VCOPS SUPPORTING INNOVATION PROCESSES: A CASE STUDY IN A BRAZILIAN ORGANIZATION OF THE PUBLIC SECTOR

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ABSTRACT

Some studies claim that Virtual Communities of Practice (VCoPs) facilitate innovation processes in organizations, as innovation derives from the recombination of existing knowledge or from the creation of new knowledge. This study aims to understand how VCoPs can support innovation processes by investigating this phenomenon in a large organization of the public sector in Brazil. A qualitative approach was chosen to conduct the research in three innovation processes which happened with the support of VCoPs. Data were collected in semi-structured interviews with members of the surveyed VCoPs. The data thereafter were analyzed applying content analysis and data coding techniques were employed in order to determine emergent characteristics of VCoPs that support innovation processes. They have specificities related to the structural configuration of the VCoPs, the domain, the working dynamics, and the characteristics of members. Indications were also encountered that can be used to overcome innovation barriers. As final conclusion it was found that VCoPs for innovation entail an anthropocentric approach. The research presents a case study of a context dependent subject, and the results cannot be generalized. However, the study can help in understanding the qualitative aspects of how VCoPs influence innovation processes in a Brazilian public sector organization, and it opens opportunities for future research employing quantitative methods.

Keywords: VCoPs; Virtual Communities of Practice; Innovation; Public Sector; Brazilian Public Sector Organization

RESUMO

Estudos afirmam que Comunidades de Prática Virtuais (VCoP) facilitam processos de inovação em organizações, já que a inovação deriva de recombinações de conhecimentos existentes ou a criação de novos. O estudo visa a compreender como VCoPs apoiam processos de inovação ao investigar o fenômeno em uma empresa do setor público brasileiro. Escolheu-se a abordagem qualitativa para pesquisar três VCoPs que contribuíram para processos de inovação. Entrevistas semiestruturadas com membros das VCoPs investigadas foram realizadas para a coleta de dados. Os dados foram analisados com o emprego de análise de conteúdo e técnicas de codificação de dados para determinar características emergentes de VCoPs que dão suporte a processo de inovação. Estas apresentam particularidades referentes a configuração estrutural da VCoP, seu domínio, sua dinâmica de funcionamento e características de seus membros. Foram encontrados indicativos que podem auxiliar na superação de barreiras à inovação. Como conclusão última menciona-se que VCoPs com foco em inovação traz em sua essência uma abordagem antropocêntrica. O estudo de caso é dependente de contexto, e por isso, seus resultados não podem ser generalizados. Contudo, a pesquisa contribui para se compreenderem aspectos qualitativos de como VCoPs influenciam processos de inovação em uma empresa pública brasileira, e abre perspectivas para futuros estudos quantitativos.

Palavras-chave: VCoPs; Comunidades de Prática Virtuais; Inovação; Setor Público; Empresa Pública Brasileira

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1 INTRODUCTION

As innovation consists in recombining existing knowledge (Du Plessis, 2007) as well as in creating new knowledge, knowledge sharing can be taken as a crucial process in order to generate new ideas and new business opportunities. This knowledge sharing can be achieved through a socialization process by knowledge workers (Lin & Lee, 2006).

Communities of Practice (CoPs) can be incubating places where innovation is promoted through knowledge sharing (Du Plessis, 2008). VCoPs as facilitators in innovation processes are suggested by some authors (Du Plessis, 2007; Wang & Wang, 2012). However, there are few studies focusing on how VCoPs influence innovation processes. Three studies in the public health sector were found in literature describing how VCoPs could be employed in order to achieve innovative results. Bosa (2008) describes how doctors changed health services in Germany through their discussions in a Virtual Community of Practice about a new health service model. Sorensen, Dubois, and Paton (2012) present a theoretical study with factors that should be taken into account in order to build a Community of Practice for innovative purposes. Mendizabal, Solinís, and González (2013) demonstrate that VCoPs can be used to generate new ideas and to implement them after a selection process.

During the current research process, three cases of innovation with the support of VCoPs were identified at the Brazilian Postal Service, Correios. In order to understand how VCoPs can assist innovation processes, the following research question was formulated: how do VCoPs support innovation processes at Correios? A qualitative case study using semi-structured interviews was conducted in this public sector organization. The findings showed that VCoPs can assist innovation processes, and there is no pattern in how the phenomenon develops. The three selected analysis units show that VCoPs can support either the front-end phase or the back-end phase of the innovation funnel.

2 LITERATURE REVIEW
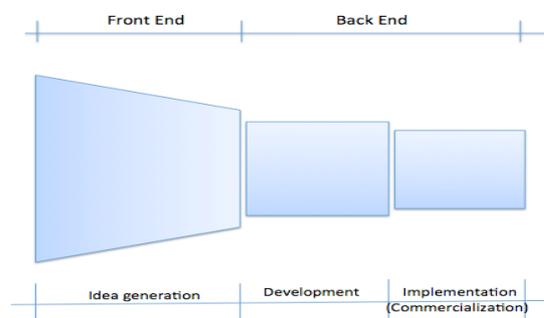
2.1 INNOVATION AS PROCESS

The nature of innovation is multidimensional (Ahmed, 1998). Therefore, it is hard to find a single definition for the word "innovation" (Adolf, Mast, & Stehr, 2013, p.13). Innovation in the current language is often understood as "creativity", "change" or "knowledge" (Crossan & Apaydin, 2009, p.2). The oxford dictionary defines innovation also

as "the introduction of new things, ideas or ways of doing something" (Hornby, 2005, p. 801). Assink (2006) defines innovation as something that aggregates value to something ordinary.

There are two main approaches to understand what innovation is. The first one is to comprehend innovation as result of creating of new products, services, knowledge, and new ways of organizing processes (Benner, 2003). Innovation as a result of a process answers the following question: "what?" or "what type?" (Crossan & Apaydin, 2009, p.13). The second approach is to comprehend innovation as a process. This view answers the question of "how"? (Crossan & Apaydin, 2009, p.13). Baregheh, Rowley, and Sambrook (2009) found that the definition of the word innovation shows particularities in different fields of knowledge: business and management, economy, organizational studies, innovation and entrepreneurship, technology, engineering and sciences, knowledge management and marketing.

After investigating approximately sixty definitions, Baregheh *et al.* (2009) proposed a multidisciplinary definition: "Innovation is the multi-stage process whereby organizations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace" (p. 1334). Such definition presents a managerial perspective: innovation is an intentional, induced, continuous, and managed process, and innovation is not an isolated punctual event (Baregheh *et al.*, 2009). This meaning of "innovation as intentional and induced process" seems to be more appropriate to the current environment of competition and need of sustainability required from organizations. The approach of innovation as a managerial process can be highlighted with the aid of the metaphor of an innovation funnel (Figure 1) (Bessant & Tidd, 2009, p. 27).

Figure 1 – The metaphor of the innovation funnel

Source: adapted from Bessant and Tidd (2009), Deschamps (2005) and Koen et al. (2001)

This analogy of an innovation process with a funnel is accepted by several researchers (Ahmed, 1998; Hana, 2013), and innovation can be understood, in a simplified view, as a process composed by three subprocesses: the front end, the development, and the

implementation/ commercialization. Figure 1 is based on the concepts of Bessant and Tidd (2009), Deschamps (2005), and Koen et al. (2001, p. 51) to present the idea of an innovation process and its subprocesses. Although the subprocesses are represented as a linear flow, they may be interactive and/ or simultaneous (Ahmed, 1998, p. 30).

The Front End represents the stage of idea generation and can be understood as the inventive part of the funnel (Hana, 2013). The second part can be seen as the innovative stage where the newly selected idea is implemented and commercialized (Hana, 2013). Some authors (Deschamps, 2005) name this second part the Back End of innovation, where structured methodologies predominate for evaluating the ideas that come from the Front End. Those ideas should be evaluated concerning their feasibility with regard to implementation and commercialization (Ahmed, 1998). The present study adopts this approach of the innovation as a funnel process as reported above.

De Brentani (2001) argues that newness can be perceived in products in graduation of a continuous spectrum, from tiny improvements (incremental innovation) to something completely different from the original product (radical innovation). Radical innovation usually leads to changing of existing paradigms and rules (Assink, 2006; Bessant & Tidd, 2009).

2.2 COMMUNITY OF PRACTICE AND INNOVATION PROCESSES

Communities of Practice (CoP's) and their virtual variety Virtual Communities of Practice (VCoPs) are not easily defined. The concept of a CoP as coined by Lave and Wenger (1991) has been transferred from the situated learning approach to the field of strategy management as a tool for improving organizational performance. This approach to look at CoPs as managerial instruments is acknowledged by researchers like Mendizabal, Solinís, and González (2013) and Sorensen, Dubois, and Paton (2012). Wenger, McDermott, and Snyder (2002) also describe how to use a social structure – the communities – as a management tool. They define Community of Practice as a group of people who "share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoiing basis."(p. 4). Hildreth and Kimble (2004) suggest that one of the reasons for focusing the managerial aspects of CoPs and VCoPs is due to the current scenery of rapid changes, which requires organizational flexibility and speed when adapting to new and innovative environments.

Wenger, McDermott and Snyder (2002) point out that CoPs may occur in the virtual modality – the VCoPs - and that not all members participate in the same way in the community in which it is inserted (Figure 2).

Figure 2 - Degrees of involvement of the members of a CoP
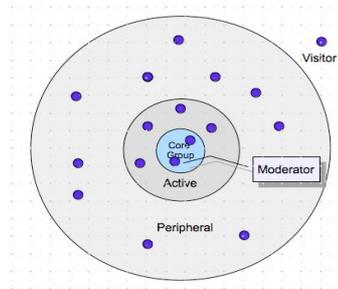
Source: Wenger, McDermott & Snyder, 2002, p. 57

VCoPs that support innovation processes show the following features:

a) The domain is related to innovation, and the goal is to achieve something new (Coakes & Smith, 2007; West, 2009).

b) The functioning is based on horizontal dynamics, suspending the formality of hierarchy during the work of the VCoP (Borzillo & Kaminska-Labbé, 2011; Brown & Duguid, 1991).

c) Knowledge sharing beyond the boarders of the organization, diversity of ideas, encouragement to creativity, and entrepreneurship of the members are perceived in VCoPs aiming for innovation (Borzillo & Kaminska-Labbé, 2011).

d) The members gladly share their knowledge and are very comfortable to work in groups (Bosa, 2008; Chu& Khosla, 2012; Coakes& Smith, 2007).

e) Some members are from the strategic level for building a bridge between the strategy and the domain of the VCoP (Borzillo & Kaminska-Labbé, 2011).

f) Some members in the group are innovation champions. These members are talented individuals managing people and processes, and they are fond of innovation and innovative people (Bosa, 2008; Coakes & Smith, 2007).

g) There is diversity: people of different back-grounds, profiles, and experiences are joined together in order to create something new: there is innoversity (Mendizabal, Solinís & González, 2013; West, 2009).

h) The members are committed to the group by working on projects with a consensual time frame (Coakes & Smith, 2007; Sorensen, Dubois & Paton, 2012).

i) The members are self-regulated, and a moderator keeps the group motivated (Mendizabal, Solinís & González, 2013; West, 2009).

j) The moderator is someone who likes to motivate the members of the group. At the same time he/ she has skills and behavior to keep the group sharing knowledge, to break down barriers to new ideas (Borzillo & Kaminska-Labbé, 2011; Sorensen, Dubois & Patton, 2012) and to give them the sense of belonging (Wenger, 1998).

The reviewed literature suggest that CoPs and VCoPs are organizational structures that can support innovation processes. In order to verify how it occurs an empirical investigation was conducted in three VCoPs at Correios according to the methodology described in the following section. The VCoPs were selected based on perceptions of employees who argued that the informed innovations have happened due to the interactions among people who were set together in these VCoPs.

3 RESEARCH METHOD

The research employed a qualitative empirical method based on semi-structured in-depth interviews carried out with employees of Correios - the Brazilian Post - spread over all 28 federal states of Brazil. The organization's structural type at the time of the study is functional with more than five hierarchical levels. In the Brazilian public sector the company is considered to be one of the leaders in best practices adopting advanced management tools.

In 2005 Correios implemented the Coptec (Communities of Practice of Correios), a VCoP platform in its intranet. In 2014 a total of over a hundred VCoPs with nearly as many domains were identified in Coptec. For this research three specific VCoPs were selected on purpose as units of analysis (Yin, 2012). These particular VCoPs are known by employees of Correios as being outstanding in supporting innovation processes. In this article they will be coded as VCoP-NMB, VCoP-ILC, and VCoP-SIW.

Twelve members of the three VCoPs were intentionally chosen based on the snowballing technique. They were interviewed by a researcher based on a script of questions that guided the conversations. The interviewees described their perceptions, which were recorded, transcribed and organized in data files. The data were coded based on the methodology proposed by Bardin (2011) and analyzed with the method proposed by Saldaña (2009).

4 FINDINGS

A close look at the data show that the examined VCoPs in Correios support innovation processes in very different manners. Hereafter the main features of the findings of the three VCoPs (ILC, NMB, and SIW) will be described.

VCoP-ILC: Correios participates every year in a global project led by the Universal Postal Union called International Letter Writing Competition for Young People (ILC) which started over 40 years ago. In 2011 the national coordination of the project was taken over by an executive who did not have any experience in the project. This executive had to finish the process of the project in Brazil within a short time frame. In order to learn the procedures, the coordinator created the VCoP-ILC and acted as moderator of the virtual community which was joined by the 28 colleagues, who headed the project in the regional directorates over the years.

From the initial aim of simply sharing knowledge in the VCoP, gradually emerged ideas to improve the process. It should be mentioned that the process in Brazil did not change for over 20 years. The suggestions for improvements emerged from the regional members of the VCoP because they felt comfortable to propose changes to the national coordinator, who managed the community in a participative manner and who was open to new ideas.

The VCoP-ILC's progress can be represented in the innovation funnel as shown by Figure 3. In this VCoP all the members worked together through the whole innovation funnel, from the FEI to the implementation phase.

**Figure 3 – Progress Diagram of VCoP-ILC**
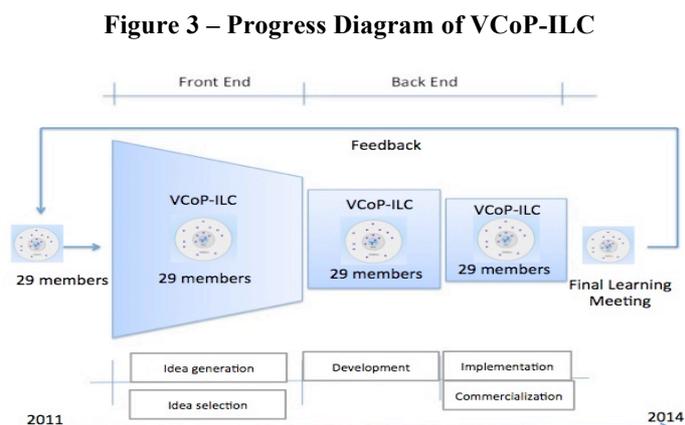
Source: Authors

The change to be highlighted in the ILC process in Brazil after 2011 was the participative way of making decisions since then. The informal and open climate in the group enabled the emergence of new ideas and innovative procedures for the project, and an environment without formal hierarchy was promoted in this VCoP.

VCoP-NMB: Mailbag Delivery has been a traditional postal service in Brazil for many decades. After a market study in 2005 Correios commissioned an expert group of six professionals of the strategic level from the Correios headquarters with the task to innovate the Mailbag Delivery, and to create a New Mailbag Delivery Service (NMB). The experts had the product knowledge from different perspectives (financial, operational, marketing, sales, logistics, and planning) and they were joined together as the coordination team for the project in Brasilia. At the end of 2005 they started a VCoP in order to gather knowledge from employees of other parts of Brazil (Figure 4). The original group of six experts was enlarged to fifteen after being joined by tactical level employees from different states of Brazil. Their interaction was enabled by personal meetings as well as through VCoP-NMB. Before launching the renewed product in the market, a general call to participate in the VCoP-NMB was made through intranet, and more than 200 people gave their views on the subject. The New Mailbag received a new design and the whole process of the service was improved with an introduction of some technological features. Currently the VCoP-NMB is still active as a place where beginners can learn from veterans about the New Mailbag Delivery Services and its updates.

**Figure 4 – Progress Diagram of VCoP-NMB**
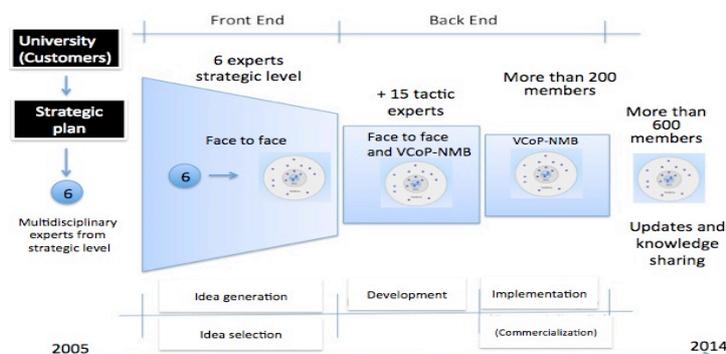
Source: Authors

The work progress of VCoP-NMB shows how a formal project group initiated by the directors of the company employed an informal structure of VCoPs for enabling a broad *spectrum* of ideas to contribute to the renewal of a traditional product. A small group of experts attracted a few hundred of individuals who contributed to the project with their opinions, ideas or suggestions. By so acting the "new" product was smoothly commercialized without any surprise.

VCoP-SIW: Ten years after the implementation of the so called Sigep Service, an Information Technology (IT) software that enables the customers to control their mailings, Correios looked into changes of the service because of the customers' feedback.

A few IT software analysts of Correios were commissioned to renew the service by implementing technological updates. The resulted improved service was called SigepWeb, a system accessible through the Internet. The IT analysts created the VCoP-SIW and attracted employees of Correios who worked with the users of the product in different parts of the country, and hence could give hints and opinions for improvement. Discussions were conducted during in the implementation stage of the innovation funnel and adjustments were made after collecting suggestions from members of the VCoP-SIW. The progress of the VCoP in this unit of analysis is presented in Figure 5.

Figure 5 – Progress Diagram of VCoP-SIW
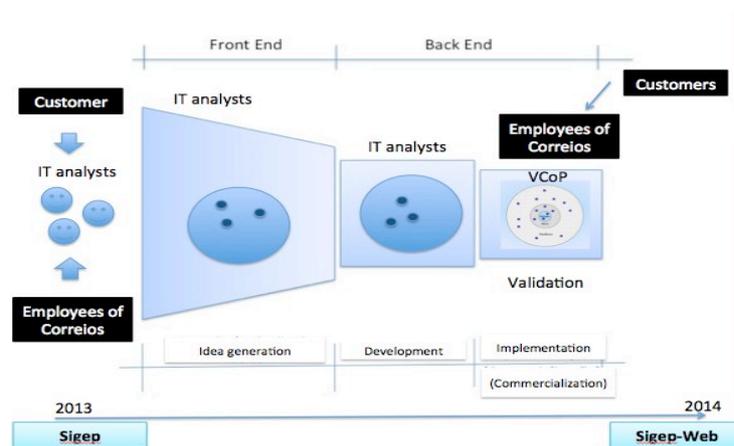
Source: Authors

The specific nature of the problem to be solved (IT software) may explain why a VCoP was created only at the Back End stage of the innovation funnel. According to one interviewee, IT analysts joined the VCoP to exchange knowledge about technological upgrades for Sigep, the domain of the VCoP. The main motivation for them was to learn new approaches to the subject and to contribute to the final product.

5 DISCUSSION

Organizations of the public sector are usually structured in many hierarchical levels and Correios is not an exception. VCoPs, in this context, are perceived by their members, as places where communication flows horizontally and is combined with informal interaction. In such an environment ideas and opinions may be discussed freely and openly. To most of the interviewees of the present study, VCoPs are very useful in organizations that are spread out

geographically and where the members have a multitude of ideas and experiences about a domain.

The existing hierarchical formal structure at Correios slows down the flow of knowledge and information because of bureaucratic procedures. VCoPs are perceived by most of the interviewees as a way to overcome this handicap. One interviewee stressed that the structure of the VCoPs can live in harmony with the formal structure of the organization.

Wenger, McDermott and Snyder (2002) argue that brains and hearts should converge to innovation when this is the defined goal. Therefore, a VCoP that intends to promote innovation shall have "innovation" as domain. From the three investigated VCoPs, the VCoP-NMB and the VCoP-SIW fulfill such a condition from their start. The initial objective of the VCoP-ILC was the exchange of knowledge and experience among veterans of the project and a single newcomer. Proposals for innovation emerged spontaneously by the veterans who just waited for an opportunity to externalize their ideas long kept under cover. The openness of the new coordinator/moderator of the VCoP created an environment where people did not fear hierarchical authority. In this way, even though originally innovation wasn't in the script of the discussion, the group gradually began to share ideas of "how to do things differently and better". In one statement: innovation was in the mind of the members, even though it was not explicit in the domain of the VCoP.

Members who willingly share knowledge and thoughts promote a flow of new ideas (Bosa, 2008; Chu, Khosla & Nishida, 2012; Coakes & Smith, 2007). Some of those members may be innovation champions with certain specific characteristics (entrepreneurship, dynamism, leadership, experience, intellectual abilities, among others) (Coakes & Smith, 2007), which lend competencies for innovation to the Communities of Practice.

Members eager to innovate were identified in all analyzed VCoPs of the case study based on the interviewees narratives. Innovation champions' characteristics could be perceived in the VCoP-NMB mainly in the coordination group (six people) of the project. In the remaining two VCoPs the strong orientation to innovate was perceived by the moderators as well as some other members of the VCoP.

The absence of physical interactions among members in a VCoP requires from the moderator special abilities to make people feel as part of a group. In this case study the interviewees presented spontaneously metaphors to depict the moderator of their VCoP: in the VCoP-NMB the moderator was described as a positive "incendiary" who keeps the flame of motivation burning for new challenges. The image of the moderator in VCoP-ILC was that of

a "cheerleader". The VCoP-SIW depicted the moderator as a "maestro" motivating each music player to do his or her best.

We highlight the fact that one interviewee said that a moderator of a VCoP should not be a "general of the army". Here it was meant that a VCoP should be led in a participating style of leadership instead of military hierarchical severity.

The empirical investigation at Correios showed that VCoPs can support innovation processes in various ways. In the examined units of analysis it was observed that VCoPs may act at the Front End of the Innovation Funnel (VCoP-NMB) as well as at the Back End of the Funnel (VCoP-SIW). Observing the dynamics of innovation processes in the three units of analysis the researchers were aware of the fact that generating, developing, and implementing processes of innovation is not linear, but rather recursive. For example, ideas already considered in the implementation stage were newly discussed in the VCoPs in order to gather more ideas to make them even better.

Diversity of the members is one of the important aspects to consider in Communities of Practice for innovation (Justesen, 2004; West, 2009). However, a predominant homogeneity of the members was observed in the case study, confirming VCoPs' tendency to gather similar people (Justesen, 2004). Nonetheless, incremental innovations have occurred in the examined VCoPs.

Some characteristics of VCoPs that promote innovation, according to the reviewed literature were mentioned by the interviewees. One example is the horizontality of the members-interactions as a *conditio sine qua non* to enable the sharing of knowledge and experience. This characteristic emerged in all the interviews and was especially highlighted by the moderator of VCoP-ILC. One interviewee from the same VCoP remarked that some moderators transferred the company hierarchical culture into their VCoPs, acting themselves as hierarchical bosses towards the contributions of the members. As a result such VCoPs did not succeed.

An emergent topic in the interviews and considered as a gap to be filled was the lack of rules and management patterns which link the VCoPs to the strategic level of the organization. Another aspect mentioned by interviewees was that moderators should be prepared to manage a VCoP oriented to innovation: moderators should have competencies that cover cognitive knowledge about innovation processes, virtual moderation skills, and appropriated behavior to lead virtual conversations among different people.

Correios has hundreds of VCoPs but only a few of them may be considered to support innovation processes. According to the literature review, innovation is related to knowledge

sharing, which occurs in an environment where people trust each other (Kimble & Bourdon, 2008) and where they are not attached to paradigms of success of the past (Assink, 2006; Hana, 2013). In order to innovate people must be committed to achieve the proposed goals (Assink, 2006). These factors were perceived by the interviewer in the three VCoPs at Correios. A high level of motivation was expressed by all the interviewees, and this was the key engine for the success of the three VCoPs. Scarbrough (2003) argues that people are the center of innovation processes, as they enable the knowledge flux in an organization. One of the interviewees, the moderator of one of the three VCoPs argued: "...so...in a [virtual] community you talk with people...[the moderator] has to have knowledge and skills...and training of how to manage people, and not only how to manage technology...". Then, this case study at Correios evidences that innovation processes are anthropocentric.

FINAL CONSIDERATIONS

The purpose of this study was to discover how VCoPs can support innovation processes. Three VCoPs were identified as having supported innovation of a product, services, processes, and their management in a Brazilian company of the public sector. Members of these VCoPs were interviewed, and some main features of these VCoPs confirmed aspects that were mentioned in the literature.

The three units of the case study showed that VCoPs have characteristics that influence innovation processes related to the structural configuration of the VCoPs, the domain, the working dynamics, and, the characteristics of members. As a final conclusion, it was found that VCoPs for innovation entail an anthropocentric approach: human beings are the driving force of processes supported by technology.

In the context of the public sector with several hierarchical levels and bureaucratic procedures, this case study on the three VCoPs suggests that communities overcame organizational innovation barriers, such as slowness and formality. The VCoPs enabled employees from several parts of Brazil to contribute new ideas and to promote improvements.

Limitations of the research ought to be mentioned: the small number of VCoPs and also the small number of interviewees selected by the snowball technique may have generated biases in the selection process of the people who were interviewed. Finally, the research was carried out in a Brazilian company of the public sector, representing a specific context where the data were collected. Therefore, the results cannot be generalized.

This study helps to understand that VCoPs can be employed to support innovation processes in an organization, and an anthropocentric approach is suggested as an important key to success. Further research in different contexts could be carried out in order to identify behavior patterns of VCoPs supporting innovation processes.

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