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Innovation in a bonding social capital context: The case of CDO Marche

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Abstract

In this paper we illustrate how innovation occurs in a bonding social capital context. We analyse a peculiar empirical context: CDO (Compagnia delle Opere) Marche Sud, a local branch of CDO, an association of firms that applies the values pursued by the Roman Catholic Church to the economic activities. This context is highly relevant because members share same norms, beliefs and values, constituting an excellent case of bonding social capital context. To explore this issue, we collected qualitative data that we analyse using content analysis methodology. Content analysis allows researchers to obtain an objective, systematic, and quantitative description of the manifest content of a communication. Based on this analysis, we conclude that innovation happens as the results of the interplay between two different forms of social capital: bonding and bridging social capital. While bonding social capital supports the implementation and diffusion of innovation, bridging social capital support the initial phase of innovation (i.e. research - idea).

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Abstract

In this paper we illustrate how innovation occurs in a bonding social capital context. We analyse a peculiar empirical context: CDO (Compagnia delle Opere) Marche Sud, a local branch of CDO, an association of firms that applies the values of the Roman Catholic Church to economic activities. This context is highly relevant because members share same norms, beliefs and values, constituting an excellent case of bonding social capital context. To explore this issue, we collected qualitative data that we analyse using content analysis methodology. Content analysis allows researchers to obtain an objective, systematic, and quantitative description of the manifest content of a communication. Based on this analysis, we conclude that bonding social capital facilitates innovation activities and that innovation happens as the results of the interplay between bonding and bridging social capital. While bonding social capital supports the implementation and diffusion of innovation, bridging social capital support the initial phase of innovation (i.e. research - idea).

Keywords: Innovation, bonding social capital, content analysis

1. Introduction

Nowadays, research breakthroughs are so largely distributed that it is very unlikely that a single firm has all the internal resources, knowledge and capabilities necessary for success (Powell, Koput, & Smith-Doerr, 1996). Very often, innovation is the result of the cooperative efforts of different actors, firms, universities, suppliers, and customers (Powell, 1990; von Hippel, 1988). Firms receive several advantages from being embedded in contexts that, both intentionally and unintentionally, connect people to other people, firms, and their resources and knowledge. Social capital is the advantages that firms gain from being in certain types of social contexts (Coleman, 1988; Putnam, 1993). Literature on social capital has highlighted the benefits of social capital in the innovation process: social capital may foster the sharing of ideas, the identification of new opportunities, the combination resources and knowledge of a large and heterogeneous pool of actors

(Laursen, Masciarelli, & Prencipe, 2012a). In this study we aim to explain how social capital affects firm's innovation by looking at social capital at group level. The literature on social capital at group level emphasizes that social capital is a public good, stressing the extra-individual properties of community structure (Coleman, 1990; Putnam, Leonardi, & Nanetti, 1993). This public good aspect of social capital suggests that possible advantages deriving from the presence of social capital diffuse not only to those who possess individual social capital themselves, but also to those who belong to a group with high levels of social capital (Adler & Kwon, 2002; Xiao & Tsui, 2007). At the group level, literature on social capital distinguishes between two forms of social capital: bonding and bridging social capital (Putnam, 1995). Network closure, or what Putnam (1995) called the "bonding" social capital focuses on the linkages among actors within a group that "give the collectivity cohesiveness and thereby facilitate the pursuit of collective goals" (Adler & Kwon, 2002 :21). By contrast, "bridging" social capital considers the inter-community social ties (Woolcock & Narayan, 2000).

In this paper, we investigate how the mechanisms of social capital operate in a bonding social capital contexts looking at its effects on the innovation process. In particular, we would like to answer the following interrelated questions: how do different types of social capital affect innovation dynamics? How does social capital in a bonding social capital context shape innovation activities?

To address these research questions, we focus on a unique empirical setting: CDO (Compagnia delle Opere) Marche Sud a local branch of CDO. What makes this association unique and, thus, particular relevant for our purposes is that it applies the values pursued by the Roman Catholic Church to the economic activities (Nanini, 2011). Its members share the same norms, principles and values. Therefore, a firm that belong to CDO is a member of "a community with shared interests, a common identity, and a commitment to the common good" (Adler & Kwon, 2002 :25). CDO is a cohesive group of firms that through various socialization mechanisms, such as social gatherings and ceremonies, encourages the identification with the organization. This atmosphere of cohesiveness that characterizes CDO is particularly evident among the members of local branch. Therefore, in line with the literature on social capital, CDO Marche Sud can be considered a bonding social capital context.

We use content analysis methodology to examine the data in order to ensure the objective, systematic and quantitative description of the communication contents (Berelson, 1952; Krippendorff, 2003). Content

analysis is a research method, initially diffused in social studies, that allows measuring the content of communication on the basis of textual analysis (interviews, political speeches, laws, books and newspapers). To reach high levels of objectivity and external validity, the analysis is implemented by following a coding procedure (Duriau, Reger, & Pfarrer, 2007; Insch, Moore, & Murphy, 1997; Morris, 1994). We use content analysis to analyze interviews and obtain quantitative information from qualitative data. In doing so, we strictly followed the guidelines provided by Krippendorff (2003).

The paper is organized as follows: we firstly review the literature on the topic, focusing on the contribution on social capital and innovation. Then, we pay specific attention in describing the empirical setting, in order to clarify the unique features of the association that makes this context highly interesting. In the method section we provide a general overview of the content analysis to explain how we use this methodology in the present study. Analysis of results, discussion and conclusions follows.

2. Literature review: social capital and innovation

Prior research suggests that innovation is the result of a search process that most often entails the novel recombination of existing knowledge (Fleming 2001, Nelson and Winter 1982; Henderson and Clark 1990). To identify novel problems and to find insights into their resolution (Hargadon and Fanelli 2002; Schilling and Phelps 2007), firms need to access to a variety of knowledge elements (e.g. technological components and the scientific knowledge embedded in them). Firms that have greater access to external knowledge sources should be advantaged in their innovation efforts (Chesbrough, 2003). In every phases of the innovation process, firms can benefit from the interactions with different external actors such as users, suppliers, and competitors (Freeman & Soete, 1997; von Hippel, 1988). These actors are likely to possess resources and knowledge, which can be relevant in the innovation process implemented by the firm (Rosenberg, 1982).

In this paper, we adopt a social capital perspective to inquire the importance of social contacts in the innovation process. The literature on social capital has a long tradition. This concept was originally used to investigate the relational resources utilized for the personal development in social organization (Jacobs, 1961; Loury, 1977). Bourdieu (1980) made the first important conceptualization defining social capital “the

sum of the resources, actual or virtual, that accrue to an individual or group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition.” (Bourdieu, 1980 :2). One further step in the conceptualization of social capital was made by Coleman (1988). According to Coleman (1988: 98), “Social capital is defined by its function. It is not a single entity, but a variety of different entities, with two elements in common: they all consist in some aspect of social structures, and they facilitate certain actions of actors within the structure.” However, the economic debate on the concept of social capital has emerged thank to the work of Putnam et al. (1993): “Making democracy work”, in which the authors bear evidence on the importance of social capital in explain the performance of political institutions. Putnam (1995) has identified two forms of social capital: bonding (within group) and bridging (among groups) social capital.

Scholars have widely used the concept of social capital to explain economic outcomes (Westlund & Adam, 2010), financial performance (Guiso, Sapienza, & Zingales, 2004), firms’ participation in international markets for goods and technologies (Laursen, Masciarelli, & Prencipe, 2012b) and labour productivity (Sabatini, 2008). Scholars have pointed out the increasing importance of networks among firms and non firms organizations, such as nonprofit or public organizations (Powell, White, Koput, & Owen-Smith, 2005). In particular, networks can be defined as “a set of nodes linked by a set of relations, such as friendships, kinships, political, etc” (Powell & Smith-Doerr, 1994:3). Among others advantages, networks are important in the innovation activities of modern firms (Freeman, 1991; Powell & Grodal, 2005). In fact, the literature of social capital has showed the existence of a positive relationship between social capital and innovation at different levels of analysis.

At firm level, Landry et al. (2002) discuss how perceived firm-level social capital affect firms’ innovation. More recently, Powell and Giannella (2010) pointed out that in the last few years the innovative activities of firms have become as much as a “collective invention”. The authors with the term “collective invention” mean the fact that modern firms share information “across a network of participants as the central feature” of their innovation activities (Powell & Giannella, 2010: p.599). At individual level, Ceci and Iubatti (2012) show that personal ties in a localized network facilitate innovation. At the regional level, Laursen et al. (2012a) show high levels of regional social capital can be beneficial for firm innovation and can increases the effectiveness of external R&D acquisition on the firm’s probability to introduce a new product. Hauser et

al. (2007) show that regional social capital positively affects innovation, measured using patent data. Despite the value of this body of literature, little is known about how innovation occurs in a bonding social capital context. These two forms of social capital have been proposed by Putnam's (2000) concepts. Bridging social capital pertains to the bonds of connectedness that are formed across diverse groups of actors, whereas bonding social capital refers to the links that occurs within the group. In analysing the effects of bridging and bonding social capital, researchers claim that the value of a particular form depends on what actors seek to obtain through it (Adler and Kwon, 2002). The empirical evidence is still limited, however, as only few studies have analysed the effects of these two forms of social capital. The added value of our paper lies in the empirical testing of the influence of these different forms of social capital on firm innovation.

2.1. Bonding, bridging social capital and its constitutive elements

Starting from the current state of the art, we wanted to go a step further in the social capital field and explore how different types of social capital favour the innovation process. We conceptualize bonding social capital as distinct from bridging social capital. In contrast to this view of social capital as a resource located in the external linkages of a focal actor, bonding views focus on collective actors' internal characteristics. On these views, the social capital of a collectivity (organization, community, nation, and so forth) is not so much in that collectivity's external ties to other external actors as it is in its internal structure-in the linkages among individuals or groups within the collectivity and, specifically, in those features that give the collectivity cohesiveness and thereby facilitate the pursuit of collective goals (Adler & Kwon, 2002). We consider bonding social capital as the social capital of the group of firms that are member of a united network, sharing the same ten constitutive elements that will be defined as follows:

1. *Cohesion* represents the absence of exclusions or marginalization of individual, and a contrast between a sense of belonging versus isolation, participation versus non-engagement, recognition versus rejection and legitimacy versus illegitimacy (Jenson, 1998).

2. *Collective actions* define any action made by the firms to generate benefit for the group of firms and shared experience refers to any case of joint activity realized by the respondent and an others member of the group - e.g. cooperation in an innovation process.

3. *Common scope and vision* occurs when members of the group have the same view of the world. This facilitates the collaboration since it increases the willingness to cooperate and the predisposition to share information, resources and knowledge.

4. *Geographical proximity* is an enabler of personal relationships since the reciprocal closeness of networked members, working in the same geographical area, allows the development of relationships that are not solely related to the professional dimension (Lissoni, 2001; Rallet & Torre, 1999).

5. *Loyalty* occurs when the firms are willing to sacrifice their own interests for the good of another person. In this way, loyalty contribute to the development of strong relational ties (Bolino, Turnley, & Bloodgood, 2002).

6. *Obligation* is seen as one of the primary constituents of social capital: donors provide privileged access to resources in the expectation that they will be fully repaid in the future. In a social capital context, obligations are enforceable, not through recourse to law or violence but through the power of the community (Portes, 1998).

7. *Reciprocity* is a mechanism that regulates exchanges between the actors. In the case of reciprocity, expectation of re-payment is not based on knowledge of the recipient, but on the insertion of both actors in a common social structure. The collectivity itself acts as guarantor that debts will be repaid (Portes, 1998).

8. *Solidarity* focuses on those situational circumstances that can lead to the emergence of principled group-oriented behaviour (Portes, 1998).

9. *Trust* is “a cognitive coordination mechanism” (Lorenzen, 2001: p.16), we refer specifically to the dyadic and networked trust, characterized by mutual interest in exclusive networks of firms, that is particularly important in small networks of firms, enabling goal alignment.

10. *Shared norms and values* facilitate exchanges, lower transaction costs and reduce the cost of information (Woolcock & Narayan, 2000) because in rich social capital context people pay their debts in time because they feel an obligation to behave in this manner. Internalized norms make such behaviors possible. In this instance, the holders of social capital are other members of the community who can extend loans without fear of non payment (Portes, 1998).

4. The empirical context: CDO and the “Matching” meeting

CDO is an association of firms that follows the values pursued by the Roman Catholic Church to the economic activities (Nanini, 2011). Its members share the same norms, principles and values. In 1986, CDO started its activity as an association of entrepreneurs who wanted to share human and economic resources to help each other. Today, the association has 38 branches in Italy and 17 abroad. The branches abroad operate in Latin America (Argentina, Brazil, Chile, Colombia, Paraguay, Peru and Venezuela), Europe (Bulgaria, Spain, France, Hungary, Portugal, Poland, San Marino, and Switzerland), Middle East (Israel) and Africa (Kenya). When data were collected, CDO had about 36,000 members, mainly profit companies.

CDO's main goal is to promote and develop relationships among its members and between these members and non-member organizations. It offers various services to its members, such as commercial and financial agreements, training activities, support to international business, job creation and innovation.

As regard to commercial and financial agreements, CDO offers discounts, special rates and specific agreement for telephony, mobility, ICT, vehicle fleet management, logistics, HR management, banking and financial services. As regard to the training activities, CDO organizes workshops and events to develop a learning community of entrepreneurs and managers, willing to share their experience, knowledge and working methods and to help members in developing new businesses or improving the existing ones. In addition, CDO promotes several activities, such as "Conversazioni Imprenditoriali" (Entrepreneurship Discourse) that incentivizes the "spirit" of sharing experiences among entrepreneurs. CDO facilitates firms' internationalization through a branch called "CDO Network", which helps members in participating to internationalization fairs and events and it guides firms in their approach to new markets. CDO Network offers customized services such as research reports and contacts with new partners. Overall, CDO proposes itself as international hub for collecting and diffusing the information and experience needed to run business overseas. As regard to job placement, "CDO for work" is an initiative of CDO that helps people to find new jobs and firms to meet new employees. As regard to the innovation process, CDO has started a partnership with "Know Net Officine Italiane Innovazione" to support the innovation activities of CDO's members. "Know Net Officine Italiane Innovazione" is able to develop new products, services, processes and markets.

In addition, CDO organizes Matching, an international fair held yearly in Milan. The first edition of Matching took place in 2005. In 2012, when the data were collected, about 2,500 firms participated to this meeting. The aim of Matching is to promote new relationships among CDO members and to develop links

between members and other organizations.

5. Method

In this work, we use the content analysis technique to analyze our data. Content analysis is a “research technique for the objective, systematic and quantitative description of the manifest content of a communication” (Berelson, 1952: p. 18). This method has been developed in social studies and it investigates the content of communications. The initial applications were political speech, laws, books and newspapers. The advantages of this research method are the high level of objectivity and external validity. Due to the diffusion of ad-hoc software, this method has been demonstrating its potential to measure the content of communications. For this reason, since the 1980s, content analysis has increasingly been used by scholars (Duriau et al., 2007; Insch et al., 1997; Morris, 1994; Zaheer & Soda, 2009).

5.1 *Data collection and questionnaire administration*

In this study we use a qualitative research approach. Data have been obtained through interviews integrated with secondary data. Open-ended interviews constitute our principal source of data. In this type of interviews, researchers ask questions about specific topics, including the particular point of view of the interviewee (Oppenheim, 2000). The interviews are based on a semi-structured questionnaire. After asking for a short description of the firms’ activity, we invite the interviewee to tell us the story of a significant innovation that had been conducted by the firm in the past years. With the term “innovation” we mean “new combinations” of pre-existent resources and knowledge as well as new organizational and institutional structures that enable the economic development of firms (Edquist & Johnson, 1997; Lundvall, 1993; Malerba & Orsenigo, 2000). In addition, we asked the interview to identify in the innovation process the following three phases: (i) research/ideas (ii) development (iii) implementation/diffusion (Reinganum, 1989). Research/ideas are dedicated to generate new scientific and technological knowledge or to ideate a new business idea; development regards the improvement that occurs to already generated ideas, products, production processes, and implementation/diffusion are the steps by which a new product or process increases over time the number of users or owners of that innovation (Geroski, 2000). During the interview, we guided the interviewee to focus on the three phases of innovation. For each phase we asked for a

description of all the firm's relationships with other actors. In particular, special attention was paid to the description of content and frequency of personal and professional relationships with customers, suppliers, competitors, members of CDO, policy makers and other relevant actors. Researchers specifically investigate the role that external relationships play during the innovation process. The questionnaire can be found in Appendix A.

Interviews were conducted during the three days of the "Matching 2012" event, a fair held the 26-27-28 November 2012 in Milan and organized by the CDO association. The researchers had contacted all the members of CDO Marche Sud participating in the event and 23 out of 24 agreed to be interviewed. Details of the sample are provided in Table 1. We conducted 23 interviews, 14 with general managers or CEOs and 9 with those responsible for other functions (e.g., sales, finance, production, marketing). A list of the interviewees and their respective job role is provided in Appendix B. All the interviews were digitally recorded and transcribed in their entirety to retain all the details of the conversations and to ensure the suitability of the data for the content analysis procedure.

--- Table 1 here ---

5.2 *Content analysis procedure*

Following the guidelines provided by Krippendorff (2003), we identify sampling and context units of analysis. Sampling units are "distinguished for selective inclusions in an analysis" (Krippendorff, 2003: p.98). These units must be independent from each other. In inferential statistics, sampling units are called observations. We selected firms as sampling units: because firms are the units that can assure independence among observed variables and because firms are independent from each other. Context units are "units of textual matter that set the limits on the information to be considered in the description of recording units" (Krippendorff, 2003: p.101). We identify "sentence" as the context unit. The choice to use "sentence" has been motivated by a holistic approach to the text, requested by the specificities of the Italian language used in the interviews. Italian is rich in synonyms and many words have ambiguous meanings that cannot be understood without reference to the entire sentence. In Italian, as in many other languages, the meaning of a word typically depends on its syntactical role within the sentence.

Once the units of the analysis had been defined, on the basis of the concepts reported in the analytical model, researchers elaborated a set of rules that minimized the possibility that findings would reflect on the analysts' subjective predispositions rather than on the content of the documents under analysis (Kassarjian, 1977).

These rules are represented by "a dictionary", constructed as a list of words that interviewees used to refer to specific concepts (either an activity or a relationship). The "dictionary" has been constructed as follows: we extracted a list of words that appear more than 10 times in the texts, using the NVivo software. NVivo is a qualitative data analysis (QDA) computer software package, developed for qualitative researchers working with text-based and/or multimedia information, where deep levels of analysis are required. We assigned to each concept the relevant words from the list to construct the "dictionary" and we integrated the dictionary with synonyms (see Appendix C).

Three coders, working independently, proceeded to code the relevant sentences using the text search function in the NVivo software. Researchers manually checked the entire text to catch coding errors due to the possible multiple meanings of words or to negative sentences. The list of nodes, reported in Appendix D, has been constructed on the basis of previous literature on the topic (Batjargal, 2003; Ceci & Iubatti, 2012; Chiesi, 2007; Masciarelli, 2011) and on the basis of what has emerged during the interviews. In Appendix D we report the list of concepts investigated and the number of sources and references coded for each. Sources are the number of sampling units (i.e. the firms) where concepts have been observed and the references represent the context units (i.e. the sentences).

The analysis of the data has been guided by the aim to explore the relationship existing between innovation, bonding and bridging social capital, as reported in Figure 1. On the left hand side, bridging and bonding social capital are shown and linked to the three phases of innovation positioned on the right hand side of the graph. In particular, through the analysis of empirical data, we wanted to explore the strength of the support fostered by the different types of social capital in association with the three innovation phases.

--- *Figure 1 here* ---

6 Results

The analysis of the collected data leads to the following main findings: (1) in a bonding social capital context, the interplay between firm and group social capital facilitates innovation; (2) in a bonding social capital context, the elements of social capital that guarantee the sense of group are the more relevant innovation wise; (3) bonding social capital support the implementation and diffusion of innovation, bridging social capital support the initial phases of innovation.

6.1 In a bonding social capital context, the interplay between firm and group social capital facilitates innovation.

Table 2 shows the number of the words coded as relevant for the concepts of social capital and innovation. More specifically, the nodes coded as “social capital” refer to the firm social capital, that is the social capital of the individual level. Social capital at individual level can be defined as the collection of resources owned by the members of an individual’s firm social network, which may become available as a result of the history of these relationships (Lin, 2002).

The relevance of the concept of “social capital” at individual level is almost similar in the three categories of interviewees: we divide firms into three groups with different level of group social capital. In order to do so, used as a proxy the CDO membership and therefore we identified the following categories: non-members, member for less than one year, member for more than one year. Firms associated with CDO for more than one year benefited from the association opportunities offered by participating to a network, such as access to important information, knowledge and shared ideas with a large and heterogeneous pool of actors. We assume that firms that had recently joined the association did not have time to develop links with other members, therefore, firms associated for less than one year behaved more or less like non-member firms. We believe that the division of the sample into these three groups allowed us to capture the relevance of group social capital: we assume that a higher level of group social capital is present within “more than one-year” members, while no group social capital is present among non-member.

The 11,7% of the text of the interviews conducted with non-members of CDO is linked to the concept of social capital; similarly, for interviewees members of CDO from less than one year is 13% and for interviewees members more than one year is 12,9%. We can conclude that, despite of their belonging to a bonding social capital context, firm individual social capital is equally relevant for their economic activities.

--- Table 2 here ---

A different distribution emerges when looking at the relevance of the concept “innovation”: the relevant text is the 15,2% for non-member, 21,3% for less than one year member and 24,6% for more than one year members. These data suggests that firms that participate in the CDO network are more likely to implement innovation processes. Moreover, counting the number of words related to both concepts of “innovation” and “social capital”, it emerges that the overlapping of these two concepts is more relevant for interviewees who are CDO members for more than one year. In particular, non-members: 3,1%, “less than one year” members: 3%, “more than one year” members: 6,4%. This suggests that a shared vision of business activities facilitates innovation, as one interviewee pointed out:

” (...) we have organized a group of people that works on completely different sectors but we try to put together our ideas and to understand how we can go further. Obviously, the person (i.e. the entrepreneur) that has the competencies relevant for the project will be the leader. Others will follow as participants to the business or as funders. If we have common interests, there is no reason to not share. (...) Moreover here (i.e. in CDO) everything is easier because there is a relationship among people. We trust each other, there is nothing hidden here, we can count on the maximum transparency. Things are decided together...”

In this case, we notice that participating to CDO network facilitates the sharing of new ideas and new business. More specifically, the above reported sentence shows that the participation to CDO leads firms to the development of cohesion, common scope and vision, shared norms and values, collective actions, shared experiences and trust. All of them are an example of important constituent elements of social capital. This finding has important implication for understanding the interrelations between firm social capital and group social capital. We can affirm that “more then one year” members benefit from group social capital. Results shows clearly that group social capital effectively impact innovation and that the interplay of group and firm social capital significantly increase the relevance of innovation activities. Implications for theory will be discussed in the next section.

6.2 In a bonding social capital context, elements of social capital that guarantee the sense of group are the more relevant innovation wise

Table 3 reports the percentage of the social capital's words that are coded also in the innovation node. We considered the 10 elements of social capital, as identified by the literature and reported in this paper in the section 2.1. The 10 elements herewith follow: cohesion, collective actions, shared experiences, common scope and vision, geographical proximity, loyalty, obligation, reciprocity, shared norms and values, solidarity and trust. For each node the table reports the number of words codes and their percentage.

--- Table 3 here ---

Interestingly, the most common concepts are the ones underpinning the sense of group and community: common scope and vision (837 words), collective actions and shared experiences (649 words) and cohesion (512 words). The less relevant are the ones related to a one-to-one relationship, such as loyalty (118 words), reciprocity (52 words), and obligation (42 words). This suggests that innovative processes are influenced by the sense of community and cohesion. This finding helps to shed further light on the interpretation of Table 2: firms that are included in a bonding social capital context are part of a community and this has a direct impact also on the innovativeness of the firm *per se*. Innovation in non-members is 15,2%, in “less than one year” members it is 21,3%, while for “more than one year” members it is 24,6%. The importance of being part of a community and sharing common ideas and values is evident also from the words of one of the interviewee:

“He (i.e. a partner in an innovative project) saw our reality, he saw the people that surround us as firm; we are a small group that can perform nicely. So he said: why we do not think of doing a project together? (...) We then presented a spin-off. We are part of the spin-off and other members included are: a professor (i.e. a full professor from a local University), the inventor (i.e. the person who owns the patent of the product commercialized), and G.T. (i.e. an entrepreneur member of CDO Marche SUD). We included G.T because this project it is an idea that we cherished together and this is also a way to exchange some business.”

Another interviewee pointed out:

“(…) As regard to the automation part, we have another partnership with a friend (i.e. an entrepreneur participating at the Matching event) that is specialized in mechanics. We said: yes, let's do the things together, as I said before it is not nice to do things alone, in my opinion”

From the words of the interviewees it emerges that group cohesion and desire of sharing experiences with others are important. In particular, this is relevant for the members of the CDO community who, during the interview, have underlined the pleasure of doing business together to underpin innovative activities. Being part of a community that shares common scope and vision helped the interviewees and the other members of the innovative project to work together.

6.3 Bonding social capital context support the implementation and diffusion of innovation, bridging social capital context support the initial phases of innovation

To further explore the role of bonding social capital in the innovation processes, we consider the two aspects of social capital: bonding social capital or within group social capital; and bridging social capital or between groups social capital. We separated the relations occurring at the level of the local branch (Marche SUD) and identified them as bonding social capital and the ones occurring at the level of national organization (National CDO) or within the Matching event, considering them as bridging social capital. The sense of community is much stronger within members of the local branch than at national level and therefore the definition of bonding social capital is fully applied only within the local group. In this way we can make a comparison among the different levels of social capital, using the nodes “national CDO” and “Matching” as control group. Moreover, we separate the innovative activities into the 3 phases described in section 5.1 (research/idea, development, implementation/diffusion). Results are reported in Table 4.

--- Table 4 here ---

Results are meaningful. In a bonding social capital context, the implementation/diffusion of innovation is favoured (research/idea is 14%; development 37%; implementation and diffusion: 49%) while in bridging social capital, the initial phase of innovation process is the one enhanced by the presence of social capital (56% for the national CDO network and 73% for the Matching event network). A deeper analysis, reported also in Table 4, leads to similar results. We counted the percentage of words coded as social capital and as one of the three innovation phases. The distribution of such data presents similar results. The higher percentage of words is coded for implementation and diffusion in the bonding social capital context (CDO Marche Sud, 74%), and for research idea and development in a bridging social capital context (61% for the

national CDO network and 100% for the Matching event network). Such results are also evident in the words of the interviewees. For example, one of them said:

“Now we are collaborating (i.e. with another CDO Marche SUD member) and we asked some information to another firm linked with CDO (i.e. a CDO member not from Marche SUD). We asked his opinion, what he thinks of the supplier market: they know the global market for kiwis (i.e. one of the main raw materials needed for the business), so we asked information about the pomegranate market (i.e. another raw materials needed for the business). (...) During the second exploratory meeting, they (i.e. the CDO Marche SUD member) showed interest to be part of the project. This supported and encouraged me, because this can clearly be a good idea and opportunity”

Thus, we can notice that the collaboration with the CDO Marche SUD members is relevant for the implementation of the project while the search for new information and ideas can be done through bridging social capital relations.

“Now we are implementing a new project and we want to involve CDO (i.e. Marche SUD). We founded a nonprofit association with the aim of starting a training school. Travelling overseas, we noticed that there is such need in many countries: these do not have the adequate people to value their products and, above all, to work with our technology. For this reasons we want to start a school and we will collaborate with a close friend of us from Ivory Cost, interested in this kind of projects. (...) This is an important project and I am looking for the collaboration with Compagnia delle Opere.”

In this case the collaboration with CDO Marche SUD is also desired for the implementation of the project. The idea came from a close friend located outside the CDO Marche SUD network but the project will involve CDO Marche SUD members during the implementation phase.

7 Discussion and Conclusion

An increasing share of innovation is occurring through some form of external collaboration with other actors. Collaborations happen in every step of the innovation process, from the generation of the ideas to the distribution to the market. In this paper we moved forward in the understanding of the relationship between social capital and innovation process focusing our attention on a bonding social capital context. The bonding

social capital enable us to capture how collectively cohesiveness and thereby shared norms and values affects the innovation process. We explore the difference within bonding and bridging and social capital and we also shed some lights on the combination between firm social capital and group social capital.

Our contribution is threefold: firstly, in bonding social capital context, the combination of firm and group social capital boosts innovation. With this finding we contribute to the literature that underlines the importance of community level social capital (Coleman, 1990; Laursen et al., 2012a; Putnam, 1993). Social capital is therefore conceived as a collective good at which each individual or firm can access. In our case, we show that firms can obtain several benefits from the presence of high level of social capital in their community. The presence of strong sense of community, shared values and norms translate from the individual sphere to the working field and support risky decisions as the ones connected to innovation processes . It has been claimed that social capital facilitates the sharing of expectations and goals and reduce the need for formal monitoring. Social capital decreases times and costs associated with the quest for information and with the monitoring and controlling activities, essential in the innovation process (Yli-Renko, Autio, & Sapienza, 2001). Shared experiences, cohesion, norms and values act as substitute for information seeking, control and measuring, facilitating innovation processes.

Secondly, elements of social capital that guarantee the sense of group are the more relevant innovation wise. This confirms the importance of embeddedness in the firms' innovation process. The sense of group increases the firms' propensity to share valuable knowledge and resources to external partners. Innovation processes emerge not only as the results of a one-to-one relationship (such as it can be seen for other economic activities) but mainly as the results of a continuous exchange and cross-fertilization of ideas, concepts and technologies.

Finally, bonding social capital context support the implementation and diffusion of innovation, bridging social capital context support the initial phase of innovation (i.e. research/idea). This finding is consistent with the previous literature on social capital. Specifically, pertaining the importance of social capital in the initial phase of the innovation process, our results are in line with the findings of Laursen et al. (Laursen et al., 2012a) that provide empirical support on the importance of social capital in defining the effectiveness of external R&D on the innovation process. We add to this study by showing that in the research phase, the presence of strong ties within a bridging social capital context is crucial.

Nevertheless, this study has certain limitations arising from the case study methodology followed. The research involves a single case study, which limits our ability to generalize our findings. To enhance the generalizability of the results, a replication of the case study using the same methodology is suggested. Such a replication would allow researchers to determine whether the results of the present study are due to specific contingencies of empirical context or are generalizable. To increase the generalizability of the results, it may also be possible to structure quantitative data collection (e.g. by means of a survey). The risk is losing some of the advantages and the wealth of detail obtained through the use of interviews, but it would be possible to test the validity of the findings via a different methodological approach.

8 Tables and Figures

Figure 1: Conceptual Model.

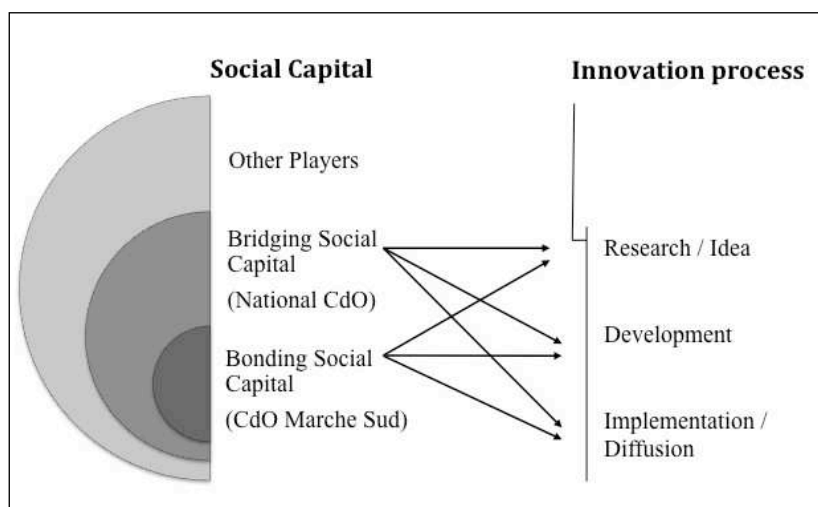


Table 1: Sample composition.

Company	Industrial sector	Size	CDO Membership
4d Engineering	Information service activities	Micro	more than 1 year
Adriatica Oli	Waste treatment and disposal	Small	more than 1 year
Antos	Information service activities	Small	less than 1 year
Api	Manufacturing Activities	Small	more than 1 year
Calzaturificio Montebove	Manufacturing Activities	Medium	more than 1 year
Clima Calor	Renewable Energy	Small	non-member
Cosmo 3	Manufacture of basic metals	Small	less than 1 year
Diasen	Manufacture of chemicals, plastics and rubber	Small	non-member
Energy Resources	Renewable Energy	Medium	non-member
Faam	Manufacturing Activities	Medium	more than 1 year
Gicher Stampa	Manufacturing Activities	Small	more than 1 year
Interconsult	Information service activities	Small	more than 1 year
Molino Agostini	Manufacturing Activities	Micro	more than 1 year
Multiclina	Manufacturing Activities	Small	less than 1 year
Nautes	Information service activities	Small	more than 1 year
Ots	Transporting and storage	Medium	more than 1 year
Plus Service	Information service activities	Medium	less than 1 year
Rostef	Electric power generation, transmission and distribution	Small	less than 1 year
Safeway	Manufacturing Activities	Small	non-member
Sea ambiente	Waste treatment and disposal	Small	less than 1 year
Sint Technologie	Manufacturing Activities	Small	more than 1 year
Soema	Manufacturing Activities	Medium	less than 1 year
Tecnopromec	Manufacture of basic metals	Small	non-member

Note: micro: up to 9 employees; small: from 10 up to 49; medium: from 50 up to 250

Table 2: Social capital and innovation.

	Non-member	Member < 1 year	Member > 1 year
Social Capital	11,7%	13,0%	12,9%
Innovation	15,2%	21,3%	24,6%
Social Capital AND Innovation	3,1%	3,0%	6,4%

Table 3: Social capital elements and innovative activities.

Categories	N. of words coded	Percentage
Common scope and vision	837	27,6%
Collective actions, shared experiences	649	21,4%
Cohesion	512	16,9%
Solidarity	310	10,2%
Shared norms and values	215	7,1%
Trust	164	5,4%
Geographical proximity	138	4,5%
Loyalty	118	3,9%
Reciprocity	52	1,7%
Obligation	42	1,4%

Table 4: Innovation, bonding and bridging social capital.

	CDO Marche Sud <i>Bonding social capital (within groups)</i>	National CDO <i>Bridging social capital (between groups)</i>	Matching <i>Bridging social capital (between groups)</i>
Research - Idea	14%	56%	73%
Development	37%	44%	16%
Implementation/Diffusion	49%	0%	11%
Research Idea AND Social Capital	0%	61%	100%
Development AND Social Capital	26%	39%	0%
Implementation/Diffusion AND Social Capital	74%	0%	0%

Appendix A: Questionnaire used for the interviews.

1. Can you briefly describe your tasks and responsibilities within the company?
 2. Can you briefly describe the activity of your company?
- Having in mind the core business of your company, can you please select one innovation, generated or implemented by your company? (As innovations we mean: new products, new processes or new organizational arrangements). Could you tell us the story of this innovation?
1. What was the innovation about?
 2. Who came up with the idea?
 - a. Who participated to the generation of the innovative idea?
 - b. What major problems have you encountered?
 3. How the innovation has been developed?
 - a. Who participated to the development of innovation?
 - b. What major problems have you encountered?
 4. How the innovation has been implemented and diffused?
 - a. Who participated to the development of innovation?
 - b. What major problems have you encountered?
 5. Can you describe the contacts (if any) with partners outside the company (customers, suppliers, consultants, competitors)?
 - a. What role have they played?
 - b. What kind of relationship do you have with them (e.g. formalized, contracts)?
 - c. Which is the preferred mode of communication (e.g. phone, e- mails, letters, face-to-face)?
 - d. What is the frequency of such contacts?
 - e. There is any context that facilitates meeting and exchange with external partners?
 6. In particular, could you describe the relationships that you have (if any) with :
 - a. Members of the CDO Marche Sud?
 - b. Members of the CDO Italia?
 - c. Other relevant?
 7. For the categories mentioned above, could you please explain:
 - a. What role have they played?
 - b. What kind of relationship do you have with them (e.g. formalized, contracts)?
 - c. Which is the preferred mode of communication (e.g. phone, e- mails, letters, face-to-face)?
 - d. What is the frequency of such contacts?
 - e. There is any context that facilitates meeting and exchange with CDO members?

Appendix B: List of interviews.

Date	Time	Company	Interviewee	Role	Length
26-11-12	09:15	Plus Service	Milva Spegni	Finance and Administration Manager	34
26-11-12	10:00	Adriatica Oli	Giorgio Tanoni	Ceo	33
26-11-12	11:30	Sint Technologie	Tarcisio Senzacqua	Ceo	30
26-11-12	12:00	Clima Calor	Floriano Bonci	Ceo	37
26-11-12	14:00	Molino Agostini	Roberto Agostini	Ceo	26
26-11-12	15:45	Api	Adele Vallasciani	Ceo	48
26-11-12	16:30	Sea ambiente	Alessandro Massi	Ceo	26
26-11-12	18:00	Rostef	Stefano Menghini	Ceo	27
27-11-12	10:40	Energy Resources	Mario Bacchetti - Chiara Sagarese	Sales Manager	20
27-11-12	11:35	4d Engineering	Rossano Schiavoni	Ceo	25
27-11-12	12:30	Multiclima	Gabriele Bonci	Ceo	24
27-11-12	14:00	Nautes	Agnese Moreschi	Software Developer	26
27-11-12	15:00	Ots	Gabriele Eleuteri	Sales Manager	54
27-11-12	17:00	Soema	Salvatore Di Caprio	Sales Director	24
27-11-12	17:30	Antos	Danilo Pasqualini	Marketing Manager	30
27-11-12	18:00	Calzaturificio Montebove	Gino Battellini	Ceo	30
28-11-12	09:30	Tecnopromec	Maria C. Trombetti	Ceo	60
28-11-12	11:00	Safeway	Giovanni Silvestri	Ceo	45
28-11-12	11:50	Diasen	Camillo Baldoni	Sales Manager	17
28-11-12	12:20	Cosmo 3	Michele Brizi	Production Manager	20
28-11-12	14:00	Faam	Federico Vitali	Ceo	38
28-11-12	15:20	Gicher Stampa	Maura Donzelli	Ceo	15
28-11-12	16:00	Interconsult	Paolo Abbiati	Sales Director	24

Appendix C: Interview text dictionary.

Node	Dictionary in Italian	English translation
CDO Marche Sud	<i>CDO, Marche, associazione, rete, gruppo, sud, compagnia, Ancona, soci</i>	CDO, Marche, association, network, group, South, company, Ancona, members
National CDO	<i>CDO, associazione, rete, gruppo, compagnia, soci</i>	CDO, association, network, group, company, members
Matching	<i>CDO, fier*, matching, incontr*, Milano, eventi</i>	CDO, fair, matching, meeting, Milan, event
<i>Social Capital</i>		
Geographical Proximity	<i>Marche, region*, territorio, sud, Ancona, distretto, locale</i>	Marche, region, territory, South, Ancona, district, local
Trust	<i>rispetto, fiducia, controllo, riferimento, sicurezza, man*</i>	Respect, trust, control, reference, security, hand
Cohesion	<i>insieme, rete, gruppo, soluzione*, affrontare, cena, pranzo</i>	Together, network, group, solution, to face, dinner, lunch
Solidarity	<i>collaborazion*, aiut*, soluzione*, difficoltà, rispetto, necessità, solidarietà, problematiche, supporto, man*</i>	Collaboration, help, solution, difficulty, respect, need, solidarity, problems, support, hand
Shared norms and values	<i>associazione, credo, rete, gruppo, rispetto, immaginare, sogno, mentalità, valore, conoscenz*</i>	Association, believe, network, group, respect, to imagine, dream, mentality, value, knowledge
Collective actions, shared experiences	<i>insieme, sistema, marketing, rete, esperienza, soluzione*, storia, difficoltà, formazione, risultat*, incontr*, collabor*, riuscire, successo, crescere, crescita, event*, laboratorio, network, workshop, confronto, interventi, investire, ricordo, amic*</i>	Together, system, marketing, network, experience, solution, story, difficulty, training, results, meeting, collaboration, to achieve, success, to grow, growth, event, lab, network, workshop, comparison, intervention, investment, memory, friend
Common scope and vision	<i>insieme, collaborazion*, sistem*, associazione, credo, gruppo, comunicazione, immaginare, riuscire, crescere, crescita, rischio, sogno, eventi, mentalità, pensare, senso, valore, visione</i>	Together, collaboration, system, association, believe, group, communication, to imagine, to achieve, to grow, growth, risk, dream, event, mentality, to think, sense, value, vision
Reciprocity	<i>insieme, partner, partnership, aiut*, richiest*, collaborare, necessità, supporto, man*</i>	Together, partner, partnership, help, request, to collaborate, need, support, hand
Loyalty	<i>rispetto, comunicazione, collabor*, man*</i>	Respect, communication collaboration, hand
Obligation	<i>partner, partnership, aiut*, soluzione*, richiest*, man*</i>	Partner, partnership, help, solution, request, hand
<i>Innovation</i>		
Research/ Idea	<i>progett*, nuov*, ide*, innovazion*, ricerc*, problem*, tecnologi*, studi*</i>	Project, new, idea, innovation, research, problem, technology, studies,

	<i>soluzion*, cambi*, creare, innovativ*, conoscenza, know-how, crea, laboratorio, ingegner*, cambiamento, migliorare, evoluzione, opportunità</i>	solution, change, to create, innovative, knowledge, know-how, to create, lab, engineer, change, to improve, evolution, opportunity
Development	<i>sviluppo, progett*, nuov*, innovazion*, ricerc*, problem*, tecnologi*, processo, brevett*, studi*, soluzion*, cambi*, innovativ*, conoscenza, progettist*, know-how, laboratorio, ingegneri, cambiamento, prove, migliorare, evoluzione</i>	Development, project, new, innovation, research, problem, technology, process, patent, study, solution, change, innovative, knowledge, developer, know-how, lab, engineer, change, prove, improvement, evolution
Implementation/Diffusion	<i>nuov*, innovazion*, ricerc*, tecnologi*, produzione, processo, brevett*, soluzion*, cambi*, innovativ*, vendita, mercat*, conoscenza, progettist*, know-how, spin-off, ingegneri, cambiamento, realizzazione, migliorare</i>	New, innovation, research, technology, production, process, patent, solution, change, innovative, sale, market, knowledge, developer, know-how, spin-off, engineer, change, production, improvement

Appendix D: Nodes, sources and references.

Nodes	Sources	References
Matching	11	39
National CDO	4	13
CDO Marche Sud	19	74
<i>Social Capital</i>	22	131
Geographical Proximity	8	15
Trust	9	13
Cohesion	7	16
Solidarity	12	19
Shared norms and values	11	18
Common scope and vision	11	37
Reciprocity	2	2
Loyalty	7	11
Obligation	1	1
Collective actions, shared experiences	10	28
<i>Innovation</i>	23	381
Research – Idea	23	169
Development	23	116
Implementation – Diffusion	23	138

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