

Social Capital Dimensions in Collaborative Networks: The Role Of Linking Social Capital

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ABSTRACT

This paper proposes a model to analyze social capital in enterprise collaborative networks. We used qualitative and quantitative methods in a triangulation of information process. This model was built from a case study in an enterprise collaborative network, promoted by the Brazilian government. We focused on the identification of the social capital dimensions present in the network. We defend the importance of social capital evaluation in collaborative networks and the role of linking social capital, as an integrator concept. The "linking social capital" allows us to unify two approaches: one that considers only horizontal social relations and another that covers power relations. In this sense, we propose a model to analyze the linking social capital in collaborative networks, unifying the two different approaches.

Keywords: linking social capital, collaborative networks, Brazil, quanti-quali method, theoretical model

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1. INTRODUCTION

The network concept represents a new benchmark for the organizations in terms of information and business technology and also as a structure of relationships between social actors, based on cooperation, reciprocity and shared values. The network structure is to allow successful initiatives for cooperation among small, medium and large enterprises around the world.

One of these initiatives is the Cooperation Network Program, driven by Rio Grande do Sul Government, southeast Brazil, which aims to develop the cooperation among small companies. This Program was initiated in 2000 and supported more than 220 collaborative networks, with a total of 4700 companies, employing more than 61,100 people and earning annual revenues exceeding U.S. \$ 2 billion (Secretaria do Desenvolvimento e dos Assuntos Internacionais [SEDAI], 2008). One of these networks is named AutoRede that guides and enhances the cooperation among automotive repair companies. This network has 24 members.

Rio Grande do Sul is Brazil's fourth regional economy. The prevalence of micro and small companies powered the dynamics of Rio Grande do Sul's economy. They are responsible for 46% of the state's workforce. Medium and large companies employ 15% and 39% of the workforce, respectively. That's precisely this complementary and cooperative coexistence among micro, small, medium and large companies that determines the competitiveness of the state's productive chains (SEDAI, 2008).

Most researches about Cooperation Network Program focus on the reasons for success or failure of the networks enlightening managerial aspects (Verschoore, 2006), performance indicators (Adam, 2006), knowledge exchange (Webb, 2008; Balestrin, 2005) and development factors of networks (Wegner, 2005). However, there is less attention to the structure and content of network relations, such as cognitive, structural and relational issues (Macke, Sarate & Vallejos, 2009).

One of the key attributes for managing inter-organizational networks is the social mechanisms. These arrangements have a relevant role for the organization of the networks, serving as a substitute for controlling hierarchical systems and as a lever for the cooperation process (Ring, 1997).

A peculiarity of social mechanisms is its double implication. While they are one of the most important attributes for the management of networks, the networks promote the generation and expansion of social mechanisms

elements. The trust promotes cooperation. The higher the level of trust in a community, the greater the probability of cooperation and cooperation itself creates trust (Putnam, 1993).

This dynamic leads to a fundamental point in network studies: the social capital concept, which can be defined as the set of characteristics of a human organization that encompasses the relations between individuals or groups, the standards of social behavior, the mutual reciprocity and make actions possible because they are based on a collaborative process.

The most important studies on Social Capital adopt in general two different approaches. One defines that Social Capital is a public benefit (Coleman, 1990; Putnam, 1993), while the other classify Social Capital as an individual benefit that can be accumulated by a person (Bourdieu, 1986; Burt, 1997).

Taking into account the approach of collaborative networks it is important to define the role that Social Capital takes, considering the benefits by increasing the network competitiveness (Macke, Vallejos & Sarate, 2009). Therefore, in this study we defend a hybrid approach for Social Capital, which takes into account the role of collective capital, as well as the individual gains.

Thus this paper aims to create a method to evaluate social capital in collaborative networks – using the case of Autorede network -, by adopting an integrated view that allows to consider even vertical and not only horizontal relations, that is, including the power as an element of analysis.

2. SOCIAL CAPITAL

The Social Capital can be understood as a set of informal norms and values, common to the members of a specific group that allows the cooperation among them. Therefore, it is a component of the Social Theory that is being considered as a key-element for the human and economic development.

The notoriety of the concept come from the publication of the book of Robert Putnam, in 1993, entitled "Making Democracy Work: civic traditions in modern Italy". In this work, Putnam relates the results of a twenty year study about the Italian society, in which the initial topic was to understand the differences of the development of north and south Italy. The author concluded that the disparities between institutional performance and development of the regions are a result of a major presence of Social Capital (as in the case of the north of the country). The authors' conclusions had an

impact in the scientific community and were corroborated by other studies (Fukuyama, 1995, 1999; Grootaert, 1998; Onyx & Bullen, 2000).

The social capital may appear under several ways – trust, norms, and social relationship chains – and all of them are resources which increases in use, instead of decreasing, and they are over if not used (Hirschman, 1984). The lack of trust is, however, difficult to be eliminated, for it happens when people do not have an adequate social experience and induces attitudes that encourage their own distrust. It is, therefore, impossible to know if it was justifiable in fact, for it is able to satisfy itself (Coleman, 1990).

The social capital brings consequences for action (Nahapiet & Ghoshal, 1998; Putnam, 1993). One of these consequences is social capital stock increases action's efficiency; Putnam (1993) sustains high levels of trust decrease opportunism and the need for monitoring costs throughout the process. Another consequence is related to encouraging cooperative behavior, by means of motivating people to develop other organization ways (Putnam, 1993). The concept of social capital is, therefore, fundamental for understanding the institutional, innovation and value creation dynamics (Nahapiet & Ghoshal, 1998).

This concept has been used to explain a series of social phenomenon. Many researchers have focused on the role of social capital in developing human capital (Coleman, 1988; Nahapiet & Ghoshal, 1998), in economic performance (Sabatini, 2008; Schuller, 2007), in knowledge networks (Webb, 2008; Yuan, Gay & Hembrooke, 2006), in entrepreneurship (Siqueira, 2007; Stam & Elfring, 2008), in cultural aspects (Swinney, 2008; Takhar, 2006; Xiao & Tsui, 2007) and in developing regions (Putnam, 1993) and countries (Fukuyama, 1995, 1999).

It is important to emphasize that the cooperation incapability does not necessarily mean ignorance or irrationality; perfectly rational people may produce, under certain circumstances, not so "rational" results, from the point of view of all people involved. The matter is that even if no part is to harm any other, and even if they are about to cooperate, there are no guarantees nobody is going to quit, if there is no commitment to be required. In order to have cooperation it is necessary both trusting other people and believing other people trust everyone (Gambetta, 1988 in Putnam, 2002). The main problem is the lack of punishment for deserters: how to be so sure the other is going to keep his word? For this reason, precise information and the possibility of executing a certain action are fundamental for an effective cooperation.

Performance of a social institution depends on how these problems are solved. If actors are unable to assume commitments among themselves, they must resign many opportunities of mutual benefit. At this point it is important to highlight the role of the State. The State makes possible for the citizens to do what they could not do on their own – trust each other (Putnam, 2002).

The concept of social capital, when measuring the wealth production potential which comes from several collective associative ways, allows exploring the impacts of the civil society in economic performance (Macke, Vallejos & Sarate, 2009). It is possible to identify four main ways companies use social capital found in social networks to stimulate economic increase (Skidmore, 2001: 134): (i) high levels of social trust and strong reciprocity rules reduce transaction's costs; (ii) social networks minimize risks, once they allow members to engage innovations and higher risk's levels; (iii) social networks easy the quick dissemination of information and this fact reduces asymmetries; (iv) social networks allow their members to easily solve collective action problems.

Taking into account the approach of collaborative networks it is important to define the role that social capital takes considering the benefits achieved in the network by increasing its competitiveness. Therefore, in this study we defend a hybrid approach, which takes into account both the role of collective capital, as the individual gains.

The focus of Bourdieu's approach is to understand how different forms of capital - economic, cultural and social - influence patterns of power and social status. The author argues that social capital is the current or potential resources, related to a long term recognition relationship network (more or less institutionalized). Thus, the concept is more related to individual and class benefits from the personal relationships and socially shared values. In this point of view, the social capital is considered a property of the individual, since it provides, in essence, individual benefits. The social capital is, thus, an element, which the actors use to maintain or enhance their status and their power in society (Bourdieu, 1986).

Coleman (1990) has a utilitarian approach of the social capital, asserting that, as well as other forms of capital, it is productive, it makes it possible to achieve certain purposes that would not otherwise be achieved. To this author, social capital consists of all elements of the social structure fulfilling the function of serving as a resource to individual actors to achieve their goals and satisfy their interests.

Putnam (1993) follows Coleman's definition when he defends that voluntary cooperation is easier in a community that has inherited a good stock of social capital in the form of rules of reciprocity and civic participation systems. The social rules are useful because they transfer of an actor to another the right to control an action that can have consequences, positive or negative. These rules are sustained by both socialization and sanctions. The most important are the rules of reciprocity, which can be specific, involving the simultaneous exchange of items of equal value.

The social capital is linked to the relevancy of relationships as resources for social action, which is an aspect most authors agree with, such as Bourdieu (1986, 2003a; 2003b), Coleman (1988) and Loury (1987 in Nahapiet and Ghoshal, 1998). As Putnam (1993) says, however, the social capital is not a one-dimensional concept, and this makes different authors to establish the focus of their discussion on different aspects of social capital.

In the study of Social Capital and its importance in the creation of intellectual capital, Nahapiet and Ghoshal (1998) proposed three Social Capital dimensions, which are: structural, relational and cognitive. For these authors social capital is the "sum of the actual and potential resources embedded within, available through and derived from the network of relationship possessed by an individual or social unit" (Nahapiet & Ghoshal, 1998, p. 242).

Although, the authors have understood analytically the Social Capital in dimensions, they point that a great part of the characteristics studied are highly related, what does not disable the classification, therefore facilitates the construct comprehension.

In the structural dimension of Social Capital are analyzed: the presence or not of relationships between the actors, the configuration or morphology of the network, describing the standards of connections, through variables as density, connectivity network configuration, stability and ties (Coleman, 1990).

The relational dimension describes the kind of personal relationship, developed through a history of interactions (Granovetter, 1992). This concept focuses on aspects that influence the behaviors, like: respect and friendship, which are going to decide to sociability, acceptance and prestige. Two actors can occupy similar positions in a network, however if their emotional and personal attitudes differ, their actions will be different in many aspects; therefore is related to a behavioral component, which is

revealed through facets as trust and distrust (Fukuyama, 1995; Putnam, 1993, 2000), norms (Coleman, 1988, 1990; Putnam, 1993), obligations and expectations (Coleman, 1990; Granovetter, 1992) participation and diversity tolerance (Nahapiet & Ghoshal, 1998).

The third dimension of Social Capital: cognitive, refers to the resources that emanate shared visions, interpretations and systems of meaning, mainly codes and narratives shared, values and other cultural elements. Some authors affirm that this dimension is not being explored in the literature (Nahapiet & Ghoshal, 1998).

This definition of social capital is suitable for our study since it unifies the two approaches view of social capital and brings into account the power issue, not restricting the analysis to horizontal relationships.

So, in order to understand the connections between Social Capital and collaborative network governance, we must therefore understand different forms of Social Capital. Recent studies distinguish “bonding”, “bridging” and “linking” Social Capital (Onyx & Bullen, 2000).

The bonding Social Capital is characterized by strong relations of mutual aid in the local context and high levels of participation, which results in dense multi-functional strong ties but localized trust. This type of Social Capital is characterized to occur among people in some way “likely” - it generates empowerment within horizontal networks (Onyx & Bullen, 2000).

However, this mutual support can be limited to people who are inserted into the network and cannot be extended to other networks or groups. Moreover, the bridging Social Capital is developed between different groups of actors - in this case, from different networks - and serves to expand the skills and networks resources, that is not accessible in other ways (Onyx & Bullen, 2000).

The linking of Social Capital with CNs considers relations of unequal power. It is different from bonding and bridging social capital in that it is concerned with relations between people who are not on an equal footing. This type of Social Capital is important for this study, because it allows to unify the collective Social Capital with the individual Social Capital approach.

3. COLLABORATIVE NETWORKS - THE CASE OF AUTOREDE (BRASIL)

The concept of networks has various approaches and their extensive use in the social sciences have attracted attention in recent times. A significant number of authors have used the network metaphor to describe a new reality, in which new models of social organization and relationships between individuals and groups are emerging.

Among the various types of networks, a special relevance is given to Collaborative Networks (CN). A CN is constituted by several entities (e.g., organizations and people) that are autonomous, geographically distributed, and heterogeneous in terms of their: operating environment, culture, social capital, and goals (Camarinha-Matos & Afsarmanesh, 2005).

A large number of research projects in this area are carried out worldwide and a growing number of practical cases on different forms of CNs are being reported. The CNs are complex systems, emerging in many forms in different application domains and consist of many aspects with proper understanding that require the contribution of multiple disciplines (Macke, Vallejos & Sarate, 2009).

The Cooperation Network Program of Brazil - which AutoRede takes part - aims to develop the culture associations between small and medium enterprises. The central idea of this program is to bring companies together with common interests, constituting a legally established entity without shared capital, which maintains the legal independence and individuality of each enterprise involved.

The network enables joint actions, facilitating the solution of common problems enabling new opportunities. The program has statewide coverage coordinated by SEDAI (Department of Development and International Affairs) and is implemented regionally, in partnership with universities (Silk, 2004).

SEDAI offers extension and management training programs promoting innovation in management and production (products and processes), developing skills and enhancing competitiveness. This government department also provides support to the state's productive chains, aiming at promoting a culture of innovation, technical and technological research, development of markets, formation of consortia, modernization of

enterprises, fostering quality and productivity and training human resources (SEDAI, 2008).

AutoRede Network was officially founded in 2005, with 17 affiliates. Currently, this network has 24 affiliates. The AutoRede direction is exercised by a Board of Directors, a Business Council, a Fiscal Council and an Ethics Council. The actions of members of co-operation networks are governed by social status, ethics code and rules of procedure. Members of AutoRede are legal persons, individual or collective, legally established in the field of automotive repair services. The associated companies are divided into working groups according to the strategic planning of the Network: marketing, negotiation, expansion, consolidation and innovation (Autorede, 2005).

4. STUDY METHOD

We identified a lack of studies assessing social capital elements in collaborative networks (Vallejos et al., 2008; Macke, Sarate & Vallejos, 2009). Therefore, we decided to intensify our researches on these two themes, using qualitative and quantitative tools in a triangulation process (Yin, 1994).

In this study, the AutoRede case is examined through a descriptive viewpoint. We surveyed 100% of its members (24 members) on issues relating to cognitive, structural and relational dimensions of social capital. The analysis also considers the in-depth network history assessed by combining three sources of evidence: analysis of documents, interviews and direct observation.

We built the sociogramas - influence, friendship, information and trust - for each member of the network. Softwares were used for the analysis and design of the networks: UCINET 6.0 and Netdraw 2.1 (Borgatti et al., 2002). The instruments were applied in the meetings of the network, one at each meeting, avoiding bias in the responses.

To address the cognitive dimension, a qualitative analysis was performed by the method of focus group. This data was transcribed and then subjected to content analysis (Bardin, 1977). The evidences observed in this step were compared with the theoretical framework and the results obtained in other tests.

5. RESULTS

Figure 1 brings the formal structure of the network of trust among AutoRede members. By observing the configuration of this network, it is possible to verify that all actors are, by one or more links, connected.

The network of trust has a size of 756 potential relationships, of which 36 are effective relations, featuring a low density, since only 4.76% of the potential of the network is being used. This result shows a weak linking social capital.

The actors who have achieved the entry level centrality above 1.5 (scale from 0 to 3.0) are highlighted by an orange circle, and the actors Red1B and Red18 the maximum score is reached. This indicates that these are members who receive the largest number of links of other members of the network, indicating its prestige and recognition by other members as trusted.

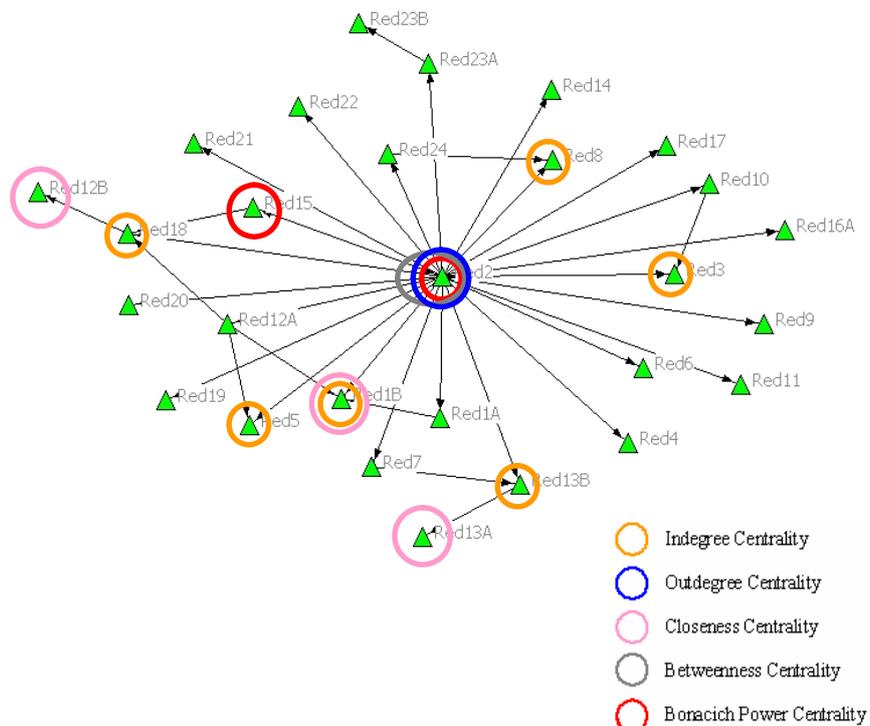


Figure 1. Map of trust in AutoRede network.

Conducting the analysis of the relational dimension of social capital, was possible to verify that the content most present in the members relationship was a formal friendship, followed by information, influence, and, finally, trust. Another important conclusion is that the relationships within the network are based on the diversity of roles played by the actors inside and outside the formal network. Analyzing the data in general, it was possible to see that members of AutoRede play an important role in the four variables, ie, they see each other as influential business people, as friends, as sources of information and as trustful people. The friends (13.82% of citations) occupy second place in the social networks of entrepreneurs, followed by employees (7.68%), the relatives (6.76%) and suppliers (6.14%). Moreover, entrepreneurs are bound by those of their relations mainly through close or very close ties. When examining the reciprocity of links, (symmetric relations), we conclude that there is low reciprocity in the AutoRede in general.

When considered the cognitive dimension, was possible to see that members share meanings among themselves, for each of the categories analyzed. One of the most cited elements was the opportunity to exchange ideas and information. This is considered the most important reason to be a member of the network and it is, for this network, the most important element of linking social capital.

6. CONCLUSION

In the present paper we defend the importance of linking social capital with CNs, as an integrator concept. In this sense, a model to analyze the linking social capital in CNs is proposed. In this model we defend four elements of analysis: identity building, power relations, evaluation process and network performance (see Figure 2). Each of these elements is linked to the social capital dimensions.

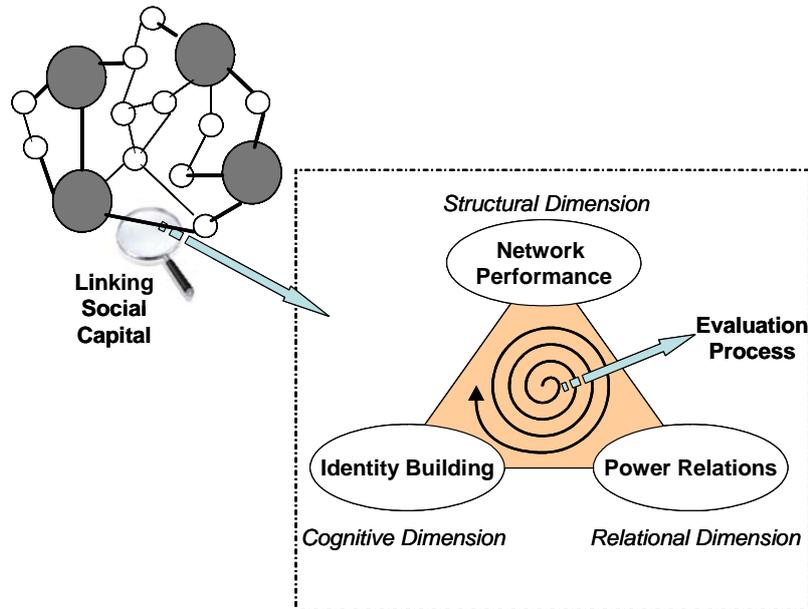


Figure 2. Linking social capital elements in a collaborative network.

The “identity building” consists of the several groups of which the agent (company) takes part. Therefore it is necessary to understand how a group exists objectively: through the establishment of relations between its members, that is, by their actions - is through the action that someone becomes something. The key issue is that identity offers a collective view of its activities and its criteria for action (Ciampa, 2001).

The “power relations” is the basis for the analysis of the structure of social space. This structure is not immutable; represents a state of social positions immersed in a dynamic of preservation and change (Bourdieu, 1986).

The “evaluation process” or process of reflection on action can be taken when it controls the effectiveness of actions in the inter-organizational context. It also includes the knowledge and best practices and is spread within the network and/or outside (Vallejos et al., 2008).

The “network performance” considers collaborative network indicators, such as the organization collective performance, including the sustainability of each partner. It is necessary to understand different business processes and trust, to ensure the systemic use of this trust and to maximize the potential of opportunities.

Some convergent features within the members of a network are: a) the existence of over two companies that, even collaborating with each other, remain independent, b) develop collective efficiency to obtain competitive advantages and overcome weaknesses and individual limitations, c) the establishment of long-term relationship, d) are open to new participants who will contribute to reach the group goals. The network is usually linked to the freedom that individuals and/or organizations have to enter or leave the group, but is possible to establish restrictions with the agreement of all members (Kuriki et al., 2008).

In order to represent the model that link Social Capital with CNs, we adopted the idea of the spiral, as Nonaka and Takeuchi (1995) used for the knowledge construction. The concept fits because the spiral represents a continuous and dynamic interaction, and – making a parallel with the theory of Social Capital, which grows with its use – it involves the expansion of the capital for each interaction between the CN members.

A CN can use existing sources of Social Capital in the local context in which it is embedded or can develop them internally. In the first case, members bring to the network, the history of social relationships that existed between them previously, that implies that companies have not only economic reasons to become a CN member, and that a CN is driven by knowledge exchanges. Social capital refers to the associative experience, to trust and cooperation ties, to organizational competences and abilities, and to the tacit or institutionalized configurations that empower interpersonal and inter-organizational relationships, which are important for social construction.

We emphasize that the issue of social capital in the collaborative networks context is lack explored. Although the word “trust” appears most of the time, it is related as an isolated concept and not as an element of social capital.

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