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**Communities of practice of innovative startups
Cooperation or competition: is this the question?**

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Abstract:

The communities of practice literature offer the potential cooperation space for the development of the open innovation, principally to the organization likes the startups that suffer from lack of resources to deal with the risks and uncertainties related to their project. This cooperation logic however, can meet the competition logic confronting this population. In this paper, we investigate how communities of practice of innovative startups manage this paradoxical logic related to the cooptation. The multilevel analysis of the communities of practice of San Pedro Valley in Brazil allows us to understand the effects of cooptation on the community functioning but also at the innovation ecosystem and across the city in which this evolves.

Keywords: communities of practice, innovation process, cooptation, startup

Introduction

In open innovation environment (Chesbrough, 2003), most companies aim to develop cooperation in innovation networks more or less formal (Loilier & Tellier, 2002).

This is indeed a way to build new knowledge, optimize mobilized resources or spread innovation (Callon et al. 1995) in an extremely competitive environment. In the particular case of innovative startups, the innovation, and the cooperation become "an inseparable pair" (Fréchet, 2004). Due to their agility and relative independence, these organizational structures can indeed be free of constraints and the inherent inertia of larger companies and so more quickly develop new products or services (Basu & Phelps, 2009). However, they confronts to a lack of resources and a required to cooperate to better explore the novelty and accelerate the innovation process. In this context, the establishment of partnership relations may represent a difficulty faced the immaturity of these enterprises (Rispal, 1993) and threats that may represent

the most experienced competitors. A "handicap of novelty" (Baum & Silverman, 2004, p. 411) can be part of the inter-organizational social reality, especially when startups are too far away of the capabilities and of the other potential partners of innovation (Hill & Birkinshaw 2008). The appropriate logics for cooperation must then deploys to ensure their survival in volatile and highly competitive environments, particularly in the high technology field (Teece, 1992). In this context, the communities of practice (CoP) are such as a component of the innovation ecosystem to the extent they offer a more secure space of cooperation to the startups. The participation of entrepreneurs at a CoP allows startups to remain open to all sources of knowledge.

Analyzes of CoPs in the Silicon Valley support this consideration (Dibiaggio & Ferrary (2003). These authors show that cooperation between peers in CoP (researchers, lawyers, consultants, etc.) alters their representation systems and enables the production of common frameworks better adapted to innovation context. While the authors highlight the ability of CoP supports the innovation ecosystem by creating stronger links between individuals of the same expertise, they do not analyze the effects of competition between the experts involved in these spaces traditionally devoted to cooperation.

In a CoP of innovative startups, the dimension related to the competition seems nevertheless important. One of the peculiarities of this population relates to their ability to interact and cooperate with each other while they are the poles of interest partially congruent and often need access to the same market (Brandenburger & Nalebuff, 2011). Beyond cooperation, the entrepreneurs must ensure that their enterprises are commercially viable by engaging in the business logics of the sector. This feature being even little explored in the literature, we resort the neologism of cooptation (Brandenburger & Nalebuff, 2011; Bengtsson & Kock, 1999) to study the paradoxical logic related to cooperate and to compete. Our focus is to lead a multi-level analysis (at the community, the innovation ecosystem, and the city) taking into account

the logic of cooperation of entrepreneurs of innovative startups as part of the same Cop. To do this, we structure this article into three parts. The first theoretical part presents the notion of communities of practice and a network of practices as a space of cooperation where cooperation can emerge. The second part presents the qualitative methodology and the specificities of a field research in Brazil. Thus, in the third part, the research results are presented and subsequently feed the discussion outcome of this research.

THE COOPETITION IN INTER-ORGANIZATIONAL COMMUNITIES OF PRACTICES

The literature on communities of practice highlights the specificities of these spaces for cooperation among peers. Crossing this with the literature on cooperation, we identify dimensions to explore the existence and integration of the competition logic when communities become in inter-organizational networks.

From communities to networks of practice: a cooperation area for the development of innovations

The communities of practice (CoP) appear as a special form of an informal network of individuals who share the same interest and a strong identity dimension (Wenger et al. 2002, p. 4). They are defined as "groups 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 ongoing basis" and "a group of people informally bound together by shared expertise and passion for a joint enterprise" (Wenger & Snyder 2000, p. 139). The group acts as a forum to share what they know, to learn from one another regarding some aspects of their work and to provide a social context for their work. This environment has been directly linked to knowledge creation and sharing processes. The extensive literature on CoPs (Brown & Duguid, 1991; Wenger, 1998, 2002) expressed nowadays a shared recognition of the potential of these informal Organizations to benefit from cooperation to foster collective learning within and beyond the borders of the organizations (Brown & Duguid 2000; Jacob et al. 2009).

At the inter-organizational level, CoPs represent an area in which entrepreneurs can face the challenges collectively and carry out managerial and innovation actions related to their own businesses (Dupouët & Barlatier, 2011). From this perspective, Dibiaggio and Ferrari (2003) observed the formation of different CoP into the ecosystem of innovation in Silicon Valley. The cooperation between peers has created common sense deal with ambiguities and discrepancies related in particular to new social links between partners. This vision provides an understanding of tensions between the simple reproduction of knowledge and routines and the emergence of new practices to solve problems.

Thus, for innovative entrepreneurs, engage in a community can support the operation of technological ambiguities, partnerships and commercial innovation-related. The cooperation practices in CoP can be a learning source of multiple behaviors and activities that entrepreneurs must develop to survive (innovate, organize and manage) (Burger-Helmchen, 2008). They can also be an exploration process or a knowledge creation related to the new products and services (Harvey et al., 2015). The common field of knowledge, the intensity of relations, the voluntary commitment of members, the share norms, and values, and engaged a dialog with each other at a professional level of CoP foster trust between their members (Wenger, 1998). These "protected areas" of cooperation constitute an intermediate level between the individual and the organization and becomes a creation of conditions for new knowledge and technologies (Constant, 1987).

At the scale of a city CoPs will tend to geographically disperse and become practice networks (NoP) according to Agterberg et al. (2010). In spite of this dispersion, the community dimension maintains within the NoP by embedding three types of actors in the network (Agterberg et al., 2010):

(1) Embeddedness in practice “when the knowledge shared concerns common practices and is perceived as relevant”;

(2) Social embeddedness: “aware of who knows what in the network and the more the network is characterized by strong social ties”;

(3) Organizational embeddedness: “the more organizations are involved in the network”.

For these authors, “more embeddedness is better than less for knowledge sharing”. (Goglio-Primard, 2014, p.4). These ‘lock-in’ effects are often associated with communities of practice and their boundaries (Agterberg et al., 2010). Reticular connections are thus articulated with common social identity to the community to be the privileged spaces of learning and innovation (Wenger et al., 2011). At the city level, these informal networks are collective learning generators contributing to the development of territorial intelligence (Joyal, 2008).

CoP and NoP are then characterized by the member’s cooperation relationship whereas they have inter-organizational network structures, then the competition relationship may also exist. Traditional approaches tend to oppose cooperation and competition. While the cooperation logics is inherent to community functioning, the entrepreneurs present in the industry must choose between the two logics or they can use both? To lead this reflection the literature use the notion of coepetition to understand how these two approaches can co-exist (Bengtsson et Kock, 1999).

The coepetition logics for innovation development

Research on coepetition strategy has been growing in the last number of years.

Following an approach by networks (formal and informal), Bengtsson & Kock (2000) define coepetition as a “dyadic and paradoxical relationship that emerges when two firms cooperate in some activities, and at the same time compete with each other in other activities” (Bengtsson & Kock, 2000, p. 412). By adopting a strategy of coepetition, firms can:

- I) develop competitive relationships in certain markets and cooperation relations on other;
- II) cooperating on some elements of the value chain and compete on others;

III) work together on R&D; IV) pooling of resources in the promotion of a common brand or in the case of supply of goods (Bengtsson & Kock, 1999). Authors in this field of study (e.g. Bengtsson & Kock, 1999, 2000; Cunningham & Culligan, 1988) suggest analysis of activities in networks, at individual and collective levels, and the various roles played by actors (Bengtsson et al. 2013).

The logic of coopetition management requires resources and different skills (Walley, 2007). Pellegrin-Boucher (2010) identified in the computer industry three managerial approaches of coopetition: spontaneous approach, the compartmentalized approach, the integrated approach. Table 1 presents the objectives and instruments used by these three approaches.

Table 1 – Managerial approaches to coopetition (Pellegrin-Boucher, 2010)

Although the principles of cooperation have been studied for over two decades, some concepts are still to develop (Bengtsson & Kock, 2014). Despite their advantages, coopetitive dynamics produces a vulnerability to certain firms, which need to carefully balance the dissemination and protection of knowledge (Baumard, 2009). For the success of coopetition, a friendly mindset is required in the network and hostility tends to diverge firms looking to maximize their own benefit (Bengtsson & Kock, 2000). As a result, multidimensional (Allah Raza et al., 2014) and multi-level tensions (inter-organizational, intra-organizational and interindividual) can generate. According to Fernandez et al. (2014), it is necessary to incorporate a paradoxical vision to manage these tensions. Active management define "what to share, with whom, when and under what conditions" (Levy et al., 2003, p. 642).

Despite this growing interest in the last twenty years (Bengtsson et al, 2013; Boucken et al, 2015) the primarily researches on coopetition appears from the perspective of large firms. The little-explored angle of SMEs, family businesses, and startups seems to be a promising way to further this research topic (Gast et al. 2015). Regarding the level of analysis, Boucken et al.

(2015) show that the most explored is the level of inter-firms or organizational. Few works explore the dynamics of interactions at the network level (e.g. Peng & Bourne 2009).

The essential skill for startups in the early stages is the capability to assemble and utilize complementary assets in spite of the limitations inherent in being a startup (Paradkar et al. 2015). To ensure a sustainable competitive advantage, startups need to obtain strategic resources that serve as entry barriers for rivals. Coopetition can be advantageous for startup, by alliances with external partners, as suppliers, customers or also competitors (Teece, 1992).

Bouncken et al. (2015, p.19) argue that future research should aim to analyze to “what extent coopetition can really solve the liabilities of smallness and newness to the growth and success of these firms; when, how and why SME and young firms should engage in coopetition; to what degree coopetition can be linked to entrepreneurial orientation and innovation”.

However, this coopetition logic can function in areas traditionally governed by cooperation? Cooperate or compete? That may be the question of entrepreneur’s members of these informal networks.

Framework: coopetition and community functioning at innovation context

Dynamic networks models (Dagnino et al. 2007) contest traditional visions about inter-organizational dynamics between firms, customers, suppliers and competitors. The challenge is to capture the dynamic interaction within these networks of actors and identify the different roles they play and the effects that it produces. The coopetition thus becomes a singular search object that requires further theoretical examination, methodological and practical specific to provide a new approach to business dynamics (Bengtsson & Kock, 2014). Our conceptual framework takes account of these considerations and highlights the specificities of CoP and CoP, where relations of coopetition are studied. We analyze them through the dynamics of participation/reification (Wenger, 1998) to understand how competition between their members can change the community-operating environment in which they operate.

Participation demonstrates the intensity of the mutual commitment of the members as well as the content and actions of trade within the CoP (Wenger, 1998). The analyze in this research make the link between the level of competition of the startups (level of competition in the market, the profile of the partners, relational risk and sector governance structure) with the model of participation of entrepreneurs in the CoP inter-organizational. The level of embedding of potentially competing startups in this informal network, when it is geographically disperses, may also check the intensity of their community involvement (Agterberg et al. 2010, Goglio-Primard, 2014). We will thus examine the object of exchanges between members of the CoP to identify the presence of the three types of embeddedness (in practice, social and organizational). The concept of reification, stresses the result of these processes of participation, represented by tangible elements (concepts, symbols, stories, rituals, practices) that contribute to synthesize and simplify the shared message (Wenger, 2005). A broader reification analysis can also investigate the effects that this process produces in innovation ecosystem and in the city where the Cop is located. The coepetition logics of interaction thus mark the development of these ties. They are both the means and the result of this dynamic.

Figure 1 illustrates how to investigate the coepetition under this framework.

Figure 1: Analytical framework of coepetition in CoP and NoP.

RESEARCH DESIGN

This study is a exploratory case study approach (Yin, 2002). The coepetitive relationships in an inter-organizational innovative startup community in a cluster of innovation on the Brazil explore new points of the coepetition and the functioning of inter-organizational CoP. This constitutes a phase of a larger research project focusing on competition and cooperation between community actors.

Methods of collection and analysis of data

To identify different types of cooperative relationships between firms in SPV different actors have been selected to participate in a campaign of semi-structured interviews. Table 3 shows the profile of the interviewed as well as the codes used for the verbatim in the case study.

Table 3 - Sampling of research and codes used to build the analysis results

We also collected additional primary data. We conducted a non-participant observation during meetings conducted in the community ecosystem of events relating to a broader ecosystem of startups. A research journal updated was used to notes the contents of these exchanges. In addition, we have employed a “netnography” method research (Kozinets, 1997, 2002) to investigate the virtual environments of firms at SPV (web site, Facebook page, Slack platform of communication). Messages from the platform of the community with its 441 members interacting on 29 different subjects (technology, business management, law, Seed, social responsibility, funding, market, etc.) have been particularly analyzed. Since the creation of this tool in December 2014, members of SPV posted more than 39,000 and archived over than 448-shared archives was analyzed by the authors (inventory obtained in December of 2015).

We are interested in the social aspects of the community, content and form of sharing experiences, information, and knowledge. The use of the netnography allows researchers to be less intrusive in the process of research and thorough understanding relationships between members. It is a complementary qualitative method allowing us to enrich the results of the series of interviews and non-participating observations.

To analyses this material, we used the triangulation of data and coding in a dictionary of themes emerging (Strauss & Corbin, 2004). Three objectives were present: I) identify the functioning and evolution of SPV particularly in relation to the interactions between these members in the management of events and practice and the dynamics of innovation; II) capture the logic of competition, III) detail the set of transformations that occurred in the network and in relation to innovation practices.

RESULTS

The results of this study firstly focus on the cooperation relationship existed in the CoP to then present the results based co-competition relationship developed by the time. The effects of these relationships appear on three levels: at CoP, at the local innovation ecosystem, and at the city.

The community studied

The movement of creation of the Brazilian startups has emerged in 1999/2000 after the tech-bubble burst and was resurrected only in the past 18-24 months. As a result, stakeholders had to grow stronger and persevere through the good and the bad times by which passed the Internet industry. The advantage is that the Brazilian startup ecosystem seems willing to work hard - there is potential, the talent of entrepreneurs, capital, and entrepreneurial passion.

Belo Horizonte is one of the biggest entrepreneurial centers in the Brazil. A Strong dependence of the large and standardized worldwide characterize the organizational dynamic of Belo Horizonte ICT's cluster. However, it is also remarkable and representative a growing niche space occupied by a group of young and heterogeneous startups, which take part in distinct market structures that lead to diversified behavior and strategies of software development according to the market area. For this reason, the sector lacks more appropriate analyzes because of its particular dynamism and segmentation.

About more than 200 startups host in the city, which is more than triple from two years ago. In 2005, the sector was particularly marked by the purchase of the startup founded in 2000, Akwan Information Technology by Google Inc.

In this context directed to innovation, it has emerged the CoP San Pedro Valley (SPV) in 2011. The adoption of this nickname appears during the conversation in a brewery of a group of startups entrepreneurs located in the district of São Pedro. The idea was to allude to the Silicon Valley American.

After this, others entrepreneurs have begun to take part in this ritual of meetings in that brewery, to relax in the afternoon, but also to discuss their current business. SPV has become a self-governing community of entrepreneurs sharing common goals. In fact, the members of this community believe that this kind of informal meeting represents the best way to achieve their goals thanks to the sharing of information, knowledge and experiences. Now, San Pedro Valley is already one of the greatest startup community in Brazil. It is interesting to note that the SPV community there is neither office nor an official representative.

The theoretical principles of the CoP identified by Wenger (1998) are present in the network relationship of SPV. Table 2 highlights the features of this community.

Table 2 – The three key elements of a CoP (Wenger, 1998)

Cooperation and participation in the CoP

The community of San Pedro Valley (SPV) has emerged from the conversations and encounters a group of entrepreneurs of startups that «suffered» for the lack of resources. It appears as a reaction to the lack of support and offset in terms of operation compared to the other players in the local innovation ecosystem.

"I see two distinct industries [SPV and cluster of Belo Horizonte], as two distinct sectors. " We do not need to go to the MGTI because we have different logics. The logic of a startup is a different logic of a large factory of software." (ET1)

According to the members, become a membership helps to save learning costs on the management of startups and implementation of theirs strategies. The progressive establishment of a common cognitive capital constituted by the circulation and comparison of individual practices of each member at SPV community is the specific investment based the concrete of the community. In addition, this can be considered the basis of "social standards" that guide the behavior of agents. Furthermore, the recognition of this community helps attract investment and increase the visibility of local startups.

“There is always a startup on the front and one behind [making allusion to the competitive position of the startups]. It is what makes that information either flow and hence reduce the learning curve in the community” (ET4)

The startups of SPV chose to exchange information by learning to interaction as the main one for the development of incremental improvement and innovation processes. The startups use the external sources of information to improve their technical and managerial capabilities. As soon, the quality of information and learning exchanged tend to be better and more optimized. There are various source of information used by the startups. These sources are provided by a formal meeting organized by the members to informal conversation in leisure times. According to the interviews, the members believe that these informal events are important sources of exchange and reinforce of partnership, but also to detect interests, experiences, knowledge and necessity that strengthen the group's community spirit.

Among the sources of information, it was possible to identify:

- Participation in practicing communities: for members that were interviewed this is the main source of information. In the practice, the members trough interacting and cooperating in the creation of innovation, learning and advantage the cluster system.
- Fairs and events: they are not so frequently organized in the CoP, however, the participation of SPV members in external events in Brazil and abroad is regarded by entrepreneurs as another important information sources according to the interviews;
- Costumer information of the startups: it is a part of the database to capture, organize, and disseminate information;
- Courses and training: organized by the institutions of the cluster and by the SPV is another efficient source of information;

For knowledge sharing the presence of a greater intensiveness in the capacity building and learning, processes are latent. This frequent exchange of information by interaction between SPV members, institutions and other actors of the TIC environment has been essential to place this SPV CoP in a development level higher than the others CoP. It is a specific individual investment, at the collective level, underlying the community cement and the base 'social standards', which guide the members' relationship (Brousseau, 2000).

« The first information, which I believe is the most important of all from SPV, is that we are a community. In addition, it changes everything. The entrepreneurs grow together. The main advantage that exists within a system as the SPV is that information interchange remains fluid. In

addition, it is very rare to produce mainly on the part of large firms. Normally, the software factories are in competition". (ET2)

"In general, the media want to spread the story, but if you want to understand the community, the functioning of the ecosystem, you have to go into the ends of the chain." (ET5)

"We try to stay in touch with everyone, meet face to face because the relationship of trust feeds the fluidity of our relationships [...] This kind of event where nothing is requested, it will be just be there and to be who you are, is very important. "(ET5)

However, of course, the logic of cooperation is not stable over time, especially as the number of members continues to grow. This recall that strategy is enacted in the performance of everyday activity (Rouleau, 2005), as people appropriate the subject positions organizationally constructed for them. Then, the agents in the CoP need to question how to manage the massive growing without losing the control? Entrepreneurs must continually exchange the signs on their desire to continue to adopt a cooperative behavior in this non-opportunistic logic.

Gradually, as they develop a cooperative process, the growth of cognitive capital contributes to making the sharing of increasingly less costly signals, since the potential opportunistic behavior is detected. An example of this practice is that community members tend to share information with those members that are closest to the meetings and interacting more frequently. We realize that not all members of the community are in direct interaction, but those who are mostly active tend to be benefited with the cognitive capital gains from the SPV community.

The remoteness and a low degree of formal relationship between local entrepreneurs and the entities in the ICT cluster, according to our collected data, is due initially to divergence of interests between startup entrepreneurs and the others entrepreneurs from organizations and government agencies Cluster. But, ultimately, SPV entrepreneurs will have to prove their worth by way of execution. That implies design strategies together or not with the cluster, in order that fit the local market, and then implementing with excellence, efficiency, and an orientation

to cash-flow. This is a commitment to working closely with the portfolio of the CoP SPV to build-up an entrepreneurial culture to go along.

These events allow us to identify three distinct phases of evolution from SPV connected to the participation and cooperation of entrepreneurs:

Emergence of interindividual relationship cooperation (PHASE 1)	Consolidation of cooperation relationship between firms (PHASE 2)	Outset of cooperation relationship at the ecosystem level (PHASE 3)
<p>Since the emergence of the group, in 2011, where the practice was based on very spontaneous exchange of experiences towards the resolution of problems related to ICT and management of startups. Participation is performed especially in co-presence during informal meetings to respond to specific cooperation requirements and the transformation of tacit knowledge into explicit knowledge.</p>	<p>Social dynamics is reinforced. The mutual commitment based on the exchange of more tangible resources for the development of business and innovation. This participation becomes B2B exchanges. This participation resulted in reification in the form of "free services" exchanged between startups members and other organizations of the network.</p>	<p>Achievement a critical mass, the CoP is gradually becoming a NoP that has been greatly facilitated by the existence of brokers (managers-facilitators) and boundary objects (discussion forums). The members are clearly at the economic level of collective learning and growth of its cognitive capital. Gradually SPV members displayed an inclination to develop the practice of responsible innovation and assume a strong social and political commitment in the city.</p>

This evolution allows observing that the practice is moving whereas the entrepreneur’s network evolves without however weakening the embeddedness of practice and organizational structure of the startups.

Coopetition and reification in the CoP

Although the cooperative aspect of the relationship, the startups of SPV also competes with each other for market share, investors, technology, customer considering that many of these firms were represented in the same markets. Furthermore, some members compete for representation of SPV at structuring meetings. Indeed, some dates suggest that it is always the same entrepreneurs who give interviews to the press and that SPV is a closed group of firms who want to make themselves known. To manage these contradictions, members must

exchange permanently on the signals that show commitment and adoption of a cooperative intention in detriment of opportunistic logic. This is manifested by control of participation.

“Joining SPV is easy, it is just sign up, and there you will have information on the different event [...]. However, being part of the WhatsApp Group is harder... So they do a search frequently to see who participates or not to the group. And people that who have published nothing and who do not exchanges are removed from the group to give to leave place for others entrepreneurs more motivated to exchange.” (ET4)

“There are many new people who join us now with the Slack. However, the WhatsApp Group is more restrictive. Therefore, we organized a SPVCerva [title of the event of the community, which aims meetings over a glass of beer] to meet those who want to drink a beer and discuss... » (E4- sur Slack)

However, the literature on CoP tends to not explore the phenomena of exclusion (Castro Gonçalves, 2008) and assume generally that the risk of opportunistic remains very measured, for two major reasons:

- because the frequency of interactions tends to intensify and reinforces the establishment of social norms and shared routines
- and helps to reduce the risk of hold-up and the problems of moral hazard (Wenger, 2008). Therefore, these theoretical principles do not exclude the emergence of coopetition relationships in the CoP.

Taking into account the level of competition to the local ecosystem, the startups seek to establish different alliances in accord to their level of evolution (entrepreneurial traction phase

- ET – entrepreneurial maturation phase - EM, entrepreneurial validation phase - EV)

Startups	Logics of cooperation	Logics of competition
ET1, ET2, ET3	Development of technologies and expertise	Access to investors and market share
ET4, EV2	Access to service providers	Access to investors and market share competition by new technologies
EM1, ET7	Access à des technologies	Market entry and the development of technology
ET6, INST4	Access to new knowledge and technologies	Partnership with the university and market access
ET6, startups	Development of expertise	Development of technology

The cooperative relations are expressed according to the integrated mode (Pellegrin-Boucher, 2010). These strategies (cooperation and competition) incorporate the SPV practices and allow the startups to differentiate other competitors as a dialectic 'differentiation-integration' (Pellegrin-Boucher et al. 2013). For example:

- Startup (ET2) exchanges knowledge and more tangible resources as the formation of an employee competitor that already holds the expertise (ET1);
- Startup (ET4) gets a market study by a competing startup (EV2) and which in this case becomes business partner;
- Resolution of several technical issues of information by competitors members of the CoP. This type of exchange takes place daily in the Slack group and Meetups organized by members;
- An already well-developed startup (ET6) that hosted free competitors that did not have the means to pay the rental following the abrupt closure of a public incubation program (Seed MG in the month of April 2015).

Analyze also shows the presence of competition between CoP members and others stakeholders in the ecosystem of local innovation. All of them looking for the access to the same market, the use of similar technologies, and the access to the government grants or to leading position in the ecosystem (face the players, the representative institutions of the sector at national level, the government or the investors).

DISCUSSION: THE EFFECTS OF THE COOPETITION AND THE DIFFERENT LEVELS OF ANALYSIS

This research presented that the logic of cooperation and coopetition are taking place simultaneously inside the CoP but go beyond its borders. The nature of the partnership with the community changed over time. Cooperation, competition, and coopetition are thus expressed at different levels:

At the level of the CoP and the NoP: the common platform of the interaction of SPV raises the cooperation among its members nevertheless the study finds little evidence of “control actions” even if there is not a “formal” sense of commitment to structure and identity this in their relationships. Within SPV, the “startup domain” guides the questions, so stimulating members to present their ideas for introducing or contributing to a discussion of problems and solutions. The group of entrepreneurs grows and reinforces actions to meet regularly, but not in a very structured way. The mutual engagements, built by members of the community of SPV leads to the creation of it shared meaning on issues in startups sector. The community becomes a locus that enables startup entrepreneurs to learn by engaging in simple tasks, participation and involvement in the community live. According to the community of practice model Wenger’s (1998), the three dimensions were observed: joint enterprise, mutual engagement and shared repertoire. In spite of the organizational culture conducive to shared governance, some forms of leaderships emerge. Some members are more involved than others in events; in media representation; in meetings with others actors (public power and private power) and in contact with institutional organizations of the ICT ecosystem, (being part of this small group appears as a form of power and "dispute" between the others startups). The entrepreneurs “leaders” are part of the group of entrepreneurs in the traction phase (the startups that are already well stabilized in the market) but also to, entrepreneurs in other phases, have strong legitimacy in the network. This group of entrepreneurs has a high degree of official recognition in the NoP and in the ICT ecosystem, even though they deny this power. They exert a control over the content of the networks. The majority of these companies are considered “success case” in their sector. The embeddedness of the practice (Agterberg et al., 2010) appears to play a decisive role on the actions of the NoP to keep common social identity despite the geographical dispersion and the number of members increased. The growing of SPV inside the ICT

ecosystem is also supposed to favor the co-creation of value with other communities and networks outside (Wenger, 1998).

At the level of local innovation ecosystem: The inter-organizational collaborations between the NoP become an important part of local innovation ecosystem strategy to deal with business dynamics and higher uncertainties of ICT cluster. The series of phases of cooperation and competition does not exclude cooperation in the competition phase. Indeed, the rival firms continue to work together, combining these two activities in an inherent paradox. The dynamics of interaction of SPV integrates the local ecosystem. Faced to the institutional pressures of the Government of the State of Minas Gerais in an attempt to control and homogenize the startups, SPV expresses defensive cooperation practices. A group of SPV entrepreneurs met to write public letters against the «attempt of creating a control manifested by attempt to incorporate SPV firms to the public programs of the city of Belo Horizonte» in defense of the "independence and economic and political autonomy of SPV" and against the closure of Seed, the accelerator program created by de Government of Minas Gerais.

"The program was internationally known and considered one of the most important entrepreneurship development initiatives in Brazil. [...] Many entrepreneurs have manifested their reactions to SEED's HQ closing. The consensus is that we will do everything we can to keep the program legacy alive.

San Pedro Valley existed long before SEED, and will keep existing after its gone—welcoming new friends made through this wonderful program.

Our community will remain strong and promoting entrepreneurship—apart from politics. Our beliefs are solid, and we will keep developing entrepreneurs for the future of Brazil" (Entrepreneurs of San Pedro Valley in medium.com)

"San Pedro Valley (SPV), a community with over 300 startups of the metropolitan region of Belo Horizonte, has just publicly clarify the present relevant points of the speech of the Governor [...] and his Secretaries about alleged integration of SPV or rigging with a public entity. 'SPV does not respond or do not belong to any political party. The community will remain independent and will not be controlled by an organization, a party, a coalition or political interest of right, left, center, present in power or the opposition.' 'SPV will be always open to innovation and entrepreneurship and is open to speaking and to help you. About the subject of the SEED, our suggestions, critics and

opinions have been expressed in several meetings recorded and documented. These records and documents are available to interested parties on request' "(Public Letter written by members of SPV collectively in Slack)

At the level of the city: the role played by CoP and boundary relations in the development of NoP consolidates intra-organizational learning in the city. The NoP seeks to know its impact on job creation and the market share in the city in order to be better organized, creating a reliable database. This will allow SPV assert itself as an institutional actor in the city. The tools of technological NoPs (Slack, E-mail, WhatsApp, Facebook page) enable to innovate entrepreneurs to identify the technologies and practice on similar projects and to find who knows what and where they are located (Social Embeddedness of the NoP). This is detected by the growth in the number of new members in the practice network (passage of 3 members in 2011 to almost 300 members in 2015) and especially by the mechanisms of integrating knowledge scattered among entrepreneurs of startups. SPV has an impact of changing and unstable environmental conditions on firms' cooperative strategic behavior (Padula and Dagnino, 2007). The NoP simultaneously stimulates cooperation through the promotion of the ecosystem of ICT of the city (investment in the necessary technological infrastructure for the sector, the workforce skills, support for the creation of a support for startups and incentives for the internationalization of enterprises of the network). These actions show a positive relationship between cooperation and market performance in the city (Ritala, 2012).

Cooperation transversal relationships have also been introduced within the ecosystem. For example, SPV has exceeded the boundaries of the region and aims to represent all the startups of the ICT cluster of the city and therefore receive more visibility by attracting the interest of private investors, Government and Society. Social responsibility is another example of transversal knowledge domain, representing an opening of practice as a vector to maintain a mutual engagement of its members, the embeddedness of practice and avoid that competition effect negatively the cooperative dynamic that exist between members. It is a source of

collective learning encouraging the interaction of the CoP with its ecosystem of innovation and the city where it evolves. This configuration, evolution and organization of SPV occur along a continuum between CoP and NoP generated by a progressive opening movement to the participation of new members within the network. This movement gave him more legitimacy in the ecosystem of ICT.

The recognition of the legitimacy of SPV implies the need to manage competing and opportunistic logics to relationships of cooptation. Cooperation within competing firms can lead to win-win potential conditions. The effects of this dynamic of cooperation on the network appear as a true source of value creation through the establishment of trust relationships (Wenger, 1998) between the startups of SPV. Relations of competition encourage startups to improve in order to maintain their competitiveness, while cooperation provides access to new resources (Bengtsson & Kock, 1999, 2000).

Conclusion

Bengtsson et al. (2010, p. 210) stress, "There is a lack of knowledge about the effects of cooptation and different types of cooptative interactions" and underline the need to follow a "systematic empirical research" based on their conceptual development. This study seeks to in with a focus on the context of innovative startup community.

Organizational analysis of the cooptation within an inter-organization community of practice by the dynamics of participation/reification (Wenger, 1998) by exchanges between entrepreneurs of innovative startups effect of different natures in the ICT sector in terms of open innovation (Chesbrough, 2003) :

- (I) Sharing of expertise of firms contribute to reduce the learning curve (very relevant for startups who must innovate faster) ;
- (II) Reduction of the dependency and the need of external resources through the sharing and exchange of resources within the inter-organizational network;

- (III) Recognition of the community power can attract investors and new partners of the local innovation ecosystem.

The network of startups can be considered as an institutional innovation as it reduces the limitations of companies and promotes innovation in the territory. CoP appears as a broker (manager facilitators) in the local innovation ecosystem in that it allows, and a boundary objects (forum at Slack, meeting) through the relations of cooptation of its members to disseminate widely knowledge (Castro Gonçalves, 2015). The issues highlight by this dynamic, based on social relationships, evolves with respect to the development of the territory and under a movement of “host” of new members within the network. Another issue was the enhancement of the relationship with other players at the ecosystem. These results are in line with the research on the development of knowledge in the extension of organizational boundaries (Castro Gonçalves, 2012).

It is also observed by analysis that spontaneous cooptation (Pellegrin-Boucher, 2010) is advantageous to the startups by the possibility to overcome knowledge asymmetries by the establishment of internal interconnections (between firms) and external interconnections (between customers, suppliers and with the companies of the same sector through the formation of networks) in the city of Belo Horizonte. These interconnections change the competition practices in the field of ICT and promote an intensification of the activities of intermediation and construction of the NoP.

Strategies of cooptation may also generate defensive strategies against external or internal threats of the CoP. The community becomes an actor to the development of innovation in the ecosystem as a collective response to the lack of resources and power.

The originality of this research could be strengthened by analyzes of other inter-organizational communities in other areas of innovation. The results of this research are indeed very attached to the local context. From the theoretical framework, a more pronounced analysis on the

interaction between different CoPs or other innovation networks would further highlight the coopepetition wider effects on the body of knowledge (Wenger-Trayner et al., 2014). This is future research directions that would provide a better understanding of the dynamics of innovation in a specific geographical area.

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Table and Figure

Approche	Spontanée	Cloisonnée	Intégrée
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Objectifs	Répondre à des besoins ponctuels S'adapter à une situation donnée Tester la coopération	Répondre à des besoins stratégiques concernant l'innovation, la productivité, l'internationalisation. Limiter la coopération à certains domaines de l'entreprise.	Répondre à des besoins stratégiques concernant l'innovation, l'internationalisation, la productivité. Généraliser la coopération à tous les domaines d'activité de l'entreprise.
Instruments privilégiés	Mise en œuvre de partenariats ponctuels par la direction de l'entreprise ou certains managers.	Création de structures dédiées à la coopération : postes de responsables d'alliances et de programmes de partenariats.	Création de programmes de sensibilisation aux alliances de la coopération. Mise en place de dispositifs incitatifs. Culture de la coopération étendue à tous les domaines d'activités de l'entreprise.

Tableau 1 : Les approches managériales de la coopération (Pellegrin-Boucher, 2010)

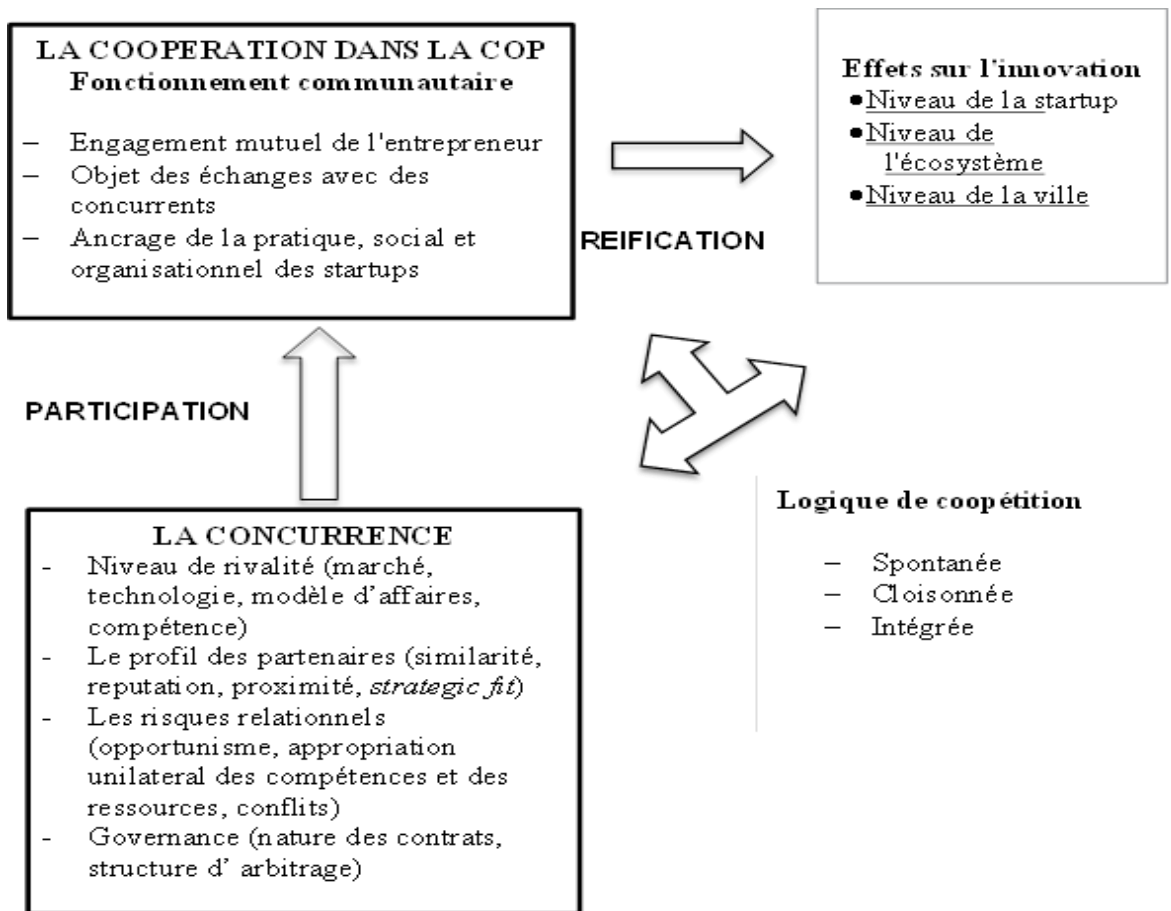


Schéma 1 : Cadre d'analyse de la coopération au sein des communautés et réseaux de pratique

Principes d'une CoP	Application de la théorisation de Wenger(1998) au réseau de San Pedro Valley
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Domaine de savoir partagé	Partage de connaissances et échange d'expériences sur la création et le fonctionnement de startups de haute technologie
Fonctionnement	<p>Rencontres informelles en coprésence. La participation aux rencontres n'est pas obligatoire mais les entrepreneurs s'impliquent spontanément et régulièrement. Fondée sur un principe de coopération puisque certains membres coopèrent malgré le fait qu'ils soient des concurrents</p> <p>Offre spontanée d'aide lorsqu'un membre de la communauté est en difficulté par la proposition de solutions et le partage de connaissances (par ex. échange sur de bonnes pratiques de gestions, le choix de serveurs, informations et actualisations et nouveautés des langages de programmation, la programmation en général) (engagement mutuel).</p> <p>SVP a un jargon propre et des histoires partagées (par ex. lors de discussions pour le développement de leur plateforme d'échanges, l'un des membres fait une blague en faisant allusion à un langage spécifique informatique spécifique utilisée par les entrepreneurs et un autre récemment arrivé ne l'a pas comprise. L'histoire est devenue une dessinée qui raconte une partie de l'histoire de la communauté).</p> <p>Implication de certains membres de la communauté à l'écosystème d'innovation en TIC de la ville de BH (ces membres de SPV participent aux réunions du organisées par le gouvernement de l'Etat de Minas Gerais et d'autres dans le cadre de programmes pour le développement de startups et/ou d'innovations. Disponibilité d'un répertoire de ressources partagé par les membres (sur les chaînes thématiques de Slack e sur le site web de SPV).</p>
Capacité de la pratique	<p>Reconnaissance partagée de l'amélioration de la pratique des membres de par leur participation à la communauté (par ex. : le développement de nouvelles technologies dans les startups du réseau, l'identification de nouveaux marchés par une startup en utilisant les services d'outre startup, l'établissement de partenariats entre startups de marchés complémentaires, la création d'un programme d'aide financière et technique d'un startup déjà consolidée dans le marché et en phase de traction pour soutenir une startup en phase de validation d'idée).</p> <p>Alimentation du répertoire partagé avec de nouvelles histoires (une commission a été nommée pour la création d'une rubrique sur le site web de SPV avec l'objectif de mieux exposer les startups membre de la CoP), d'outils technologiques (site web, fan page sur Facebook, un groupe dans le WhatsApp et un groupe sur Slack) et de symboles (la marque SPV avec dépôt de droit et un slogan « We ? SanPedroValley »).</p>

Appartenance Institutionnelles de personnes interviewées	Nombre d'interviews (moyenne de 1h30 par entretien)	Codes utilisés pour les verbatim
Associations professionnelles et syndicales locales et nationales présentes dans l'écosystème d'innovation	3	ASPRO1, APRO2, ASPRO 3
Entrepreneurs membres de SPV	18	ET1, ET2, ET3...
Institutions mixtes partenaires (Université, entreprises et état local), chargées d'accélérer le développement d'idées d'innovation (programme SEED) et de développer la recherche de partenaires (programme MIC)	3	INST1, INST2, INST3
TOTAL	24 entretiens / 37 heures d'entretiens	

Tableau 3 : Echantillonnage de la recherche et codes

