

How social capital affects innovation in a cultural network:

Exploring the role of bonding and bridging social capital

Structured abstract

Purpose: *The paper explores how bonding (i.e. tightly-knit, emotionally close social relationships) and bridging social capital (i.e. outward looking open social relationships) affect opportunity recognition and innovation implementation in a cultural network of firms, investigating the main benefits of and drawbacks to both bonding and bridging social capital.*

Design/methodology/approach: *The paper is based on a case study of a cultural network of firms which share the same norms, principles and values. The method adopted is content analysis of qualitative data.*

Findings: *We find that in cultural network bridging social capital facilitates experimentation and combination of ideas from distant sources, while bonding social capital, which underpins the need for more conformity, is more effective for supporting innovation implementation. Innovation results from the interplay between the two dimensions of social capital, and each dimension contributes to the final outcome in a distinct and unique way.*

Research limitations/implications: *There are some limitations which arise from the case study methodology; the limited set of industries analysed affects the generalizability of our findings.*

Practical implications: *The research has some practical implications for firms that belong to cultural networks. It offers suggestions about how to manage social relationships in different stages of the innovation process.*

Originality/ value: *We examine the effects of bonding and bridging social capital on innovation in a cultural network of firms. We show that in a cultural network, different moments in the innovation process require different efforts related to the firm's network relationships.*

Keywords: cultural network, bonding social capital, bridging social capital, opportunity recognition, innovation process.

Article Type: Research paper

1. Introduction

The innovation process is frequently the result of cooperation among different actors (Chesbrough, 2003; Eckhardt, Ciuchta, & Carpenter, 2018; Powell, 1990; Reidolf, 2016; von Hippel, 1988) and the inclusion in a context that facilitate connections among individuals can be advantageous from an innovation viewpoint, supporting the identification of new ideas and possibilities (Eklinder-Frick, Eriksson, & Hallén, 2012; Freeman, 1991). In this study, we focus on the effects of being immersed in a cultural network. A cultural network is composed by actors sharing the same values, norms, principles, and ways of thinking (Eklinder-Frick, Eriksson, & Hallén, 2014; Xiao & Tsui, 2007).

Our conceptual framework is informed by resource dependence theory, which highlights the importance of external forces for how firms organize to compete in their environment (Pfeffer & Salancik, 1978). It explains why firms adopt innovation strategies and why their strategies may be contingent on their environment. A broad tenet, particularly relevant to the present research, is that firms depend on other organizations that control critical resources (Greening & Gray, 1994). Consequently, firms make strategic choices concerning external relationships to try to “(alter) the system of constraints and dependencies confronting the organization” (Pfeffer & Salancik, 1978: p. 267). Drawing on this theory, we argue that firms’ innovation strategies are influenced by their relationship-based strategies.

Social capital refers to relationships and to the assets rooted in those relationships such as solidarity, trusts and trustworthiness (Kwon & Adler, 2014; Nahapiet & Ghoshal, 1998). It assumes that social relationships are sources of advantage for the actors involved (Portes, 1998). Therefore, we employ a social capital framework to emphasize the central role of relations in the innovation process. Social capital is conceived as the networking advantages available to an actor within a specific type of social context (Coleman, 1988; Putnam, 1993). Bourdieu and Wacquant (1992, p. 14) define social capital as “the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of

mutual acquaintance and recognition”. Social capital facilitates access to the resources of other network members. These resources may be useful information, personal relationships or the capacity to organize groups (Paxton, 1999).

The extant research literature shows that the role of social capital can be clarified by distinguishing among its different dimensions (Eklinder-Frick et al., 2012; Smith, Smith, & Shaw, 2017). Putnam (2000) distinguishes between bridging and bonding social capital. Bridging social capital refers to open networks that are “outward looking and encompass people across diverse social cleavages” (Putnam, 2000: p. 22). Adler and Kwon (2002) consider bridging social capital as related to connectedness bonds formed among diverse groups of actors while bonding social capital refers to the links within a group. Bonding social capital occurs among individuals with tightly-knit, trust-based, emotionally close relationships, such as those among family members and close friends, and consists of “inward looking [networks that] tend to reinforce exclusive identities and homogeneous groups” (Putnam, 2000: p.22).

Some of the more recent literature emphasizes the role of bonding and bridging social capital in firm innovation focusing on different context: for instance, Eklinder-Frick et al. (2012) focused on a regional network of firms (Eklinder-Frick et al., 2012, 2014). They showed that bonding social capital can have both positive (i.e., shared goals among firms) and negative effects (i.e., high barriers to technology brokering) on regional development. This applies, also, to bridging social capital, which, on the one side, promotes regional development by creating more open-minded attitudes and inter-firm interdependence, but, on the other side, prevents the diffusion among networking firms of non-redundant information (Eklinder-Frick et al., 2012). In highlighting the importance of cultural proximity among firms, Eklinder-Frick et al. (2014) describe how bonding and bridging social capital can hinder or be used to promote the innovation process.

While previous research focuses on local networks, analysing the role of geographical proximity (Eklinder-Frick et al., 2012, 2014; Laursen, Masciarelli, & Prencipe, 2012a; Laursen, Masciarelli, &

Reichstein, 2016; Murphy, Huggins, & Thompson, 2016; Wang, Guidice, Zhou, & Wang, 2017), this study focus on a cultural network of firms with the same norms, principles and values, highlighting the importance cultural proximity. In this paper, we add to this literature stream by showing how bonding and bridging social capital operates in a cultural network of firms influencing different phases of the innovation process. The innovation process includes recognition of new opportunities and implementation of fresh ideas into actions (Maine, Soh, & Dos Santos, 2015; Perry-Smith & Mannucci, 2017; Rogers, 2010). Opportunity recognition triggers the innovation process and it involves identifying new ideas, imagining new possibilities, discovering favourable scenarios (Geroski, 2000; Sarasvathy, Dew, Velamuri, & Venkataraman, 2003; West & Bogers, 2014). Innovation implementation refers to the completion of the innovation process and it involves a new idea being transformed into a product or process innovation (Rogers, 2010). In particular, we address the following research question: in a cultural network of firms, how bonding and bridging social capital influence the innovation process?

To address this question, we conducted a case study grounded on a cultural network of firms that share the same set of norms, principles and values, and that are involved in a networking initiative aimed at promoting social interactions between network members and external actors. We use content analysis to enable objective, systematic and quantitative investigation of the data (Berelson, 1952; Krippendorff, 2003). Our findings show that, in a cultural network, in the case of opportunity recognition, i.e. when firms create new scientific and technological knowledge or propose new business ideas, the involvement of partners with different backgrounds is beneficial in the early phases of the innovation process. Many innovations derive from firms being able to access diverse know-how, technology and resources from multiple sources. Bridging social capital helps firms to acquire knowledge not owned by closer ties whereas bonding social capital, by imposing a greater need for conformity and allowing access to more redundant information, is not beneficial for the identification of new opportunities. Our results show that, in the case of innovation implementation, leveraging on bonding social capital is beneficial since it enables firms to engage in reciprocal

exchanges of knowledge, reduces resource scarcity, facilitates technological specialization and diminishes the risks associated to implementing a research project.

Our contribution to the literature is twofold. First, we contribute to the social capital literature by analysing the role of social capital in a cultural network of firms; previous studies focus only on geographical networks (Eklinder-Frick et al., 2012, 2014; Guiso, Sapienza, & Zingales, 2003; Hauser, Tappenier, & Walde, 2007; Laursen et al., 2016; Murphy et al., 2016; Putnam, Leonardi, & Nanetti, 1993; Rooks, Klyver, & Sserwanga, 2016; Wang et al., 2017). Second, we contribute to the innovation literature by examining different moments in the innovation process which require distinct efforts that are linked to network relationships (Inauen & Schenker-Wicki, 2012; Zobel, 2017).

Our research has some practical implications: better knowledge of how the dimensions of social capital might influence the different phases of the innovation process is essential for both managers and entrepreneurs who want to capitalize on their social networks. If social capital affects different phases of the innovation process in different ways, then this will require the firm to manage social capital differently in these phases.

2. Theoretical framework

The existing research posits that the innovation process can be divided into two main phases: opportunity recognition and innovation implementation (Maine et al., 2015; Perry-Smith & Mannucci, 2017; Rogers, 2010). Opportunity recognition is the first stage in the innovation process and it includes the possibility to discover a new and profitable business, product or service (Barringer & Ireland, 2010). It involves viewing situations from different perspectives (Geroski, 2000; West & Bogers, 2014). It refers to the identification of a market need through the creative combination of resources to provide superior added value (Ardichvili, Cardozo, & Ray, 2003). Opportunities can occur, for example, as the consequence of industry or technological changes or unexpected events in a particular market (Drucker, 2002). In this work we are akin to the discovery view of entrepreneurial opportunity that suggest that opportunities arise from information asymmetries with respect to the

true value of resources and the resulting value of the combination of those resources into outputs (Sarasvathy et al., 2003). The implementation phase of the innovation process refers to the application of already generated ideas and it involves the new idea being transformed into a product or process innovation. Therefore, innovation implementation involves development (adaptation of scientific knowledge to satisfy potential customer or user demand), commercialization (phase of production leading to the distribution of the new product or service) and diffusion/adoption (innovation spreads to potential adopters) (Rogers, 2010). It involves translation of ideas through their development and commercialization, and diffusion of resulting innovation among potential adopters (Basadur & Gelade, 2006).

Numerous contributions show that firms that [interact with other actors](#) are more innovative than isolated firms (Ahuja, 2000; Baptista & Swann, 1998; Brass, Galaskiewicz, Greve, & Tsai, 2004; Padgett & Powell, 2012; Podolny & Baron, 1997). The social capital literature provides a framework to explain the effect of inter-firm relationships on the innovation process (Adler & Kwon, 2002; Mu, Peng, & Love, 2008; Pérez-Luño, Medina, Lavado, & Rodríguez, 2011; Tidd, 1995). Social capital has been hailed as the missing link that goes beyond the traditional forms of economic capital and links social relationships to knowledge creation (Eklinder-Frick & Åge, 2017).

[This is especially important in cultural networks since knowledge is not merely cognitive and abstract, but it is also the result of the application of the same interpretative schemes and mutual understanding](#); it derives from shared cultural traditions and habits, which stimulate the establishment of conventions and other institutional arrangements that characterize a cultural network (Bathelt, Malmberg, & Maskell, 2004; Eklinder-Frick & Åge, 2017). Thus, actors belonging to the culture network benefit from the diffusion of information, gossip, and news by just being there (Bathelt et al., 2004; Gertler, 1995; Iturrioz, Aragón, & Narvaiza, 2015). Indeed, according to Howells and Bessant (2012) and Eklinder-Frick et al. (2017), the social dimension of cultural networks has been an area of ongoing cross-fertilization between researchers in management.

In order to define a cultural network, we should refer to the work of Hofstede (Hofstede, 1980, 1983). In fact, the dominant cultural theory refers to Hofstede's (1980, 1993) analysis and classification of national culture. Culture represents "the collective programming of the mind which distinguishes the members of one human group from another... the interactive aggregate of common characteristics that influences a human group's response to its environment" (Hofstede, 2001, p.1-5). It refers to a set of attitudes, values and beliefs in the minds of persons and derives from the socio-economic historical relationships of a group of people (Eklinder-Frick et al., 2014; Ouchi, 1981). Relying on Hofstede's (1980, 1993) cultural theory, previous literature focuses on national and regional culture factors (Schuler & Rogovsky, 1998; Van Everdingen & Waarts, 2003). This literature states that nationality or regionality has a symbolic value to people since they derive part of their identity from it and psychological value since their thinking is conditioned by national and regional culture factors. Within a nation or region we can find the same government, legal and educational systems, industrial relations, family structures, religiosity, sports clubs, settlement patterns, and also scientific theories (Hofstede, 1980). All these reflect common ways of thinking, which are rooted in the common culture but may be different for other cultures (Hofstede, 1983). Van Everdingen and Waarts (2003) showed that national culture explains variations in cross-national innovation adoption rates. Schuler and Rogovsky (1998) demonstrated that national culture has a significant relationship with human resource management policies. Capitalizing on the Hofstede's (1980, 1993) conceptualization of culture as common ways of thinking, literature is moving towards the analysis of cultural network (Eklinder-Frick et al., 2014; Xiao & Tsui, 2007). A cultural network is a network characterized by the connections among actors sharing the same norms, principles and values and by the trust in the collective authority, which is the repository of common values (Eklinder-Frick et al., 2014).

Social capital theory helps to capture the role of connection within networks: Putnam (2000) highlights that while bonding social capital requires strong connections within a group, bridging social capital involves interactions between different actors and looser bonds among the them

(Eklinder-Frick et al., 2012, 2014). Bonding social capital underlines the importance of strong ties: tie strength increases the willingness and ability of the contacts in the network to provide the needed resources (Batjargal, 2003; Coleman, 1990). Analyses of the benefits of bonding social capital show that the presence of strong ties increases the willingness and ability to establish the closer relationships with other network members that will guarantee access to valuable advices, resources and knowledge (Batjargal, 2003; Birley, 1985; Sajuria, vanHeerde-Hudson, Hudson, Dasandi, & Theocharis, 2015). Bonding social capital implies that when the actors within a network behave in antisocial or opportunistic ways, those actors would lose reputation and, eventually, be excluded from the social system since their behaviour have become known by all network members. This punishment scheme – which is more severe the higher the level of network closure – is exemplified by the New York diamond market (see Coleman, 1990, pp. 98-99).

Despite of the benefits above described, bonding social capital can have some drawbacks. Hoyman and Faricy (2009) suggest that strong bonds among actors in homogeneous groups can hinder innovation since they increase complacency and isolate the actors from external actors. This insight derives from homophily theory, which posits that strong overlapping ties are formed among socially proximate individuals, making the links with people in distant social circles more likely to be weak ties (McPherson, Smith-Lovin, & Cook, 2001). Therefore, the risk of lock-in (Gargiulo & Benassi, 2000; Grabher, 1993; Uzzi, 1997) and cultural over-embeddedness (Granovetter, 1985; Laursen, Masciarelli, & Prencipe, 2012b; Uzzi, 1997) that can accompany the bonding dimension of social capital should not be overlooked (Eklinder-Frick et al., 2012, 2014; Soetanto, Huang, & Jack, 2018).

Bridging social capital emphasizes the strategic role of weak ties (Granovetter, 1973) and structural holes (Burt, 1992). Granovetter (1973) argues that firms can access more novel information through temporary or intermittent connections, and highlights that cohesive networks do not provide the most favourable environment for innovation. Granovetter (1973) uses the term ‘bridging’ to

denote how weak ties create bridges among actors in a social context. *Weak ties facilitate communication and, therefore, promote beneficial flows of information and resources* (Granovetter 1973, 1983). Burt's (1992) structural holes theory, defined as the absence of direct relations among the focal actor's network contacts, suggests that firms benefit from timely access to and control over external resources through ties to others actors that are not connected directly (Batjargal, 2010; Burt, 1992).

Florida (2002) connects bridging social capital with what he calls the creative class, *and links innovation to loose bonds*, which contribute to an open and innovative society. Since bridging social capital relies on a lower level of trust among the actors compared to bonding social capital (Putnam, 1993), the information shared among collaborating firms is often irrelevant for the innovation process. Firms share crucial information with trusted and familiar actors acquired through bonding social capital (Gabbay & Zuckerman, 1998).

Social capital (Eklinder-Frick, Eriksson, & Hallén, 2011; Portes, 1998) has both advantages and drawbacks for the firms involved. The logic is that the value of a particular network depends on what the firm wants to achieve from belonging to it (Adler & Kwon, 2002). The distinction between bridging and bonding social capital in cultural networks is important and useful in the context of fostering innovation. *The presence of both bridging and bonding social capital allows simultaneous capture of the dynamics of both weak and strong ties* (Leonard, 2004). Bridging and bonding social capital are not mutually exclusive and the right mix is the optimal policy recommendation (Leonard, 2004; Svendsen & Svendsen, 2004). There is an interaction effect between the bonding and bridging dimensions of social capital which implies that a balance is preferred (Parmigiani & Rivera-Santos, 2011).

3. Empirical context and method

3.1. Methodological approach and empirical context

Our research questions emphasize the role of the empirical context, that is, a cultural network;

therefore, we chose a qualitative methodology and a case study. Case studies are particularly appropriate for the investigation of how a phenomenon emerges and is incorporated in an empirical context. A case study methodology enables identification and understanding of the various dimensions that characterize a phenomenon (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Leonard-Barton, 1990; Van Maanen, 1998) and is the preferred approach if the boundaries between context and phenomenon are blurred (Van Raak & Paulus, 2001; Yin, 2009). A recent development in the methodological literature demonstrates how case studies generate contextualized explanations; the present work is positioned in this stream of studies (Piekkari, Plakoyiannaki, & Welch, 2010; Welch, Piekkari, Plakoyiannaki, & Paavilainen-Mäntymäki, 2011).

To understand how firms exploit their cultural network to manage their innovation processes, we focus on a unique empirical setting: the local branch of an international association, which we refer to as the “Association” to maintain its anonymity. The Association’s activities began in 1986 as a network of entrepreneurs and managers who wanted to share their human and economic resources for their mutual benefit. The members to the Association share the norms, principles and values of the Roman Catholic Church. Currently, the Association has 38 branches in Italy and 17 abroad, and includes some 36,000 members - mainly for-profit firms. The Association’s main goal is to promote and develop relationships among its members. It offers members services such as commercial and financial agreements, training activities, support for international business, job creation and innovation.

What makes the Association appropriate for our analysis is that it is a cohesive network of firms and, through various socialization mechanisms such as social gatherings and meetings, encourages identification with the network and adherence to a set of common norms, principles and values. Association members constitute “a community with shared interests, a common identity, and a commitment to the common good” (Adler & Kwon 2002, p. 25). Previous studies carried out by the authors on the same network confirm the appropriateness of this networks as ideal context where to

study a cultural network (authors name here, 2016, 2019). Such studies highlighted how cultural values influence knowledge sharing in a network of firms (authors name here, 2016) and the effect that entrepreneur's or manager's personal beliefs have on the possibility to learn from the network and, therefore, improve his or her firm's performance (authors name here, 2019). The cohesiveness characterizing the network is particularly evident among the members of the Association's local branches. Thus, in line with the social capital literature, we consider the members of the local branch as linked by bonding social capital. The Association organizes an annual fair in which members and non-members can participate. These annual fairs are business-to-business events, based on previously agreed agendas in business-to-business meetings organized via a dedicated online platform. They represent a moment of face-to-face interactions among members of different branches and they allow identification of potential cross-branch synergies among firms and participation in cross-branch meetings.

Therefore, based on the literature, we assume that members of the local branches share bonding social capital and that exchanges with members of the national Association share bridging social capital. To test our assumptions, we conducted two exploratory interviews with key informants: the current and former presidents of the local branch of the Association. These exploratory interviews were conducted face-to-face in October 2012. Moreover, we conducted 10 follow-up interviews in 2014, using a web conference application (i.e. Skype). Details of these interviews are provided in Appendix B. *Such interviews, that focused on the role of values and shared culture within the association, has been conducted with the aim of verifying the correctness of the data collected in the previous round. The empirical evidences collected confirmed the presence of bonding social capital within the local branches and of bridging social capital within the association.*

Vissa (2012) posits that bonding social capital is accrued through network deepening behaviours, such as relational embedding which enables access to scarce resources and greater solidarity (Vissa, 2012; Williams, 2006). This is evident also from the following excerpt: "*When a*

firm faces a crisis or a situation of heavy change, in the Association there is a dense network of relationships and mutual aid. Everything is based on the reliability of the network and on the experience of the members (of the local branch). If someone is working on something beloved such as his firm, he talks about it with trusted people. However, trust is not enough. Here (in the local branch) we have people able to transmit competence and offer professional services. Contacts are established freely, as a result of the relationships in the association.” (interview F9)

Bridging social capital is characterized by loose connections between individuals who may provide one another with information or new perspectives, but, typically, do not provide emotional support (Granovetter, 1982). One interviewee defined as follows the events and the fairs organized by the National Association: *“These events offer a possibility to exchange very easily and without many barriers, ideas, experiences, contacts, new knowledge, this certainly is”* (interview F8). Similarly, another interview pointed out: *“We can develop relationships not only with entrepreneurs who operate in the same sector, but also with others, working in different sectors. We can share with them, understand their problems, their strengths, comprehend the reasons for their success. , This whole thing here has an influence on the decisions we make, which is certainly important. That is, this level of openness certainly allows us to have a greater understanding of new possibilities, new innovation. There is no doubt about this.”* (interview F3). We observe here an open network that is are *“outward looking and encompass people across diverse social cleavages”* (Putnam, 2000: p. 22).

On a final note, it is important to highlight that the relevance of culture and values shared within the network emerges also from the words of the interviewees, as the following excerpt shows: *“Belonging to the Association means sharing values with people who have the same values and the same religious extraction. We share the social doctrine of the Catholic Church and when we interact with people, we know that we will find on the other side entrepreneurs, professionals, consultants with whom we share the same cultural basis. And this creates the conditions to do some business*

together” (interview F4). We see in this interview as the Association is seen as a cultural network, coherently with the definition provided by the literature.

3.2. Data collection

The principal source of data is open-ended interviews where the researchers ask for the interviewee’s views on specific topics (Oppenheim, 2000). The interviews were based on the interview protocol reported in Appendix A. After requesting a short description of the firm’s activities, we asked interviewees to describe a significant innovation developed by the firm. By innovation we mean “new combinations” of pre-existing resources and knowledge and new organizational and institutional structures which enabled the firm's economic development (Edquist & Johnson, 1997; Lundvall, 1992; Malerba & Orsenigo, 2000). During the selection of the innovation project, the interviewer helped the interviewee to select a project that was representative of the innovation activities carried out by the firm. We did not specify the degree of innovation (radical/incremental) nor the typology of the innovation (product/process), giving to the interviewee the possibility to select the most representative, coherently with the characteristics of the firm. We asked our interviewees to identify two phases in the innovation process: (i) opportunity recognition and (ii) innovation implementation. During the interviews, respondents were asked to focus on these phases and to describe (for each phase) the firm’s relationships with other actors. We were especially interested in interviewees’ personal and professional relationships with members of the local branch as well as the national Association.

Interviews were conducted face-to-face during the three days of the 2012 annual fair, which was held in November 2012 in Milan. The sample represents the entire population of firms members of the Association that were present at the event. Table 1 presents details of the sample (names are anonymized). Two of the paper authors conducted the interviews together. Appendix B provides a list of interviewees’ job roles, firms, and date, time and length of interview. The ideal interviewee was a person with a high visibility of the innovative processes within the firms, knowledge of the

external relations carried out by the top management and with sufficient experience to be able to select the most representative innovation project. The name of the interviewee has been identified jointly with the entrepreneurs or the CEO and the positions vary between being CEO and sales/marketing manager with only a few exceptions. When analysing the results, we paid attention to: (i) any possible difference in the quality and in the quantity of information gathered during interviews with people with different role and (ii) if the degree of innovation or the typology of innovation influences the type of relations. Additional details are available upon request. All interviews were recorded digitally and transcribed verbatim to retain all details of the conversations and ensure suitability of the data for content analysis.

--- Table 1 here ---

3.3. Content analysis procedure

We use content analysis to analyse 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 was developed in the context of social studies and investigates the content of communications. Its initial application was to political speeches, laws, books and newspapers. The advantages of content analysis are high levels of objectivity and external validity. The diffusion of ad-hoc software has demonstrated the potential of this method to measure the content of communications and, since the 1980s, content analysis has become increasingly popular with researchers (Duriiau, Reger, & Pfarrer, 2007; Insch, Moore, & Murphy, 1997; Morris, 1994; Zaheer & Soda, 2009).

We identified our context unit following the guidelines provided by Krippendorff (2003, p. 101). Context units are “units of textual matter that set the limits on the information to be considered in the description of recording units”. We identify “sentence” as our context unit. This choice was motivated by a holistic approach to the text, imposed by the specificities of the Italian language in which the interviews were conducted. Italian is rich in synonyms and the meanings of many words are

ambiguous and cannot be understood outside the context of the entire sentence. In Italian, as in many other languages, the meaning of a word typically depends on its syntactical role within the sentence.

Three coders worked independently to code the relevant sentences, using NVivo software. The researchers manually checked the entire text to identify coding errors due to possible multiple meanings of words or negative sentences. The list of nodes (reported in Appendix C) was constructed based on the previous literature (Batjargal, 2003; Ceci & Iubatti, 2012; Chiesi, 2007; Masciarelli, 2011) and on what emerged during the interviews. Appendix C lists nodes and the number of sources and references coded for each. Sources are the number of sampling units (i.e., firms) where the concepts were observed; references represent the context units (i.e., sentences).

Data analysis was conducted to explore the relationship between innovation process and bonding and bridging social capital. We adopted an inductive approach, integrating sensitizing concepts with empirical evidence. Sensitizing concepts are defined as “those background ideas that inform the overall research problem” (Charmaz, Denzin, & Lincoln, 2003: p.259) and are used as points of departure for data analysis (Bowen, 2006; Charmaz et al., 2003). The sensitizing concepts used in the model are identified in the literature and were integrated with the empirical data to obtain a deeper understanding of the interactions among those. The sensitizing concepts are represented by the nodes identified in the literature and used to analyse the text. We analysed the data as follows: social relationships within the local branch are identified as bonding social capital; social relationships with members of other branches (the national Association) or with participants in the annual fair that do not belong to the Association are identified as bridging social capital. We separated the innovative activities into the two phases of opportunity recognition and innovation implementation, and counted the number of nodes, references and words coded as social capital (bonding or bridging) and innovation phase (opportunity recognition or innovation implementation).

4. Findings

To explore the benefits of social capital in the different phases of the innovation process occurring in a cultural network of firms, we interpreted the results of the content analysis, guided by the sensitizing concepts identified in the literature. Table 2 reports the results. Higher numbers of nodes, references and words were coded as “innovation implementation phase” in bonding social capital (nodes coded = 22; coding references = 20; words coded = 1191), and as “opportunity recognition” in bridging social capital (nodes coded = 26; coding references = 22; words coded = 886). This suggests that bonding social capital favours the implementation of innovation, while bridging social capital enhances the initial phase of opportunity recognition. Table 2 also suggests that while in opportunity recognition, both bonding and bridging social capital are involved, *sharing bonding social capital with members of the local branch promotes the implementation of ideas*. Building on this insight from our content analysis, we extended our exploration including information obtained from the interviews and the coded text: Table 3 presents some relevant quotations from the interviews, exemplifying the role of bonding and bridging social capital and their rationales.

--- Table 2 and 3 here ---

Drawing on the sensitizing concepts of bonding social capital, we examined the coded sentences (Table 3 presents some excerpts) and identified the following four elements underpinning innovation implementation by substituting for information search, control and measurement: *common scope and vision, collective action and trust*.

More specifically, *common scope and vision* occur when members of the network have the same world view. It facilitates collaboration by increasing the willingness to cooperate and the predisposition to share information, resources and knowledge, as one interview told us: “*With them (other group members) we share many things and values*” (Interview 16). *Collective actions* defines any actions performed by the firms to generate benefits for the whole network (Portes, 1998), as explained below: “*We also manage a loyalty card with together several entrepreneurs in the same territory to retain customers in that area and then be able to have a number of advantages and*

discounts” (Interview 1). Trust is “a cognitive coordination mechanism” (Lorenzen 2001, p. 16). In our context, it refers specifically to dyadic and network trust, characterized by mutual interest among an exclusive network of firms, particularly important for small firm networks, and enabling goal alignment (Rousseau, Sitkin, Burt, & Camerer, 1998). An interview told us that: “We will open another firm in another territory together, so there is also a kind, there is a relationship of friendship, esteem, trust in short” (Interview 2).

4.1. Bridging social capital and opportunity recognition

Our findings show that bridging social capital enhances the ability of the firm to recognize new opportunities, as the following excerpt from interview 3 show: *”We are here at the fair to meet, and so we try to make the most of the opportunity to communicate, then to inquire, to look for new relationships”*. The interviewee emphasized that the search for new opportunities occur outside the inner circle and strategically rely on the bridging social capital that can be exploited during the fair event. Similarly, another interviewee pointed out: *“We had a chat last year here, at the fair event, with a couple of entrepreneurs. We came with the idea of a project that could be nice, to produce a self-powered shoe for the localization of elderly, child, people. This is an idea that can be extended to the whole world: work shoes, military. This year we brought this shoe to the fair and it is ready for the market” (Interview 1).*

Bridging social capital does not occur only during the fair, opportunities for new project are cherished with other members of the Association (at national level), as the following excerpt shows: *“I’m not working with B.R. (a member of another branch), I’m not working with him at the moment, but there are many ideas that we would like to carry on together. (...) He is working a lot on electric engines, electric motors in the automotive industry. In the motorbike sector, there are not electric motors of this type yet. So, if their prototype of engine should work, you can think of doing something with him in the motorcycle sector (Interview 9).*

Some of the relations that are ignited by the bridging social capital can last for long. However, they start with the aim of identifying and exploiting different opportunities, as one the interviewee told us: *“The Association helped us to start a commercial partnership. The partnership started in 1997 and it is still active today. The partnership is with a firm located in Brianza. We putted together our abilities and we began to work with public tenders in the health sector. Even today we are together, although the former CEO unfortunately died”* (Interview 2). From this quote it emerges that bridging social capital helps spanning firm’s activities in different geographical areas.

Although the majority of the interviewees recognized the important role of bridging social capital for identifying new ideas, some also pointed to limitations and drawbacks from reliance on bridging relations. In fact, one interviewee said: *“But I think this is the only occasion when we tried to implement an idea that emerged from the fair, because we did not have all the success that we expected. We collected many ideas, but we get zero results”* (Interview 1). This finding suggests that bridging alone is not sufficient for a successful innovation process. In addition, another interviewee stressed the lack of appropriate incentives that might occur in a bridging context: *“However, in my opinion, it is sometimes required to have stronger stimuli to be able to catalyse in the research and development something coming from the network”* (Interview 12).

4.2. Bonding social capital and the implementation of innovation

Our data suggest that, during the implementation phase, the tendency is to rely on the people they know best and can trust, that is, members of the local branch. The following interview extract explains how the development of an already generated ideas occurs and the circumstances under which bonding social capital is exploited: *“[To implement the idea, we] 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 the local branch). 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 (Interview 9)”*. The same

interviewee added: *“Here (i.e. within the local branch) 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”* (Interview 9). In the above cited quotes, we see how the spin-off represents a strategy for adapt scientific knowledge to satisfy potential customer or user demand and it has been done involving people from the local branch. We see that bonding social capital facilitates the development and commercialization of innovative projects: members of the local branch are included in the spin-off and the initial motivation is the pleasure of collaborating in innovative activities.

4.3. Interrelations between bridging/bonding social capital

The bridging/bonding distinction is not mutually exclusive, but both types of social capital interact in a *continuum* of activities that results in an organic and coherent innovation process. These two dimensions capture the dynamics of both openness and closedness, and this is evident in the following extract: *“Now we are implementing a new project and we want to involve members of the Association (i.e. members of the local branch). We founded a non-profit 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 reason, we want to start a school and we will collaborate with a close friend of us from Ivory Coast, interested in this kind of project. (...) This is an important project and I’m about to start the collaboration with the Association (i.e. the local branch)”* (Interview 3). In this above case, collaboration with local branch members was beneficial for project implementation. In fact, we see that after the identification of the need of the market (i.e. *“travelling overseas, we noticed that there is such need in many countries”*) that occurred also thanks to the collaboration with a friend outside the local network, members from the local branch were involved to start a project for satisfy such need, produce and distribute the required services (educational program in our specific case). We see

how opportunity identification came from inputs outside the local branch network, while the implementation of the project will involve local branch members (bonding social capital).

Similarly, another interviewee told us that: *“Now we are collaborating (i.e. with another local member) and we asked some information to another firm linked to our Association network (i.e. a member not from the local branch). We asked for their opinion about 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 material needed for the business). (...) During the second exploratory meeting, they (i.e. the local branch members) showed interest to be part of the project. This supported and encouraged me, because this can clearly be a good idea and opportunity. (...) We have to develop distribution channels, starting or buying a crop, organize to have the raw material supplied all year round (...) we need to work on this thing, on the commercialization.”* (Interview 2). This quote shows how in the two phases the interviewee decided to interact with different people. In this case, in the opportunity recognition phase, the interaction with a member not from the local branch allowed to take advantage of information asymmetries that enabled the recognition of opportunities. When the task was about the development of the idea in a business that could satisfy potential customer demand and about the commercialization and organization of the production, the partner involved was someone within the local branch (i.e. bonding social capital). [This quote reinforces the evidences reported in Table 2: when is about the implementation of ideas, sharing bonding social capital play a central role.](#)

5. Discussion and conclusion

The findings from this paper add to our understanding of the relationship between social capital and the innovation process in a cultural network, based on an examination of how bonding and bridging social capital affect opportunity recognition and innovation implementation. [We distinguished between tightly-knit, trust-based, emotionally close relationships among firms bellowing to the same local branch, which constitute bonding social capital, and outward looking](#)

open social relationships, which represent the bridging social capital. Our findings show the strengths and weaknesses of both bonding and bridging social capital, as observed in a cultural network of firms. By deploying bonding social capital, firms mobilize resources around new projects effectively. However, bonding social capital might limit the firm access to new ideas. By relying on bridging social capital in a cultural network, firms identify more novel opportunities. However, relying only on bridging social capital, firms could experience difficulties in exploiting new ideas. Therefore innovation results from the interplay between both bonding and bridging social capital, and each dimension contributes to the final outcome in a unique way.

Our study contributes to the social capital literature, cultural network and the innovation management literatures. In the context of the former, we add to debate on the two dimensions of social capital (Eklinder-Frick et al., 2014). While previous studies focus on the role of geographical proximity (Hauser et al., 2007; Laursen et al., 2012a; Murphy et al., 2016; Wang et al., 2017), in this paper, we examine the cultural networks of firms that share the same norms and values using a social capital lens to analyse the role cultural proximity for the involved actors. Our study contributes by suggesting that the benefits of social capital are contingent on the innovation phase. This result provides an empirical contribution to the theoretical framework on the role of social networks from idea generation to selection proposed by Kijkuit and van den Ende (2007). More specifically, our data suggest that the ideas underlying innovations usually derive from multiple sources and firms can benefit from retrieving the know-how, technology and resources of external actors. In the specific context that we analysed, we observed that the identification of new opportunities requires a multidisciplinary effort, while in the decision-making phase, involving production processes, technologies and suppliers, individuals rely mainly on people they know and trust. This result confirms that during the development, strong ties become important (Kijkuit & Van Den Ende, 2007). Although our findings show no differences in the behaviours of firms operating in different industrial sectors, we suggest caution in generalizing the findings due to the small size of the sample used for the study. Moreover, innovation dynamics are industry specific and the degree of specialization and

specificities of technologies and knowledge might vary, modifying these dynamics. Our findings have important implications, also, for the interrelations between firms and the cultural network they belong to. In unpacking the concept of bonding social capital, we highlighted that a strong sense of community, shared values and norms, transferred from the individual sphere to the work context, support risky decisions such as those linked to the innovation process. Shared experience, cohesion, norms and values act as substitutes for information search, control and measurement, facilitating innovation implementation. However, innovation processes emerge from a variety of relationships and, more particularly, from continuous exchanges and cross-fertilization of ideas, concepts and technologies. Therefore, we suggest that bonding alone is not sufficient for a successful innovation process which requires combination with bridging social capital.

This paper contributes to the literature on culture. While previous studies focused on the differences among national cultures (Hofstede, 1980, 1983), recent works investigated culture in networks of actors operating in the same home country (Eklinder-Frick et al., 2014). Eklinder-Frick et al. (2011, 2014) analysed a network formed in Swedish showing that social capital plays an important role in influencing innovation. Through the analysis of how both bonding and bridging social capital affect the innovation process in a within-country cultural network of firms, we provide an important contribution to this debate demonstrating how within-country cultural networks are conducive of innovation processes [through social ties](#). Moreover, we contribute to the innovation literature. Innovation strategies depend on the relationship-based approaches firms adopt and our findings contribute to resource dependence theory by shedding further light on the dynamics caused by external forces (i.e., relations and people) (Iturrioz et al., 2015; Soetanto et al., 2018). We show that bonding social capital is associated positively to the firm's ability to exchange and combine different resources in ways that add value, based on innovative ideas: the sense of being part of a network increases the firms' propensity to share valuable knowledge and resources with external partners. On the other hand, bridging social capital is relevant for the identification of external opportunities (Eklinder-Frick & Åge, 2017). In this phase of the innovation process, the benefits of

social capital result from the brokerage opportunities generated by the lack of connection between two actors. Bridging social capital facilitates experimentation in combining ideas from distant sources, while bonding social capital, which underpins the need for more conformity, is more effective for supporting innovation implementation. In line with we posit that it is critical for firms, focusing on innovation, and, to develop and foster network relationships in order to support learning, knowledge sharing and innovation(Jørgensen & Ulhøi, 2010).

Our results have some practical implications for managers and entrepreneurs operating in a network of firms. We suggest that successful management of an innovation strategy may require careful assessment of the social relationships with external actors. We have shown that the two dimensions of social capital here investigated have different effects on the two phases of the innovation process. Hence, practitioners operating within a cultural network might be aided in achieving innovation by understanding, analyzing and balancing bonding and bridging social capital. Entrepreneurs and managers are encouraged to capitalize on bridging social capital when recognizing new opportunities and on bonding social capital when implementing innovation. Moreover, our findings explored the specific activities of the two phases: for instance, bridging social capital allow the exploitation of information asymmetries to recognize new opportunities while trust, trustworthiness and common vision shared with a bonding social capital setting facilitate commercialization and organization of the production.

Our findings have implications also for policy-makers. People responsible for designing the innovation strategies at territorial or regional level should support the existing cultural networks in the development of the innovation process by encouraging managers and entrepreneurs to [properly](#) leverage on their social capital in every phase on the innovation process.

Our study also sheds light on interesting directions for further research. As it is well known, Italy shows high level of homogeneity in terms of religion being Catholicism the primary religion (the share of Roman Catholics is higher than the shares of other religious affiliations) and in terms of

language spoken. This country is also characterised by sharp regional differentials in terms of educational systems and employment opportunities with the South (or Mezzogiorno) lagging behind the rest of the country (Barca, 2006; Iammarino, 2005). The cultural peculiarities of Italy have historic roots that have caught much scholarly attention over the years (among a vast literature, see Barca, 2006; Iammarino, 2005; Vaccaro, 1995). The national culture is a factor that plays an important role in the adoption of innovation (e.g. Waarts & Van Everdingen, 2005) and in defining differences in terms of social capital (Hauser et al., 2007). Specifically, Italy is a country with high regional variation in terms of social capital (Laursen et al., 2012b, 2012a; Putnam, 1993) and with regional technological and economic imbalances (Evangelista, Iammarino, Mastrostefano, & Silvani, 2002). It will therefore be of paramount importance for future studies to analyse the relationship between social capital and the innovation process in cultural networks operating in countries with different specifics in terms of national culture.

Second, we suggest full treatment of the concept, elements and micro foundations related to bridging and bonding social capital would be beneficial. However, we focus on only two dimensions of social capital. Defining a clear conceptual toolbox for studying social capital in its constituent elements would be an important next step towards understanding the complex dynamics behind social capital and innovation.

In addition, we pay attention to the advantages and drawbacks of both bonding and bridging social capital in any phase of the innovation process, highlighting the ideal bridging social capital / opportunity recognition vs bonding social capital / innovation implementation dichotomy. However, we did not explore the effects of social capital on other elements of the innovation process such as product or process innovation or radical / incremental innovation (Delgado-Verde, Cooper, & Castro, 2015; Perry-Smith & Mannucci, 2017). Going forward, it would be useful to investigate the effects of bonding and bridging social capital on different innovation outcomes. Also, we suggest that any given situation in the innovation process is linked to a particular ideal relationship. Future studies

should extend our analysis by considering different determinants of firm performance, such as international expansion, and other firm growth strategies such as merger and acquisition or vertical integration. Other limitations of this study arise from the case study methodology (Yin, 1994). We present a single case study, which limits the generalizability of our findings. Replicating our study using the same methodology would increase generalizability and allow researchers to determine whether our results are due to specific contingencies of the empirical context. It would be useful, also, to structure quantitative data collection (e.g., by means of a survey). Although this might reduce the richness of details obtained from the interviews, it would be possible to test the validity of the findings using a different methodological approach.

Additionally, while our findings show that bonding social capital promotes innovation implementation and bridging social capital the opportunity recognition, there are more rare circumstances (see Table 2) in which the opposite situation occurs. Future studies should be conducted in order to verify the specific conditions under which this rare event takes place. Another limitation is related to the types of firms in the sample: we gathered information from firms operating in a limited set of industries, that is, waste treatment and disposal, renewable energy, information services, transporting and services, manufacturing activities. Innovation dynamics are industry-specific (Pavitt, 1984) and, therefore, our findings reflect the innovation dynamics occurring in such contexts. Also, in such cases, quantitative data collection (e.g., by means of a survey) might solve the issue, since it would be possible to survey firms operating in a large variety of industries. In our research we overlooked the role that bonding and bridging social capital play on incremental/radical innovation. This represent a limitation of our study and an avenue for interesting future research. Finally, there are limitations linked to the resource dependence theory that we used in this paper which emphasizes the environmental dependence of firms: Resource Dependence Theory does not consider the generation of internal resources as an important task in assuring the firms' success.

6. Tables

Table 1: Sample composition.

Firm	Industrial sector	Size
Alpha	Information service activities	Micro
Beta	Waste treatment and disposal	Small
Gamma	Information service activities	Small
Delta	Manufacturing Activities	Small
Epsilon	Manufacturing Activities	Medium
Zeta	Renewable Energy	Medium
Eta	Manufacturing Activities	Medium
Theta	Manufacturing Activities	Small
Iota	Information service activities	Small
Kappa	Manufacturing Activities	Micro
Lambda	Manufacturing Activities	Small
Mu	Information service activities	Small
Ni	Transporting and storage	Medium
Xi	Information service activities	Medium
Omicron	Electric power generation and distribution	Small
Pi	Waste treatment and disposal	Small
Rho	Manufacturing Activities	Small
Sigma	Manufacturing Activities	Medium

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

Table 2: Innovation, bonding and bridging social capital.

	Bonding Social Capital		Bridging Social Capital	
Opportunity recognition	Nodes coded	21	Nodes coded	26
	Coding references	18	Coding references	22
	Words coded	589	Words coded	886
Innovation implementation	Nodes coded	22	Nodes coded	19
	Coding references	20	Coding references	8
	Words coded	1191	Words coded	282

Table 3: Summary of quotations from the interviews

<i>Categories</i>	<i>Interviews extracts</i>
Bonding Social Capital	<p>When a firm faces a crisis or a situations of heavy change, in the Association there is a dense network of relationships and mutual aid. Everything is based on the reliability of the network and on the experience of the members (of the local branch). If someone is working on something beloved such as his firm, he talks about it with trusted people. However, trust is not enough. Here (in the local branch) we have people able to transmit competence and offer professional services. Contacts are established freely, as a result of the relationships in the association. (Interview F9)</p> <p>Belonging to the Association means sharing values with people who have the same values and the same religious extraction. We share the social doctrine of the Catholic Church and when we interact with people, we know that we will find on the other side entrepreneurs, professionals, consultants with whom we share the same cultural basis. And this creates the conditions to do some business together. (Interview 9).</p>
Bridging Social Capital	<p>These events offer a possibility to exchange very easily and without many barriers, ideas, experiences, contacts, new knowledge, this certainly is (Interview F8).</p> <p>We can develop relationships not only with entrepreneurs who operate in the same sector, but also with others, working in different sectors. We can share with them, understand their problems, their strengths, comprehend the reasons for their success. This whole thing here has an influence on the decisions we make, which is certainly important. That is, this level of openness certainly allows us to have a greater understanding of new possibilities, new innovation. There is no doubt about this. (Interview F3).</p>
Bonding social capital and inovation impementation	<p>With the components of the local branch we help each other to develop new products. We also build together doing some joint development (Interview 7)</p> <p>They (people of the local branch) made us cultivate the idea that we had to move forward in the vertical development of our new product (Interview 14)</p> <p>I want to develop new products with the other members of the group (local branch) because this helps me (Interview 15)</p> <p>He (i.e. a partner in an innovative project) saw our reality, he saw the people that surround us as firm; we (i.e. local branch members) 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 the local branch). 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 (Interview 9).</p> <p>Here (i.e. within the local branch) 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 (Interview 9).</p> <p>With them we share many things and values (Interview 16).</p> <p>The other components (of the local branch) give us strong incentives for the development of our new products (Interview 12).</p> <p>We also manage a loyalty card with together several entrepreneurs in the same territory to retain customers in that area and then be able to have a number of advantages and discounts (Interview 1).</p> <p>The development of new products was kept all within the firm, but the collaboration with local branch associates helped us to develop new innovations (Interview 8).</p> <p>We have local branch partners who are strategic for the development of our new services (Interview 9).</p>

We had a chat last year here, at the fair event, with a couple of entrepreneurs. We came with the idea of a project that could be nice, to produce a self-powered shoe for the localization of elderly, child, people. This is an idea that can be extended to the whole world: work shoes, military. This year we brought this shoe to the fair and it is ready for the market (Interview 1).

We created a group of people who work in completely different sectors, but we try to put together ideas and then see how we can implement them (Interview 1).

Now we are collaborating (i.e. with another local member) and we asked some information to another firm linked to our association network (i.e. a member not from the local branch). We asked for their opinion about 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 local branch members) showed interest to be part of the project. This supported and encouraged me, because this can clearly be a good idea and opportunity. (...) We have to develop distribution channels, starting or buying a crop, organize to have the raw material supplied all year round (...) we need to work on this thing, on the commercialization. (Interview 2).

The Association helped us to start a commercial partnership. The partnership started in 1997 and it is still active today. The partnership is with a firm located in Brianza. We putted together our abilities and we began to work with public tenders in the health sector. Even today we are together, although the former CEO unfortunately died (interview 2).

We are here at the fair to meet, and so we try to make the most of the opportunity to communicate, then to inquire, to look for new relationships (Interview 3).

We had a problem that we could not solve, so we did a market research. We found a firm with which there was no conflict of interest, and so we sat down at a table and arrived at the agreement that led to the resolution of the problem (Interview 3).

We looked for firms that had that kind of product, and then we talked to some of them and selected them for a collaboration (Interview 8).

I'm not working with B.R. (a member of another branch), I'm not working with him at the moment, but there are many ideas that we would like to carry on together. (...) He is working a lot on electric engines, electric motors in the automotive industry. In the motorbike sector, there are not electric motors of this type yet. So, if their prototype of engine should work, you can think of doing something with him in the motorcycle sector (Interview 9).

But for us, the university is fundamental because research can be carried out from the university to solve our problems (Interview 13).

We prefer to work with external researchers who are quick and lean to solve our problems (Interview 15).

Appendix A: Interview protocol used for the interviews.

Can you briefly describe your tasks and responsibilities within the firm?

Can you briefly describe the activity of your firm having in mind the core business of your firm? Moreover, can you please select one innovation, generated or implemented by your firm? (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 identification of the opportunity?
 - 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 firm (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 local branch?
 - b. Members from other branches?
 - 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 other members of the association?

Appendix B: List of interviews.

Exploratory Interviews	Date	Time	Length		Role within the Association	
E1	16/10/12	16:00	33'	face-to-face	President of the local Branch	
E2	16/10/12	17:00	45'	face-to-face	Former President of the local Branch	
Interview no.	Date	Time	Length		Firm	Role within the Firm
1	26/11/12	09:15	34'	face-to-face	Xi	Finance and Administration
2	26/11/12	10:00	33'	face-to-face	Beta	Ceo
3	26/11/12	11:30	30'	face-to-face	Ro	Ceo
4	26/11/12	14:00	26'	face-to-face	Kappa	Ceo
5	26/11/12	15:45	48'	face-to-face	Delta	Ceo
6	26/11/12	16:30	26'	face-to-face	Pi	Ceo
7	26/11/12	18:00	27'	face-to-face	Omicron	Ceo
8	27/11/12	10:40	20'	face-to-face	Zeta	Sales Manager
9	27/11/12	11:35	25'	face-to-face	Alpha	Ceo
10	27/11/12	12:30	24'	face-to-face	Lambda	Ceo
11	27/11/12	14:00	26'	face-to-face	Mu	Software Developer
12	27/11/12	15:00	54'	face-to-face	Ni	Sales Manager
13	27/11/12	17:00	24'	face-to-face	Sigma	Sales Director
14	27/11/12	17:30	30'	face-to-face	Gamma	Marketing Manager
15	27/11/12	18:00	30'	face-to-face	Epsilon	Ceo
16	28/11/12	14:00	38'	face-to-face	Eta	Ceo
17	28/11/12	15:20	15'	face-to-face	Theta	Ceo
18	28/11/12	16:00	24'	face-to-face	Iota	Sales Director
Follow up Interviews	Date	Time	Length		Role within the Association	
F1	18/9/14	--	--	e-mail	Member of the Board of Directors of a local Branch	
F2	19/9/14	10:00	30'	Skype	President of a local Branch	
F3	24/9/14	10:00	34'	Skype	Member of the Board of Directors of the Association	
F4	25/9/14	11:00	23'	Skype	---	
F5	29/9/14	12:00	17'	Skype	Member of the Board of Directors of a local Branch	
F6	30/9/14	11:00	50'	Skype	President of the local Branch	
F7	1/10/14	10:30	15'	Skype	---	
F8	3/10/14	11:45	9'	Skype	President of the local Branch	
F9	3/10/14	15:30	24'	Skype	Member of the Board of Directors of the Association	
F10	15/10/14	10:00	10'	Skype	----	

Appendix C: Nodes, sources and references.

Nodes	Sources	References
<i>Bridging Social Capital</i>		
National association	5	20
Fair	13	56
<i>Bonding Social Capital</i>		
Local branch	18	95
<i>Elements of Social Capital</i>		
Geographical Proximity	7	14
Trust	7	10
Cohesion	5	13
Solidarity	9	15
Shared norms and values	8	14
Common scope and vision	9	35
Reciprocity	2	2
Loyalty	6	10
Obligation	1	1
Collective actions, shared experiences	8	25
<i>Phases of Innovation</i>		
Opportunity recognition	18	176
Innovation implementation	18	247

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