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Knowledge management at Unilever South America – enabling conditions and their interaction with the SECI model

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ABSTRACT

This paper describes the organizational knowledge taxonomy, comprising management of an existing knowledge and creation of a new knowledge, portraying the theoretical path of the field with emphasis on some oppositions such as tacit-explicit and exploration-exploitation and their impact into the organizations. It presents the case study of Unilever South America by analyzing the company's enabling conditions for knowledge creation and the integration with the SECI (socialization, externalization, combination, internalization) process, in which we identify how the company manages to cope with knowledge creation and sharing as a strategic resource for the product innovation activities of marketing and R&D project teams, thereby portraying features of organizational knowledge as a strategic resource and its use dimensions in the product development process. The results pointed to advances in the efforts for the dissemination of knowledge by the top management of the company; however, it also shows that some team integration is missing, so that knowledge is shared due to the working structure rather than for individual or collective initiatives, which leads us to conclude that the strategic objectives and efforts of the organization to extend the reach the generated knowledge within the business does not reflect completely in the reality of the working groups.

PALAVRAS-CHAVE

Criação e compartilhamento de conhecimento,
Processo SECI,
Inovação de produto,
Interação P&D-marketing,
Unilever.

RESUMO

Este artigo descreve a taxonomia do conhecimento organizacional, contemplando a gestão do conhecimento existente e a criação novos conhecimentos e mostrando o percurso teórico desse campo de estudos com ênfase em oposições como explícito-tácito e exploração-explotação e seu impacto nas organizações. Apresenta o estudo de caso da Unilever América do Sul, analisando as condições capacitadoras da empresa para criação de conhecimento e sua interação com o processo SECI (socialização, externalização, combinação, internalização) em que se identifica como a empresa trabalha com a criação e compartilhamento de conhecimento para realizar inovação de produtos pelas equipes de marketing e P&D, evidenciado as características do conhecimento organizacional como recurso estratégico e suas dimensões de uso no processo de desenvolvimento de produtos. Os resultados demonstraram haver avanços nos esforços de disseminação de conhecimento pela alta administração da empresa; no entanto, revelaram também faltar alguma integração entre as equipes, de modo que o conhecimento é compartilhado mais pela estrutura de trabalho do que por iniciativas individuais ou coletivas, o que leva à conclusão de que os objetivos e esforços estratégicos para estender o alcance do conhecimento gerado dentro da organização não se refletem completamente na realidade dos grupos de trabalho.

1 Introduction

Knowledge has been object to frequent discussions in society, so expressions like "knowledge era", "knowledge society", "knowledge worker" are seen in mass-circulation papers in South America, and there are several books available bearing titles such as "knowledge management" and "organizational learning". In the organizations and management schools, the continuous learning of professionals beyond a single area is encouraged so they are better prepared to meet the market challenges. Nonaka (1991, p.41) states that "new knowledge always begins with the individual". In an organization with several professionals, this statement presumes a set of accumulated knowledge pieces that gravitates towards the different departments and which, used individually or collectively by the professionals, contributes to help the organization achieve business goals. When considering the professional's knowledge separately, some questions can be raised: what are individual and organizational knowledge? How far does this knowledge reach? Is it possible to grasp individual knowledge if the professional leaves the organization? How can this individual knowledge be replicated in a broader sphere? How can new knowledge be created? Such questions are in the organizations' agenda, and they try to use mechanisms to formally register the activity of their professionals in reports, meetings, presentations and data management systems. This explicit record of knowledge certainly covers some key actions, but an important part is not captured by such tools, as they are only in people`s minds – it is the tacit knowledge.

This work describes the taxonomy of both individual and organizational knowledge, and then presents the case study of Unilever, a global fast-moving consumer goods (FMCG) industry, to examine the enabling conditions for knowledge creation, distinguishing its main components and occurrences in the operational level, namely, in product development projects in the South American region. The justification for this research lies in the interest to capture the various concepts related to the knowledge creation and management in the form of a case study, giving them a better outline in their applied dimensions. In other words, it aims to echo the current discussions seeking to the understand the peculiarities of knowledge creation and knowledge management theories – thereby offering some contribution from an academic standpoint – seeking also a concrete meaning by identifying the mechanisms that help disseminate knowledge in different organization levels accordingly. In sum, the paper will portray a panorama of the main theories connected to knowledge creation and management providing examples that can facilitate application in management courses as well as presenting tools that are likely to be used by practitioners in a real organizational setting.

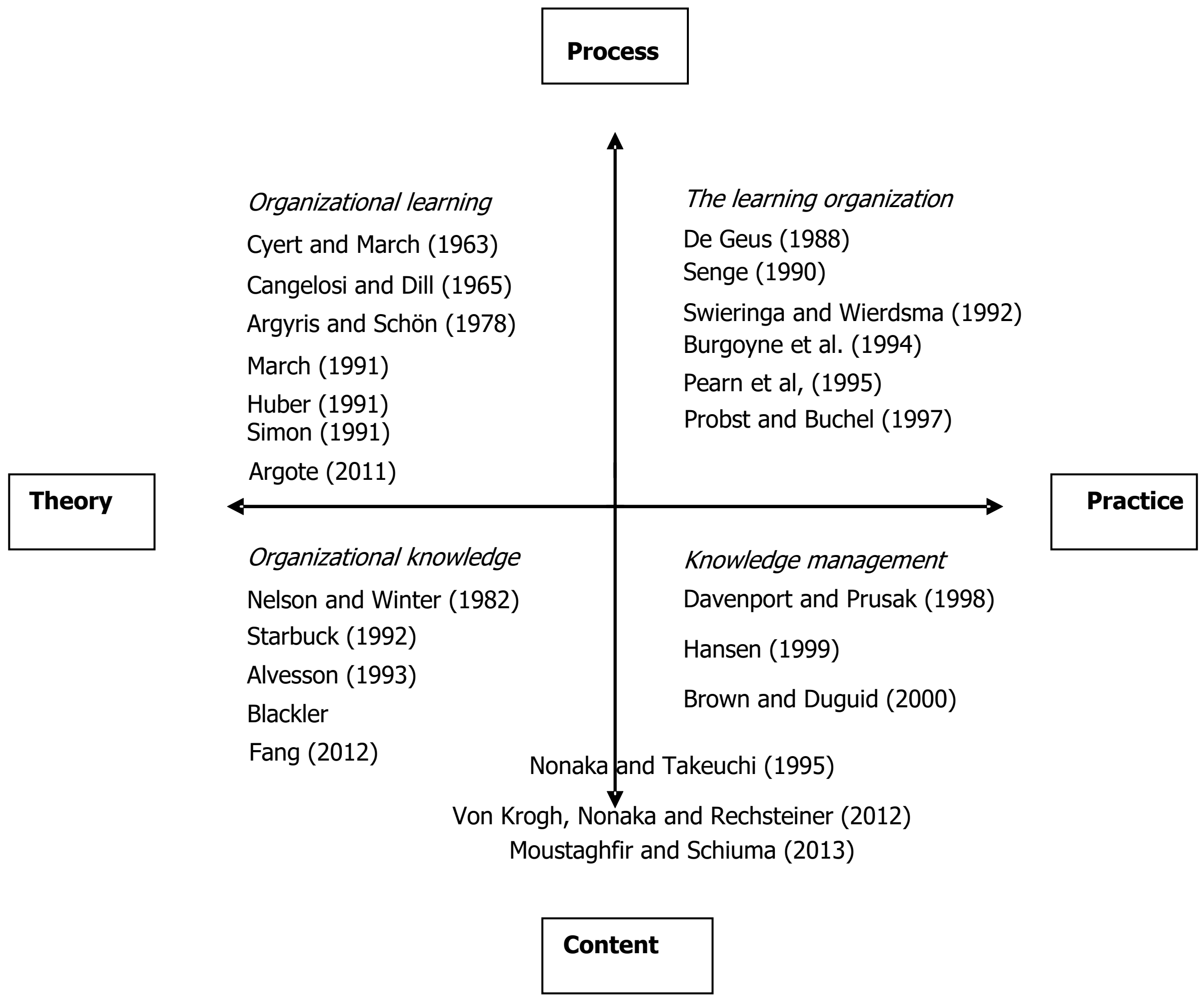
This study is structured as follows: first, further to this introduction, we present the theoretical background, raising most concepts and difficulties associated to knowledge creation and management as a strategic resource; then, we describe the research problem, objectives, and methodology as well as the detailed construct items on enabling conditions for knowledge creation and its application through the SECI process; after that, we present the Unilever case discussion, showing the empirical research findings; and lastly, we make our final considerations.

2 Theoretical Framework

2.1 Organizational knowledge and knowledge management

Lyles and Easterby-Smith (2003) provide an overview of the main studies published about knowledge in the organizations, encompassing the individual and organizational dimensions. They emphasize the influence of classic works like those of Penrose (1959) and Polanyi (1966), whose concepts were used by different researchers of organizational knowledge, making distinction among four major streams. Under *organizational learning*, the studies of the learning processes were grouped to understand and critique what happens within the organization, as done by March (1991) and Simon (1991). In *the learning organization*, scholars like De Geus (1988) and Senge (1990) claim the organization can learn and they seek to understand, in practice, how to create and improve such abilities for a better performance. The studies focusing on *organizational knowledge* aim to conceptualize the nature of the knowledge held by organizations, addressing individual and group knowledge and the tacit-explicit knowledge distinction, such as Nelson and Winter (1982), who present the concept of tacit knowing as the basis of individual and organizational competence, and Nonaka and Takeuchi (1995) as the major influence of that stream. At last, the studies dedicated to *knowledge management* portray a technical and practical view of how to create mechanisms to disseminate knowledge for organizational performance improvement, as did Nonaka (1994), and major consulting companies that focused on ICT tools for knowledge management in the organizations. Figure 1 presents the main authors distributed across these four research fields.

Figure 1. Main areas of knowledge study in the organizations



Source: Adapted by the authors from Easterby-Smith; Lyles (2003)

Those streams show some relevant distinctions. One is that there are sub-themes of a more theoretical nature, while others are essentially more practical. Another is that some sub-themes are more process-related, whereas others refer mainly to the content. Anyway, it is understood that such dichotomies are created for educational purposes, given that the reach of the questionings is likely to go beyond the limits set by the quadrant and are chiefly used for theory discussion and practical application.

2.2 Knowledge as a strategic organization resource

Penrose says that “a firm is basically a collection of resources” (Penrose; 2009, p.68). Resources comprise the material and the human tools and capacities that enable a firm to produce singular products and services compared to other firms. This Penrosean view was further discussed by Wernerfelt (1984, p.180) when he refers to knowledge as one of the organization's most valuable and inimitable resources and a driver of competitive advantage as the firm can "exploit the current assets, as well as develop new ones". The authors' viewpoints converge on the importance of knowledge as a predominant factor for the generation of resources that are unique to one organization.

Tsoukas (1996) conceptualized organizations as knowledge systems, claiming the professionals employ both the existing and the factual knowledge (know what), using also the collective knowledge to create new knowledge. This view outlines the degree of complexity achieved by knowledge in three important dimensions: the *use*, ranging from individual to collective; the *exploitation*, which can be deliberate or not; and the *dynamics*, given the numerous possibilities of knowledge creation.

Alavi and Leidner (2001) advocate that understanding the knowledge taxonomies is fundamental, given the myriad of theoretical approaches and types of knowledge that came up. Most authors, however, work with the perspective of the use of knowledge, not with knowledge per se: Prahalad and Hamel (1990, p.82) call core competences the "organization collective learning" associated with manufacturing skills; Kogut and Zander (1992, p.391), name combinative capabilities the "intersection of the capability of the firm to exploit its knowledge and the unexplored potential of the technology". Grant (1996, p.377) speaks about organizational capabilities, defined as "a firm's ability to repeatedly perform a productive task by integrating the specialized knowledge". Spender (1996), however, claims four types of organizational knowledge: *conscious* (explicit and individual); *objectified* (explicit and organizational); *automatic* (pre-conscious and individual) and *collective* (depending on the context and expressed in the organizational practice).

Therefore, this draws attention to a key distinction between individual and organizational knowledge. In that regard, Kogut and Zander (1992) outline the path of knowledge, firstly unfolding the concept as information and know-how and then emphasizing its transformation, which ranges from the personal to the social level, in four steps: individual, group, organization and network. They claim the personal knowledge grows gradually in complexity by moving towards the broader and more strategic spheres of the organization, so that "once the organizing principles replace individual skills, they serve as organizational instructions for future growth" (Kogut; Zander, 1992, p.390). In other words, the knowledge grows with the routines and is cumulatively shared among groups until it becomes a strategic repertoire that is unique to that organization. Knowledge is identified as an element of crucial importance in the development of organizational strategies, considered the catalyst element of competitive advantage for those who possess and use it properly. Moreover, the discussions lead to two reflections, the first asserting the relevance of the individual who, ultimately, is the only knowledge holder, especially the tacit one; the second highlights the efforts of the organization to make effective use of this very knowledge within its boundaries, sometimes in a quite disorderly manner, as we will discuss further.

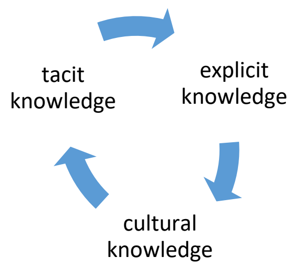
2.3 The creation of organizational knowledge and its difficulties

Penrose (2009, p.48) makes a distinction between the objective knowledge, "one kind that can be formally taught, can be learned from other people or from the written word", and experience, which "also is the result of learning, but in the form of personal experience"; she points out that the experience helps increase the objective knowledge through the tasks performed, but it is intrinsic to the individual and may not be transmitted to others. She also highlights the firm expansion limits due to the inexperience of some group members who need time to acquire the necessary skills to perform their tasks, generating a gap in the firm growth while that knowledge is not fully incorporated.

Nelson and Winter (1982) discuss the organizational routines in their conception about the firm changes from an evolutionary perspective, understood as rules and procedures resulting from learning which are bound by a unique code that helps compose the organization's "memory". Regarding knowledge incorporation, they assert (1982, p. 99) that "the routinization of an activity is the most important way of storing operational knowledge that is unique to the organization." Therefore, the routines incorporate the organization`s tacit and implicit knowledge, being important to analyze how that knowledge is stored, applied and changed.

Choo (2002) advocates that the creation of knowledge is triggered when some knowledge gaps are detected which hinder an organization from solving a problem, creating a new product or benefiting from an opportunity. Then knowledge is created by the conversion of tacit into explicit knowledge, combination and integration of knowledge and its acquisition and transfer across the organization, as shown in Figure 2.

Figure 2. Knowledge Creating – Process and Dynamics

Model	Process	Dynamics
Knowledge creating	Knowledge gap ⟹ Knowledge conversion, integration, transfer ⟹ new knowledge ▪ Knowledge conversion ▪ Knowledge integration ▪ Knowledge transfer	 Knowledge creating

Source: Choo (2002)

Nonaka (1994), asserts that new knowledge is built through the interaction of two dimensions: the tacit and the explicit. Tacit knowledge usually refers to the experience acquired individually, being difficult to codify and transmit to other people. Explicit knowledge is codified and can be transmitted, as represented in Figure 3.

Figure 3. Modes of knowledge conversion

		to	
		Tacit	*Explicit*
from	*Tacit*	SOCIALIZATION - interaction between individuals; - shared experience	EXTERNALIZATION - through metaphors, analogies, concepts, hypotheses or models
	Explicit	INTERNALIZATION - action of learning by doing through manuals showing the experience from other individuals	COMBINATION - integration of various bodies of knowledge through documents, meetings, computers, etc.

Source: Adapted by the authors from Nonaka (1994)

These dimensions allow for distinguishing between the knowledge creation and transfer - under this perspective, the main challenge of the organizations lays in capturing and using tacit knowledge. Nonaka and Takeuchi (1995) advocate that tacit individual knowledge is mobilized and amplified by these four modes of conversion, a phenomenon they call "spiral of knowledge" which starts in the individual level and goes upward through the groups through interaction, thereby crossing sections, departments, divisions and even organizations.

A concept that helps understanding the tacit-explicit relation is knowledge *exploration* and *exploitation*. For Levinthal and March (1993), exploration presupposes the pursuit of new knowledge, while exploitation implies the use of existing knowledge. March (1991, p.85), states that “the essence of the exploitation is the refinement and the extension of existing competences, technologies and paradigms. Its returns are positive, proximate and predictable. The essence of the *exploration* is experimentation with new alternatives. Its returns are uncertain, distant and often negative”. Popadiuk and Choo (2006) consider *exploration* more related to the creation and use of tacit knowledge, while *exploitation* applies to the use of explicit knowledge. This opens possibilities for other analogies in which, from an organizational standpoint, exploration-exploitation would be means of using tacit and explicit knowledge. That said, we could consider mutual influences, in which the changes in the exploration would be reflected not only in the exploitation, but also in the tacit and explicit knowledge.

Another aspect is the threshold between the concepts. Across the exploration-exploitation concept, as well as on both ends of tacit-explicit there are intermediate derivations, in a subtle line limit, showing that the concepts are not hermetic and require an analysis in their dynamic context. Besides, it is necessary to point out that exploration competes with exploitation for resources within the organizations (March, 1991) and, by analogy, tacit knowledge would compete with explicit, apparently at disadvantage. Thus, the organization emphasis lies mostly on explicit knowledge, which usually can be captured and managed by ICT tools.

Levinthal and March (1993) assert that organizations find it difficult to dedicate simultaneously to exploitation – to ensure the current feasibility of their business, and to exploration – to ensure future feasibility. This suggests that the organizations should pursue some balance not only between exploration and exploitation, but also between the use of tacit and explicit knowledge to achieve the best results in their innovation processes and the overall business targets. In that regard, Alavi and Leidner (2001) highlight the *knowledge management systems* as far more important than a simple repository of ideas. These authors review the concepts related to knowledge management, aiming at establishing a relation between the main taxonomies – creation, storage, retrieval, transfer, and application – and their connection into the management systems. They advocate the need for different approaches to respond to the varied knowledge types, processes, and dynamics, and claim IT can be a key tool to respond to this multiplicity, going beyond the initial storage function.

Nonaka, Toyama and Konno (2000), present knowledge creation with emphasis on top and middle managers as active leaders, and advocate that this process implies a management style beyond common tasks such as the control of the information flow. They claim the need for a widely disseminated knowledge vision across the organization, the creation of knowledge mechanisms, and mid-management promoters in place as an interface to the other levels of the organization as well as to the external environment. In that regard, Matusik and Hill (1998) address the expansion of knowledge retrieval beyond the organization limits, discussing the concept of *contingent work* as an important factor for a company’s knowledge creation. Thereby, the temporary incorporation of outsourced labour and the resulting interaction with the existing employees could promote the transfer of specific knowledge from outside the organization, given that “contingent workers are likely to have higher knowledge levels in industry and occupational best practices than are their counterparts who remain in one or a few organizational settings." (Matusik; Hill, 1998, p. 686).

That approach enriches the scope of possibilities for incorporation of tacit knowledge by socialization (Nonaka, 1994). If a firm can recruit an outsourced worker to fill a knowledge gap, this contingent work may become a solution to the limitation of the firm expansion brought up by Penrose (2009), in that the external experience will be applied to the group’s benefit, reducing the possibility of growth stagnation for resource inconsistencies. To that point, Prahalad and Hamel (1990, p.88-9), claimed that "the top managers are seldom able to look four or five levels down into the organization, identify people who embody critical competencies, and move them across organizational boundaries”. This view of knowledge as lack of experience also finds support in the concept of *bounded rationality* (Simon, 1991, p.132-3) defined as the “limits upon the ability of human beings to adapt optimally, or even satisfactorily, to complex environments". This author adds depth to the discussion in distinguishing between a problem that is new for an individual or for the organization. On her turn, Penrose (2009, p. 90-1) affirms that "the capabilities of the existing managerial personnel necessarily set a limit to the expansion of that firm in any given period of time, for it is self-evident that such management cannot be hired in the marketplace". Therefore, Simon corroborates Penrose's idea about the individual knowledge: they both state that the individual to whom a new routine is presented will require some time to adapt, and both converge upon the limit for the individuals' performance due to the transactions complexity. One difference in their view is that, for Simon, a "change in the representation [of the corporation's objectives] implies change in the organizational knowledge and skills" and "it is usually cheaper and quicker to import new expertise and dismiss the old than to engage in massive re-education". (Simon; 1991, p.133), thereby claiming as better to recruit from outside the organization, mainly when dealing with some deeper knowledge of a nature beyond the individual's competences and requiring some routine rearrangement which cannot be managed by tacit knowledge only.

Questioning Nonaka and Takeuchi's tacit knowledge approach, Tsoukas (2003) advocates it may not be possible to convert tacit into explicit knowledge, so the concept claimed in management studies would be erroneous. Such an approach, he asserts (2003, p.425), "ignores the essential ineffability of tacit knowledge, thus reducing it to what can be articulated". Being so, if there was effective knowledge transfer, it was not properly tacit – given that is not expressed in words – but only implicit knowledge that was latent, waiting to be codified. This opens for a more profound investigation of tacit knowledge, considering the assumption that a simplification of the concept created by Polanyi (1966) may have occurred.

Another perspective that sheds light over Tsoukas' objection to clarify both viewpoints, while presenting an intermediary solution, is Leonard and Sensiper's (1998). They recognize peculiar characteristics of tacit knowledge that reflect Polanyi's (1966) approach, and remark tacit knowledge as semiconscious or even unconscious, which could lead to decisions based on *insights* resulting from connections between body and mind. Then they propose the application of this tacit knowledge for innovation in problem anticipation, finding, and solving (Leonard; Sensiper,1998, p.114-5). This allows for a better understanding of Tsoukas (2003) questioning. As they put it, tacit could not be converted into explicit knowledge *per se*, i.e. there would be no direct transformation of tacit into explicit knowledge. However, tacit knowledge could be used, as an internal process, in problem solving. However, even so it continues to be tacit knowledge, unique to that person who made use of it. As a result, any attempts to convert tacit knowledge into explicit would be doomed to failure, given that what was ultimately captured could grasp the insight, but not the complex set of semiconscious or unconscious associations that generated, as these are intrinsic to the individual who produced them.

The concepts presented in this section raise some questionings. The first relates to the identification of the difficulties of use and control of the individuals' tacit knowledge by the organizations. Tacit knowledge can be used in the routines crystallized in the organization, or by contingent workers; nevertheless, there may be obstacles to the use of this tacit knowledge, like bounded rationality (Simon, 1991) or the difficulty to retrieve it. In other words, tacit knowledge could be used and shared (socialized) by the individuals within and organization in a certain time and occasion, yet, not necessarily would it allow for replication by other individuals in a different context. The second relates to the choice of exploration and exploitation of knowledge by the organization to achieve certain results. It is necessary to understand the applicability of this balanced use in the organizations, since the pressure for immediate results tend to predominate over long-term projects. The third refers to the essential conditions for knowledge sharing among organization members to promote the "spiral of knowledge". Assuming such conditions as mandatory, it is necessary to verify the occurrence of the phenomenon in the field. Lastly, the coexistence of distinct knowledge management models raises some questioning about the choice, appropriateness, utilization and benefits of a specific model, its peculiarities and applicability to different types of organization.

2.4 Knowledge and product development

Clark, Chew and Fujimoto (1987) relate that the product development process occurs in problem-solving cycles where professionals seek to improve performance parameters in an uncertainty environment. The engineers begin with broad objectives, considering the target market, price range, performance levels, customers, and relations to other products, and then measure the project performance through the design quality and manufacturability, as well as the costs and execution time. Additionally, they highlight four key product development activities: concept generation, product planning, product engineering and process engineering. In each, information from a previous activity is used to generate new information for the subsequent action. Figure 4 summarizes the characteristics of each activity, while Figure 5 reveals the processes involved.

Figure 4. Product Development Activities

Concept Generation	**Product Planning**	**Product Engineering**	**Production engineering**
Information about customer needs and problems are converted into a written product concept	Set clear and detailed objectives in terms of product features, performance and cost	Design of detailed product drawings and prototypes	Design of the production process (flow, machinery, operation) and pilot tests

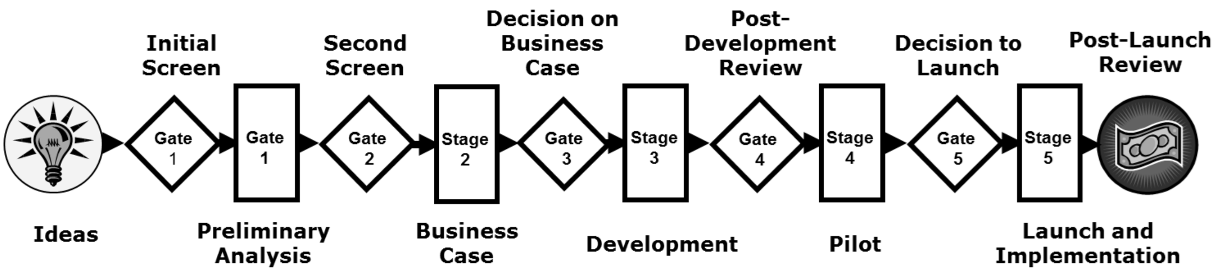
Figure 5. Problem Solving Process

setting goals	generating alternatives	building models	testing models	selection of best model

Source: Adapted by the authors from Clark, Chew and Fujimoto (1987)

From a product development process standpoint, Cooper, Edgett and Kleinschmidt (2002) describe the use of the *stage-gate process*, as analysis and decision-making stages for moving or not with a given project. The initial stage is the generation of ideas, and the incorporation of details for their materialization; as the stages evolve, more depth is gained. Over the development project, essential questions related to the economic and operational feasibility of the project, its alignment with the strategy of the organization and the expected return (from a time and finance standpoint) must be answered. For these authors, the use of the system helps to prioritize and select the projects, ensuring the application of resources and the continuation of those that are considered the best for the organization growth. Figure 6 illustrates the process as described by the authors:

Figure 6. Stage-gate process for product development

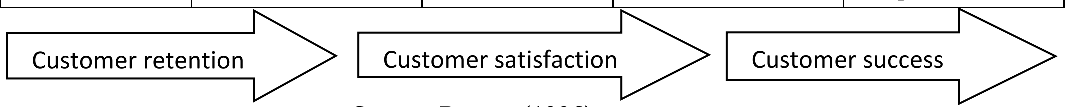


Source: Cooper, Edgett and Kleinschmidt (2002)

Rogers (1996) emphasizes the opposition between "technological innovation" and "innovation by knowledge". For this author, over the last decades there were considerable changes in the organizations R&D departments, which have gradually evolved from a closed group of members holding a specific technological knowledge to a broad collaborative network including external researchers, as shown in Table 1.

Table 1. Comparison of R&D generations, per organizational features

[Generation/ Features]	**N.1 Technology as the Asset**	**N.2 Project as the Asset**	**N.3 Enterprise as the Asset**	**N.4 Customer as the Asset**	**N.5 Knowledge as the Asset**
Core Strategy	R&D in isolation	Link to business	Technology-business integration	Integration with customer R&D	Collaborative innovation system
Change Factors	Unpredictable serendipity	Interdependence	Systematic R&D management	Accelerated discontinuous global chance	Kaleidoscopic dynamics
Performance	R&D as overhead	Cost-sharing	Balancing risk/reward	"Productivity paradox"	Intellectual capacity/impact
Structure	Hierarchical; functionally driven	Matrix	Distributed coordination	"multidimensional communities of practice"	Symbiotic networks
People	We/they competition	Proactive cooperation	Structured collaboration	Focus on values and capability	Self-managing knowledge workers
Process	Minimal communication	Project-to-project basis	Purposeful R&D portfolio	Feedback loops and "information persistence"	Cross-boundary learning and knowledge flow
Technology	Embryonic	Data-based	Information-based	IT as a competitive weapon	Intelligent knowledge processors



Source: Rogers (1996)

3. Research design

3.1 Research problem

The main objective of this study is to examine the mechanisms for knowledge creation and sharing among the individuals involved in the product development process at Unilever South America. Although the theory indicates that knowledge is a valuable resource for the organizations, and secondary research about the company confirms that assertion, there is an interest to identify how the company handles tacit knowledge, which theory highlights as a key element for the companies to maximize their resources. Unilever reports show that the company considers the knowledge management paramount for the development of products, being aware of how important this relation is for the business profitability. However, based on the documents analysed so far, it seems that although the organization presents itself as concerned with the knowledge management, their efforts lie mostly on information technology tools to promote the knowledge creation and sharing aiming at new product development. This leads to the following research question:

Which elements of knowledge creation can be observed in the product development projects of Unilever South America?

Two other related questions are raised:

1) Does the organization foster the generation and sharing of knowledge?

2) Do their activities show the sharing and exploiting of socialized knowledge by the organization members in their new product developing working activities?

3.2 Research objectives

3.2.1 Identify, in the organizational sphere, the presence of the enabling conditions that contribute to the knowledge creation, more specifically**:**

a) understand how the organization promotes the knowledge creation in the corporate level, and

b) get to know the organization's initiatives for the knowledge creation by the product development group.

3.2.2. Indicate characteristics of the knowledge creation in the context of the SECI model among members of the product development project groups of the organization, namely,

c) discuss the efforts for knowledge creation by the members engaged in a project, based on the organization's instructions; and

d) understand how the members interact in the knowledge creation, storage, retrieval, transfer and application in a product development project.

3.3. Methodology

Qualitative research is used in this piece of research, though a case study of an interpretative approach. Yin (2005, p.20) points out that "the need for case studies emerges from the wish to understand complex social phenomena", particularly to examine contemporary events, allowing direct observation and contact with key persons related to the object. Stake (2005) complements that, in qualitative research, the reality perceived by the people within and outside the case studied should be echoed in the social, cultural, situational and contextual reality.

Earl (2006, p.31-2) advocates the use of case studies for recognition of a specific organizational questioning, to: understand whether the research problem is relevant; verify if the questions are researchable and try to refine the methodology; ensure the echoing of the questions into the organizational reality; and collect examples of questions and paradoxes.

The case study is, then, quite appropriate for this research piece, considering that finding relations that underlie the knowledge creation in groups of product development in the organizations is a topic lacking exploration. Furthermore, it is a field full of subtleties, some quite subjective and which can be registered in an interview but unlikely to be captured by impersonal questionnaire.

3.4 Research constructs

The constructs in this research are the *knowledge enabling conditions* and *knowledge creation*. The mechanisms enabling knowledge creation include *organizational intent; autonomy to individuals; fluctuation and creative chaos; redundancy; requisite variety; and trust and commitment.* Begoña Lloria and Moreno-Luzón (2005), based on Nonaka and Takeuchi (1995), pulled together the items of the enabling conditions for the knowledge creation, as listed in Figure 7:

Figure 7. Items for Evaluation of the Enabling Conditions of Knowledge Creation

INTENTION OR COMMON GOAL	REDUNDANCY
▪ Existence of guidelines that express the firm's main proposal; ▪ Expression of the guidelines in a phrase or slogan; ▪ Diffusion of the guidelines within the firm; ▪ Practical use of the guidelines.	▪ Competition between different teams; ▪ Existence of programs of rotation of personnel; ▪ Existence of work that overlaps different areas; ▪ Meetings to share knowledge and ideas.
AUTONOMY	**VARIETY**
▪ Team independence in decision making on the tasks they carry out; ▪ Independence of qualified personnel in decision making in the tasks they perform; ▪ Motivation of teams to create, apply, and absorb new information. ▪ Motivation of skilled personnel to create, apply, and absorb new knowledge.	▪ Contact of teams and units with the environment; ▪ Adaptation of the firm's organization to deal with complexities in the working environment; ▪ Restructuring and modification of organizational structure to deal with diverse problems and situation; ▪ Rotation of personnel to deal with diverse problems and situations
FLUCTUATION AND CREATIVE CHAOS	**TRUST & COMMITMENT**
▪ Breakdown of routines and habits in the workplace; ▪ Deliberate communication of tension; Motivation of individuals and teams after the breakdown of routines and habits in the workplace; ▪ Challenge to the working environment.	▪ Mutual trust explicitly laid down as a value in the firm's objectives; ▪ A commitment to common objectives explicitly laid down as a value in the firm's objectives; ▪ Mutual trust as a shared value; ▪ Commitment to common objectives as a shared value.

Source: Begoña Lloria and Moreno-Luzón (2005)

The analysis of knowledge creation in the product development projects was based on the SECI model (Nonaka, 1994; Nonaka and Takeuchi, 1995), applied specifically to the everyday work of a product development group, their activities and processes. Figure 8 lists the main items for investigation.

Figure 8. Items to assess the SECI process in working groups

SOCIALIZATION	EXTERNALIZATION
▪ Sharing of technical skills, professional and/or intellectual ideas among members; ▪ Promotion of informal meetings – objectives and contents; ▪ Free exchange of ideas in the group; ▪ A trust relationship among the members exists and is guaranteed; ▪ Frequent channels to learn about the firm's news and events; ▪ Open-mindedness and encouragement to exposing new ideas (one's own, others) ▪ The occurrence and the effect of a team members change; ▪ The existence and the role of a mentor to guide the group; ▪ Understanding and acceptance of the colleagues' behaviour.	▪ Explanation of complex ideas and concepts to the group; ▪ Adjustment of concepts discrepancies among the members; ▪ Manners of clarifying the themes under discussion in the group; ▪ Actions to generate collective reflection in the group; ▪ Confirmation of the understanding of ideas and concepts; ▪ The importance of imagination and intuition in the group; ▪ Actions to promote the solving of contradictions; ▪ Actions to integrate a specific idea to the whole of the project; ▪ Actions to help a colleague clarify his/her point of view.

COMBINATION	INTERNALIZATION
▪ The occurrence and effects of the different ideas combination in the group; ▪ Treatment to the existing information in the creation or development of new ideas; ▪ The role of databases in the project; ▪ The importance of the contact network in the generation of knowledge; ▪ The role of the formal project records; ▪ Treatment of the knowledge held by individuals; ▪ Concrete tools used to materialize an idea.	▪ The group's learning process; ▪ Understanding of new ideas by the project team; ▪ Ways of the group acquiring knowledge and gaining experience; ▪ The promotion and frequency of real practical trainings; ▪ The occurrence, use and effect of new ideas or concepts.

Source: Authors.

3.5 Data collection

Data collection was divided into two parts. The first part consisted of document analysis, particularly of annual reports. We browsed these documents for clear or indirect references about knowledge creation and management, especially in the sections connected with new product development, innovation, and people. As an example, in many occasions they mentioned One Unilever, a transformation programme seeking to leverage the way they were managing innovation and impacting employees on a global basis This document analysis was carried out using Bardin (2011) guidelines and techniques and helped making initial links with the theory besides assisting in adaptation of the questions language to the company vocabulary. The study focused on groups located in the cities of Valinhos, Brazil and Buenos Aires, Argentina, comprising projects for the home and personal care categories in the Latin American region and some global. As subgroups within the business units, the departments of 1) research and development and 2) marketing were the object of study. Key members of the organization, such as vice-presidents and directors, were contacted to generate specialized material. On a second moment, interviews were conducted with representative elements of the organization's departments. Semi-structured interviews were prepared for the discuss the topics raised in the theory, test the questions generated, and improve the concepts that were the basis for the field research.

For the elaboration of the interviews protocol, organization documents were analysed, following the qualitative research guidelines of Denzin (2001), Denzin and Lincoln (2005) and Yin (2005). The approach of the interviewees was initially made by telephone to explain the objectives of the research and confirm their willingness to take part in the study. Next, an email was sent with the study explanation and an interview request. The interviews were conducted by telephone and face to face, lasted in average fifty minutes, and were recorded with the interviewees' verbal authorization. Ten people were interviewed in total, namely an R&D director, a senior marketing manager, a regional marketing manager, a regional R&D manager, three R&D coordinators, and three marketing coordinators. The data were initially collected using relatively broad questions, which were reduced in scope as the interviews progressed and similar themes emerged frequently in a modus operandi that followed Alvesson's (2003) suggestions. This author recommends an approach that goes beyond the neopositivist view - which often identifies in the interviewer the holder of absolute control over the respondent and the content - or the romantic view, who sees the interview as a simple meeting for the co-production of knowledge. Instead, the researcher must take into account that it is "critically interpreting specific interview situations and accounts", since "people are not reporting external events but producing situated accounts, drawing upon cultural resources in order to produce morally adequate accounts". (ALVESSON, 2003, p.31). We identified to have reached a degree of redundancy as we noticed responses became recurrent in terms of content and nature, which was deemed as being sufficient to grasp the phenomenon, more so considering that it was a single case study of a company within a regional scope, and was clearly intended to identify the particular characteristics of the subjects, not seeking the generalizing aim that is typically pursued in research of quantitative nature.

3.6 The case - Unilever

Unilever is described in its annual report (2015) as one of the leading global suppliers of fast-moving consumer goods (FMCG) in the food, personal and home care categories. The company informs its businesses were reorganized to simplify the organizational and management structure, and to improve their capabilities in marketing, customer management and R&D, aiming to promoting better resource allocation, decision-making processes and lower costs. This change was called One Unilever. As a result, the company, which traditionally had two presidents, one for the British Headquarters and another for the Dutch Headquarters, from then on had one single president. Additionally, in a press release (2008) Unilever presented the alignment, under one single management, of its areas of research and development for food, hygiene and cleaning. In 2010, the company introduced the Unilever Sustainable Living Plan (USLP), which sets sustainability commitments and targets until 2020 and states that a profitable business at the company would necessary imply a responsible and sustainable path to grow.

Jones (2005) advocates that since the 1960s Unilever has been building a competitive position ahead of competitors, translated into significant market share and successful brands globally. For this author, such advantage was the outcome of knowledge, given “the organization’s cumulative learning, tacit and multifaceted”. (Jones; 2005, p.15). Nevertheless, he also notes the knowledge use difficulty in the company’s product development, reflected by some fragmentation and lack of communication and trust across different areas. The company presents itself as a global leader also in research and development, growing through *innovation* – new products and combinations – and *renovation* – the strengthening of existing brands by range extensions. They highlight over seventy innovation centres worldwide, including Latin America, house of both regional and global category development.

Unilever’s website in Brazil shows that their food division has an innovation centre for Latin America in the city of Valinhos, responding for the development of products such as mayonnaise, ketchup, margarines and culinary products, whose activities include the development and testing of new formulas, packaging, process materials and equipment, consumer insights analysis for new product creation and optimization, and management of technical information. Table 2 shows the main product categories developed by Unilever in Latin America.

Table 2. Unilever R&D in Latin America

Category	Country	Reach
Deodorants and hair care	Argentina	Latin America
Bar bath soaps	Brazil	Global
Powder laundry detergent	Brazil	Latin America
Culinary products, margarine, beverages	Brazil	Latin America
Oral hygiene	Brazil	Latin America
Teas	Chile	Latin America
Cleaning and skin care	Mexico, Brazil	Latin America

Source**:** company’s documents

Jones (2005, p.265), emphasizes that “knowledge circulates around the ‘Unilever world’ through countless webs of personal networks” and that “this core corporate culture coexisted with numerous subcultures in the operating companies, enabling Unilever to function across so many product groups and countries”. Von Krogh, Nonaka and Aben (2001) discuss knowledge management strategies based on Unilever practices, being the first the creation of Knowledge *Workshops* with experts from various countries, impacting positively on investment decisions, best practices dissemination and cooperative innovation across units. Table 3 summarizes the strategies adopted by Unilever in its projects for the development of culinary products:

Table 3. Knowledge management strategies applied to product development at Unilever

Strategy	Definition	Impact
Leveraging	Transfer and share knowledge across different groups in the same organization	Improvement in the product development process
Expanding	Refine, deepen, and build upon existing data, information, and knowledge.	Creation of a new development process from a current knowledge domain
Appropriating	Transfer knowledge from partners, thus building a new knowledge domain	Knowledge gains from external sources for future development processes
Probing	Build up a new knowledge domain from scratch	New knowledge creation that may drive for breakthrough innovation

Source: Adapted by the authors from Von Krogh, Nonaka and Aben (2001)

Unilever seems to be aware of the possibilities of knowledge exploitation for product creation based on internal sharing and on the use of external resources. It is also clear the distinction given by the company to the information technology as an aid in the processes of knowledge retrieval, dissemination and storage. Lastly, their attempt to promote tacit knowledge sharing, mainly through communities of practice. The extent and reach of such approaches have been verified in the field research.

4. Analysis of results

4.1. Enabling Conditions

From the *organizational intention* viewpoint, the research reveals that Unilever shares aspirations with members in a clear and broad manner, as well as the required knowledge and capabilities to materialize them. As to the *autonomy* dimension, the results demonstrated the organization would grant autonomy to members to a certain degree, according to the area and hierarchical position; also, there seems to be frequent fostering to new knowledge creation among members.

Regarding *fluctuation and creative chaos*, interviewees revealed that there are “natural” ruptures and tension mechanisms or routine breaks that are structural rather than intentionally caused by the organization, such as when a key member leaves the project unexpectedly, producing a connection gap; such changes do cause some discomfort, so members must make an additional effort to build group relations again.

Concerning *redundancy*, the research pinpointed a degree of competition among the teams, sometimes unrevealed. Besides, it was affirmed that job rotation occurs frequently, as well as the existence of formal mechanisms to share knowledge, both pushed by the organization. On the other hand, the research did not confirm that there was an overlap of functions or tasks, except in the local-regional aspect, although this is seen in a relatively negative manner by the interviewees.

As for *variety*, the research shows that the members recognize themselves as prepared to face he challenges that may arise in the external environment, by having dedicated resources to capture the movements of the market, as well as the mechanisms to ensure the use of such knowledge internally.

When it comes to *trust*, the research reveals that this is encouraged among members by the organization through specific training, as well as in the day-to-day work through personal interaction rather than just virtual contacts.

Regarding *commitment*, the interviewees assert that having an inspiring leader that encompasses the business values is the most effective way to convey the common objectives from the organization to the groups.

Lastly, it was found that personal initiatives do not occur in any point of the organization, despite the existence of formal and open tools for idea sharing. Additionally, it was revealed that there is no leader rotation since each professional manages his/her specific tasks, except in marketing, whose members are normally the project leaders.

As for sideways communication, the research demonstrates an openness, including physical, for information flow and sharing at Unilever. And it was said that as a coordination mechanism, multifunctional teams are required for the project advance, since development depends on different areas, although this implies a longer negotiation process with all the parties involved. In conclusion, success based on the cross-fertilization of knowledge is a recurrent view but linked to some factors, such as mutual commitment, frequent communication, an attitude towards sharing and an inspiring leader. Table 4 summarizes the results of the research on the occurrence of enabling conditions.

Table 4. Occurrence of enabling conditions in the organization

Enabling Conditions	Description	Summary of the results
1.Sharing of Organization's Intention or Purpose	Dissemination of organization main objectives to members	- Promotion of global, regional and local forums, cascading from top to middle management to align objectives. - Dissemination of contents via intranet portal, workshops, meetings and internal newsletter with real cases on how the objectives are being met.
2.Members autonomy	Teams' decision- making process.	Distinct autonomy levels: 1- members, restricted to his/her area of expertise; 2- work group, broader about the project moves; 3- corporate committee, power to make deep changes during the project.
	Organization's encouragement for members to create new knowledge.	- Innovation centres that search/foster new technologies. - Specific expert forums across different groups in organization.
3.Fluctuation and Creative Chaos	Work routine rupture	- Introduction of a person from another business area or different innovation centre. - Member from a different culture (e.g. from the Far East) as leader.
	Tension generation	Group diversity (different people, ages, life experiences, countries, expertise, company time)
4.Redundancy	Work teams' competition	Groups competing for resources, for project prioritization, for management recognition.
	Personnel rotation	- Peer circulation across distinct business units in the same country or same unit in different countries; - Move to different area from individual's original qualification (scientist moving from the food to work home care category, or accountant moving from finance to marketing)
	Function or task overlapping	Among local and regional professionals, in some cases with negative aspects: 1- work duplication without proper peer communication, resulting in different performance projects; 2- decision power loss
	Formal idea/knowledge sharing mechanisms	-Frequent meetings to exchange ideas about current projects; -Forums to share executed projects and launching plans.

5.Variety	Efforts to prepare members to handle the complex external environment	Distinct groups monitoring the environment (economy, consumer, raw materials, legislation, competition). Documents available on Intranet. To encourage use, teams must write their strategic view of future based on such documents.
6.Trust and Commitment	Ways to establish mutual trust among members	- Training sessions where members are put in situations promoting interaction and partnership. - Encourage personal (face-to-face meetings) rather than impersonal contacts (e-mail, telephone) to build and deepen relationships.
	Concrete ways to transmit commitment values and common objectives	Leader that inspires by example, translates the company moves to the team and helps drive the group to meet targets.

Source: Field research.

4.2 Knowledge Creation in the Context of the SECI model

From the perspective of socialization, the research presents several evidences of its occurrence as a process of interaction among the members of the projects group. Since the team is a multifunctional group, with people coming from different areas of the organization – each of them responsible for a part of the project and all of them for its completion – it is necessary to integrate different knowledge pieces into each area and which need to be made common.

Another highlight were the observations referring to changes of people among the project groups. Clearly, there is a valuation of the tacit component of knowledge as a distinguishing element of newcomers into the group, beyond their technical expertise. Noteworthy is it also the mechanism of establishing a mutual trust relationship among the members of the project group, which results from a convergence of factors, among which the permanent exchange of information between the leaders, in addition to an informal work environment and the use of a tool that ensures tasks accomplishment.

As to externalization, the research revealed that the main tool for knowledge to get explicit is through the formal record of all the development process. The guarantee that a correct understanding by the members of the group was achieved is provided by the innovation funnel meetings in which all the members review the last activities recorded, clarify possible questions, and define the next tasks to be accomplished individually by the group members.

Concerning combination, the results pinpoint the recurring use of formal register mechanisms aiming to incorporate new knowledge by the organization. This is carried out not only with new ideas that come up internally, but also with external information, such as that coming from a supplier or a university, for example. An important detail refers to the retention of individual knowledge: Unilever attempts to have more than one person engaged in the same task so that the work can be further executed even if someone happens to leave the group.

At last, the research confirms the process of internalizing explicit knowledge thorough learning by doing, given that a new member is quickly engaged into the teams, trained in key company processes, integrated into the projects most likely to provide the best learning, and gets committed to carry out specific tasks, which ultimately also serves to evaluate individual performance as well his or her capacity to make decisions under pressure. Table 5 summarizes the instances of knowledge creation in the context of the SECI model at Unilever.

Table 5. Occurrence of creation of knowledge in the context of the SECI model

Socialization	• Integration of knowledge that is characteristic to each area, given that the project team is multifunctional and has diversified qualifications, being mandatory to share specific knowledge with all the members of the group to ensure the job execution; • Relatively frequent change of the members of the group, whose outcome is the need for "resocialization" through the sharing of basic information about the project; • Informal work environment, with permanent information sharing.
Externalization	• Formal register of all the stages of product development in a company's system, which helps to monitor the execution of tasks, without which the project cannot move forward; • Regular "innovation funnel" meetings with the members of the project to review status, actions, next steps and accountabilities.
Combination	• Formal register of new internal or external ideas (suppliers, universities); • More than one person engaged in a same task and the formal register of activities helps to avoid ruptures, ensuring the continuation of the work in case a member leaves the project.
Internalization	• Learning by doing: The new member is quickly integrated to the group and is assigned individual tasks and responsibilities that impact the collective work, being his/her ability to make decisions and under pressure working constantly tested.

Source: Field research.

5. Final Considerations

Knowledge creation is a subject with ample reach, giving rise to uncountable inquiries in the academy and in the society. As a construct, it still carries some conceptual malleability: knowledge management and creation are confused and sometimes indistinguishably used. It remains a relatively fuzzy field which requires some refinement, and this can be considered a difficult task due to the abstraction of concepts that bear many similarities, which sometimes does not allow separating them in their use in the literature.

The empirical research demonstrates that the organization seems to be aware of the benefits and the importance of building and making available the mechanisms that favour the knowledge creation by its members. The findings at Unilever show that, in the organizational sphere, efforts are made so that the knowledge should be disseminated and shared across the different areas of the company; however, facts show that there is much to be done to ensure this knowledge flow, reason for which structural changes were implemented, aiming at a better integration of the teams and their respective knowledge. It shall be emphasized, as two of the most recurring ways of transferring and sharing knowledge, the physical transfer of individuals across the areas, regions or countries, and the establishment of strong interpersonal relations.

At the department level, it is noted, as revealed by the research, that knowledge sharing occurs mainly due to the tools made available by the organization; in other words, it is not a prerogative of the members promoting this sharing spontaneously. This happens rather due to the working structure than for personal initiative. It can be assumed, then, that the strategic objectives and efforts of the organization to broaden the reach of the existing internal knowledge are not completely reflected in the reality of its work groups.

As possible limitations of the study, we firstly point out the time of the empirical research, since the interviews at Unilever were conducted in 2008 and 2009. Despite that fact, knowledge creation and management topics continue vivid, finding a recurrent interest in academia and organizations, and most of the discussions raised here still echo positively on both sides. Secondly, we consider the relatively small coverage for the study. In other words, even though Unilever South America should predominantly replicate global alignments, each country or region has its peculiarities, and such diversity is certainly reflected on the local business dynamics and daily activities.

Therefore, this study opens possibilities for some unfolding. One of them is to study the knowledge creation and sharing in project groups within the same organization, focussing on a) other categories than that of home and personal care; b) other regions, like Asia, or other emerging countries; c) virtual teams, which poses an additional challenge to knowledge management. Another possibility would be work on a single enabling condition (ex.: members' autonomy) or one of the dimensions of the SECI model (ex.: socialization) to understand its impact in the use of the groups' tacit knowledge and its importance over the remaining dimensions. Lastly, a further research path would be studying which personality traits could possibly favour the knowledge creation and sharing in the project teams and the role and influence of the leader in that process.

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