AND FUTURE RESEARCH

The exploratory case study conducted in this article addressed the particular context of an innovative, large firm. Other enterprises that are not following an innovation strategy might discover some limitations to our findings. Tacitness may lose relevance in the latter firms, as it is quite related to innovation. However, according to the postulates of situated learning theory, CoP may emerge in almost whatever context of practical engagement exists (LAVE; WENGER, 1991). Therefore, our discussion and findings might also be feasible for what happens in those other firms.

Our finding concerning the "knowledge vision" and the effect of the de-formalisation in this context calls for further research. This emphasises the lack of a knowledge vision (NONAKA et al., 2006), and calls for further research on the possible forms that such vision may take.

The temporal dimension of the firm, dynamic in essence, requires more empirical research on how those forms may be developed over time and within different environmental contexts. How the combination of tacitness and formalisation evolves and how the firm adapts proactively to that combination according to the particular conditions would help to advance the trajectories that firms can follow for efficiently seizing CoP.

Nevertheless, we have disclosed a still underestimated and relevant problem that requires further research from other possible approaches.

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