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SOCIAL CAPITAL AND INNOVATION: EXPLORING INTRA-ORGANISATIONAL DIFFERENCES

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ABSTRACT

The literature recognises the importance of social capital as a key asset in developing innovation capabilities. However, most research treats social capital as homogenous in terms of level and quality, irrespective of who has the capital inside the organisation. This may not be an appropriate representation of the situation, because many social groups coexist inside a single organisation. This research explores inter-group differences regarding social capital and how and why they may explain intra-organisational differences in innovation capabilities and innovation readiness. To this end we conduct an in-depth case study within a small industrial company, where we find three groups of employees who are distinct in (1) the network configuration of the structural dimension of social capital, (2) the presence of shared narratives and goals, and (3) the level of trust and identification towards the organisation. For each group we are able to track the reasons for these differences in terms of the drivers of social capital (stability, closure, interaction and interdependence). Finally, the level of innovation readiness and innovation capability at the group level is analysed and explained in terms of differences in levels and drivers of social capital. We find that higher levels of social capital are associated with increased innovative capability, and we contribute to understanding the nature of this connection, which can be used for capability development.

1 INTRODUCTION

Organisations face a complex environment, with growing environmental pressure, global markets with different rules and cultures and increasing competition. A significant practical effect is the reduction of product life, since customers belong to a changing and demanding society, where people want something new every day. Thus, firms have to become more skilled in generating innovation, because their products and services remain in markets for shorter periods of time. Dynamic capabilities, including innovation capabilities are essential to this process.

The literature recognises the importance of social relations and values to the distinctiveness and sustainability of competitive advantage, and acknowledges the importance of social capital. Social capital can be defined as “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (Nahapiet & Ghoshal, 1998). Social capital has been studied at different levels, including individuals (Burt, 1992), organisations (Leana & Van Buren, 1999; Nahapiet & Ghoshal, 1998), communities (Putnam, 1993) and nations (Fukuyama, 1995). Some studies take a multilevel approach, considering group and organisational level (Oh et al.; 2004; Oh et al., 2006).

Social capital is frequently described as one of the three subcategories of intellectual capital, human capital and organisational capital being the others (Carmona-Lavado, et. al, 2009; Reed, Lubatkin & Srinivasan, 2003; Wright, Dunford & Snell, 2001; Subramaniam & Youndt, 2005). Intellectual capital is conceptualised as the sum of all knowledge and knowing capabilities firms utilise for competitive advantage (Nahapiet & Ghoshal, 1998; Youndt, Subramaniam, & Snell, 2004). Human capital refers to

knowledge, skills and abilities of the employees who belong to a firm (Beker, 1964; Carmona-Lavado, et al., 2009; Youndt, Subramaniam & Snell, 2004; Schultz, 1961). Organisational capital is the knowledge institutionalised within organisational processes and databases, documents, patents and manuals that organisations use to store and retain knowledge (Carmona-Lavado, et.al, 2009; Hall, 1992; Itami, 1987; Walsh and Ungson, 1991; Wright et al, 2001; Youndt et al., 2004;).

The positive effects of social capital include the reduction of transaction costs, facilitation of information flows, knowledge creation and accumulation (Burt, 2000; Lin, 2001; Nahapiet & Ghoshal, 1998) and improving creativity (Perry-Smith & Shalley, 2003). In addition, many scholars believe that social capital influences innovation (Calantone, Cavusgil, & Zhao, 2002; Hult, 2002; Hult, Hurley & Knight, 2004; Lu & Shyan, 2004; Song & Thieme, 2006). It is suggested that intra-organisational knowledge sharing influences a firm's capacity to innovate as it supports creativity and inspires new knowledge and ideas (Aragón-Correa, García-Morales & Crodón-Pozo, 2007). Also, Levin & Cross (2004) state that strong ties within an organisation are be important because they make people more accessible and willing to be helpful, and they are important conduits of useful knowledge. Subramaniam & Youndt (2005) added that, since innovation is basically an effort of collaboration, social capital plays a key role in its development. Social capital promotes risk taking, inherent in the development of new things. Thus, through trust and stability, social capital makes employees feel safe to make suggestions and accept new challenges.

Subramaniam & Youndt (2005) analysed the relationships between the subcategories of intellectual capital (human, organisational and social capital) and different types of

innovation capabilities that a firm might have. Recently, Carmona-Lavado, et al. (2009) complemented this work by studying the same relationships but focusing on product innovation. Their results indicate that human capital could have a negative influence on radical innovation capability, suggesting that individual expertise on its own is not conducive to radical innovation. Actually, having fiercely independent experts who are reluctant to share their ideas with their colleagues may be counterproductive for organisations (Subramaniam & Youndt, 2005). So, an interaction of human and social capital is necessary for a positive influence. That is, unless individual knowledge is networked, shared, and channelled through relationships, it is of little benefit to the organisation in terms of innovative capabilities (Subramaniam & Youndt, 2005). With regard to the influence of organisational capital, there is a discrepancy between the results of Carmona-Lavado, et al. (2009) and Subramaniam & Youndt (2005). While the former suggested that organisational capital positively influences incremental innovation capability, the latter argued that the contribution of organisational capital to the improvement of innovations is through its effect on social capital.

On the whole, the literature analysed stresses the importance of the direct effects of social capital on innovation performance at both a radical and an incremental level, or its influence on innovation by mediating the effect of human or organisational capital. Social capital is thus a key subcategory of intellectual capital with regards to innovation.

However, most research treats social capital as homogenous in terms of level and quality, irrespective of who has the capital inside the organisation. This may not be an appropriate representation of the situation, because many social groups coexist inside a

single organisation (Arregle, et al., 2007). Thus, people and collectives within the same firm do not necessarily develop similar quantities or types of social capital. Since there is no research on differences in social capital between groups within the same organisation, the present study looks inside the black box to explore inter-group differences. In particular, we aim to answer the following research questions: (1) to what extent are there differences in social capital between groups within the same organisation? (2) why do these differences exist? and (3) how do these differences explain different capabilities and readiness for innovation between groups.

These questions are important because, if there are differences in social capital that explain diverse innovation readiness and capabilities, organisations need to manage social capital differently for each of the groups. Specific development of social capital may be needed for each of the groups, who may have a different level or type of social capital and therefore, different innovation capabilities. Furthermore, if the organisation needs or prefers some types of capabilities over others, it can favour the corresponding type or level of social capital. In this way the results of the present study can contribute to an understanding of how and why social capital influences innovation capabilities, and also how innovation capabilities can be optimised within for each group.

There are two forms of social capital; bonding and bridging social capital. Bonding social capital enables the formation of dense networks within a collective, which helps building trust, internal cohesiveness, and solidarity in pursuit of common goals, and enables efficient accomplishment of the collective's mission (Coleman, 1990). Bridging social capital focuses primarily on the external direct and indirect links of an actor with other actors beyond the immediate collective. Bridges facilitate goal realisation of the

focal actor through informational benefits, enabling identification of fruitful opportunities, favourable negotiations, and placement in positions of power and influence (Adler & Kwon, 2002).

A number of scholars adopt a contingency perspective, suggesting that while investments in both internal and external relationships are important, the relative importance of each depends on the prevailing conditions and goals of the firm (Krackhardt & Hanson, 1993). While bonds are cost effective in situations needing transfer of tacit knowledge, as they are enabled by shared beliefs and trust, and bridges are helpful when access to broad ranging information is critical (Adler & Kwon, 2002). Since our study focuses on innovation capabilities within an organisation, we will focus on bonding social capital, as we believe it is most relevant for such capabilities.

In the next section we introduce the theoretical framework that guides our research, by reviewing the literature on the nature and drivers of social capital and its effect on innovation. We provide a synoptic summary of the literature, after which the research methodology is explained and the results are presented, in order to answer the research questions identified in this introduction. In the final section, we discuss our findings and the contribution our research makes to the literature, some limitations, and areas for future research.

2 FRAMEWORK

2.1 The dimensions of social capital

From a content perspective, that is considering its composition or nature, Nahapiet & Ghoshal (1998) define three dimensions of social capital: structural, cognitive and

relational. The **structural dimension** is defined as the social interactions, including the patterns and strength of ties, among the members of a collective (Pearson, Carr, & Shaw, 2008). It includes the number and intensity of available relationships, how members address each other, and the proportions of strong, weak or conflicting relationships. The **cognitive dimension** is the bundle of resources providing shared representations, interpretations, and systems of meaning among parties (Nahapiet & Ghoshal, 1998). Moreover, it comprises the group's shared vision and purpose, as well as its unique language, and deeply embedded narratives and culture (Pearson, Carr, & Shaw, 2008). In other words, the cognitive dimension refers to the way members perceive their reality. Lastly, the **relational dimension** comprises the resources created through personal relationships, including trust, norms, obligations, and identity (Nahapiet & Ghoshal, 1998).

Scholars agree that the structural dimension is an antecedent to both cognitive and relational dimensions, as depicted in Figure 1. Tsai & Ghoshal (1998) explain how individuals must first have shared experiences and relationships over time to develop a common vision and purpose, as well as trust, norms and identity. In fact, the structural dimension establishes the interactions between actors that are essential to building a more personal relationship. Moreover, the cognitive dimension is an antecedent of the relational dimension of social capital. The reason is that shared goals and narratives may lead to shared norms and obligations, as well as to enhanced feelings of trust and identity (Arregle, et al., 2007; Pearson, et al., 2008).

Insert Figure 1 about here

2.2 The drivers of social capital

From a process perspective, Nahapiet and Ghoshal (1998) propose four dynamic factors which influence the development of social capital, shaping its creation and evolution.

Stability is the length of time that members of a group have had to develop their relationships. Time is important in order to build strong bonds and ties in a community. Furthermore, time allows an accumulated history among the members. Therefore, stability has been found to be a critical factor. The greater the stability, the greater the potential to build stocks of social capital in the three dimensions: stability promotes the creation of networks and relationships, allows people to share experiences which drive same vision and language, and finally it facilitates the creation of trust, norms and obligations (Misztal, 1996; Arregle et al., 2007).

Closure refers to the existence of dense social network boundaries that distinguish members of a group from non-members (Bourdieu, 1994; Etzioni, 1996), and within which all actors have relationships with each other. Closure is the driver which has the most positive effect on the cognitive and relational dimensions. The development of norms, identity, and trust has been shown to be facilitated by network closure (Coleman, 1990; Ibarra, 1992) and the development of unique codes and language is assisted by the existence of community separation (Boland & Tenkasi, 1995). In contrast with this, in open structures, violation of norms is more likely to go undetected and unpunished. Therefore, people will be less trusting of one another, weakening social capital (Adler & Kwon, 2002).

Interdependence refers to shared goals and the concern for the success of the business that members of a collective have, as well as the need for cooperation in order to accomplish their own objectives. In this context, Nahapiet & Ghoshal (1998) state that high levels of mutual interdependence help social capital formation, especially in the relational dimension. Conversely, social capital is eroded by factors that make people less dependent upon each other (Coleman, 1990). For example, expectations and obligations are less significant when people have alternative sources of support (Nahapiet & Ghoshal, 1998).

Interaction is the frequency with which members of a network communicate with each other. It reflects the quantity, quality and strength of the relationships among them. Social ties tend to be strengthened through interaction but weakened without it, so social capital increases rather than decreases with use (Nahapiet & Ghoshal, 1998). Consequently, interaction is a precursor for the creation of social capital and for its maintenance (Bourdieu, 1986).

2.3 The effect of social capital on organisational innovation

According to the Oslo Manual (OECD, 2005) an **innovation** is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations. The degree of the novelty of the innovation can be either incremental or radical (Dewar & Dutton, 1986). **Incremental innovations** refine existing products, services, or technologies and reinforce the potential of established product/service designs and technologies (Ettlie, 1983). In contrast with this, **radical innovations** are major transformations of existing products, services, or technologies

that often make the prevailing product/service designs and technologies obsolete (Chandy & Tellis, 2000).

In the following section we evaluate the contribution of social capital to the innovation capabilities of an organisation. We deal with effects derived from the three dimensions of social capital, each separately, but also in combination. Finally, we discuss costs associated with social capital.

2.3.1 Innovation capabilities

The structural dimension affects communication and information flow within the organisation, by facilitating access to broader sources of information, improving information quality, relevance and timeliness. In particular, network configuration provides the channels for information transmission, since network density or connectivity influences the flexibility or difficulty of information flow (Nahapiet & Ghoshal, 1998).

The cognitive dimension facilitates the combination and exchange of knowledge among different parts. Nahapiet & Ghoshal (1998) suggest that this sharing may come about in two main ways. Firstly, it arises from the existence of shared language and vocabulary, which are tools used for communication (to discuss, ask questions, etc.), and to influence perceptions. Secondly, the sharing of collective narratives within communities is a powerful means for creating, exchanging, and preserving rich sets of meanings (Clark, 1972; Nisbet, 1969).

The relational dimension comprises trust, norms, obligations and identification. Each of these components contributes to organisational capabilities in different ways. Trust is associated with the concept of associability defined by Leana and Van Buren (1999) as the capacity of individuals to subordinate their desires and associate actions to collective goals. Furthermore, a substantial body of research (Fukuyama, 1995; Gambetta, 1988; Putnam, 1993; Ring & Van de Ven, 1992, 1994; Tyler & Kramer, 1996) demonstrates that where relationships are high in trust, people are more willing to engage in cooperative interaction. Norms and obligations are a mechanism of control without hierarchy (Adler and Kwon, 2002), and they also establish procedures and an organisational philosophy such as willingness to value and respond to diversity and openness to criticism and a tolerance of failure (Nahapiet and Ghoshal, 1998). In the end, identification enhances concern for collective processes and outcomes because of feelings of membership within the group (Kramer et al. 1996; Nahapiet and Ghoshal, 1998).

Some other capabilities arise from the overall combination of the dimensions of social capital. For example, norms and obligations combined with high levels of trust can become a substitute for formal contracts, incentives, and monitoring mechanisms that are necessary in systems with little or no social capital (Fukuyama, 1995). Therefore, social capital operates as substitute for leadership (Kerr & Jermier, 1978) or bureaucracy (Perrow, 1972). It is also possible to combine and exchange information (Nahapiet & Ghoshal, 1998), as a result of the sum of all the dimensions interrelated to each other, creating an encouraging a supportive environment. On the one hand, the structural dimension offers a vehicle for accessing and disseminating information, while on the other, the cognitive dimension provides a tool for communicating and

interpreting that information. The relational dimension establishes the basis to cooperate and share (Nahapiet & Ghoshal, 1998). Lastly, long-term relationships that are intensive in trust encourage risk taking because they make employees feel safe and comfortable in the organisation (Leana and Van Buren, 1999).

2.3.2 Costs of social capital

Most of the capabilities presented above have been considered beneficial for organisations. However, social capital also implies some costs. Building social capital requires considerable investments of time and resources, in establishing and maintaining relationships. Costs arise from two sources, costs associated with sustaining ongoing relationships and norms, and costs of maintaining slack resources (Leana and Van Buren, 1999). The first cost refers to the constant reinforcement of networks in order to avoid weakening. For example, new members of the organisation need to be socialised in the norms, values and ways of working inherent in the workgroup and the organisation (Leana and Van Buren, 1999). Maintenance requires resources which have to be free or available for social capital formation. The most important resource is time. This means that the organisation must allow some slack time, which is not going to be directly productive. The second type of cost of social capital arises from the fact that it can perpetuate existing power structures, and sustain dysfunctional, stable power arrangements within the firm. In this way, strong social relations constrain the consideration of alternatives once those in power express their preferences. Social structures and power relationships tend to perpetuate themselves and, in doing so, can limit the consideration and acceptance of change (Leana and Van Buren, 1999).

In order to achieve a better elucidation of the concepts related to social capital and the relationships between them we present an integrated view of social capital in Figure 2. The figure clarifies the linkages among the main issues involving social capital and how social capital can become a competitive resource for innovation performance. The initial concept is of social capital as a resource. This can be modified by different variables: stability, closure, interdependence and interaction. Alterations in any of these factors can enhance or diminish the strength of social capital. And finally, social capital plays an important role in organisations, as a means to contribute to the firm's innovation capabilities.

Insert Figure 2 about here

3 METHODS

3.1 Research design

In all research the choice of method depends on the nature of the research questions. In the present research we seek to understand better the processes and mechanisms which drive inter-group differences in the development of social capital. Therefore, we examine the relationships among actors in depth, in an effort to identify how and why social capital is built, and how and why it can provide different levels of innovation readiness and capabilities in various groups in the same organisation. This means that we need to investigate where those relationships and bonds are created. To this end we used a qualitative research method, exploring a case study. This is the best way to focus on the understanding of the dynamics present in a real-world context in which the phenomena occur (Eisenhardt & Graebner, 2007). In addition, we need a descriptive account in order to define all the social interactions and situations observed related to

current theory. That is, our intention is to describe the nature and the state of the drivers of social capital for each group, as well as the various capabilities and attitudes that relate to innovation. Eisenhardt & Graebner (2007) assert that a qualitative approach is highly descriptive, emphasises the social construction of reality and focuses on revealing how extant theory operates in a specific case. It is for these reasons that we opted for a qualitative research approach.

The firm selected for the study was expected to be relatively high in social capital and very active in innovation activity, as it belongs to a technological industry and employs 24 people.

3.2 Data collection

The data collection methods were mainly based on observation (observational methods). Moreover, since we wanted to investigate the relationships among people within the organisation, we needed to be as close as possible to the people interviewed and the firm, but without interfering with their normal modes of operation. The observational method we used was essentially non-participant observation. We gathered primary data from interviews and the observation of group dynamics. The primary resource was a semi-structured interview with open questions that let respondents talk at length about their opinions. We interviewed the managers of all the departments: general management, commercial, financial, purchasing, project management, engineering and production, and some production workers. This primary data was supplemented with the observation of three sessions of formal meetings. Since we were interested in how the participants interact, group settings allowed us to study how they interact and influence each other, and we could examine patterns of communication and coordination, patterns

of influence and dominance, the role played by each member and how they handle conflict situations. In order to carry out our in-depth study, we also analysed secondary resources, such as company websites and internal documents.

3.3 Data analysis

In our research we followed the qualitative data analysis (QDA) suggested by Seidel (1998) for qualitative methodology. His model simplifies the complex process into three components: noticing, collecting and thinking about interesting things. **Noticing** is a process which comprises making observations, writing field notes, taping recorded interviews, gathering documents, etc. In our study we review the data from observations and interviews and identify the passages related to our objectives, like trust, ties among people, beliefs, values and norms, attitudes towards innovation, organisational capital etc. In other words, we coded the text into the key concepts of our study. **Collecting** refers to joining all the codes (pieces) of data which we have noticed and trying to establish order among them. Once we had codified our data, we condensed it into tables fitting each piece into the correct category. **Thinking** is a process which consists of close examination, comparison, looking for similarities and differences, and raising questions about the phenomena as reflected in the data (Corbin and Strauss, 1990). That means that in the research we try to draw some conclusions about how the key concepts of the study are interrelated. We compared and contrasted the data from the different participants in order to find convergences or divergences, which allowed us to identify groups among the respondents, and treat each group as a collective.

Although this account of QDA presents three distinct parts, the process is not linear, as Seidel (1998) remarked, and the process may be iterative (a cycle that keeps repeating),

recursive (some parts can call you back to a previous part) and holographic (each step already contains aspects of the entire process). In our case, we started the process with some thought about the link between innovation and social capital, and about finding the right empirical setting to explore. The initial ideas became a project proposal, which was discussed with the target firm. Even at the initial interviews with the general manager (there were two) we noticed some of the key aspects he referred to, such as human relations, differences between groups, concerns about motivation, etc, which enriched our ideas about the project and the aspects that needed to be considered. We also started to collect secondary information, such as the firms' strategic plan and its newsletter. These initial investigations made us notice things related to our topic, stimulated us to think about them, and produced the design for the schedule for the first semi-structured interviews about social capital. Following data collection, using the interviews, led to noticing new things, and thinking about them led us to design a more extensive questionnaire on innovation. This last development, in turn, had a different form, because we noticed that a different approach was needed for some of the people whose opinions we sought.

3.4 Quality evaluation of the study

The quality of a study is mostly determined by the methodological rigour used in its development. In our research we follow the criteria proposed by Guba & Lincoln (1985), which are credibility, transferability, dependability and confirmability. In addition, Perez (1994) suggests a number of procedures or techniques which ensure the scientific rigour for each criterion. In this paper, **credibility** was pursued through prolonged engagement and persistent observation. Over the time we spent inside the organisation, we became familiar with its human-relations and innovation context. In

addition, we gained the trust of the participants, which created a comfortable environment for the interviews and the group dynamics. Moreover, the collection and interpretation of the data are supported by triangulation. In relation to **transferability**, we made sustained efforts to describe all the group members and the patterns of the relationships among them. This may help in the application of our results to other situations, as it is possible to tell whether other organisations have similar features to the case study firm (size, age, sector, etc...), in terms of how social capital facilitates some innovation capabilities like involvement, identification and collective action. For example, theory suggests that high quality or trained human capital is not necessarily associated with more innovation, since highly skilled people may not cooperate to produce collective advances. In the case of a firm like the one we have studied, where there is sufficient social capital – at least in the core departments of innovation – adding more innovation skills to this human capital is likely to produce more innovation. This result looks as though it may well be transferable across organisations, for a wide range of different characteristics and settings. With the aim of achieving **dependability** we include descriptions of the context, the participants and the methods of data collection and analysis, so that our study may be replicated in other situations. Finally, **confirmability** was produced by including multiple investigators who discussed the investigation, reached complementary and divergent understandings of the data and brought contrasting personal beliefs, values and perspectives to bear.

4 RESULTS

Our research questions indicate that our first aim is to explore the extent to which social capital is different between groups, and why these differences exist. The first finding of this study is the type of groups identified. From the first interviews with managers, we

learnt about a clear distinction in the firm between white-collar staff and blue-collar staff. However, as we proceeded with interviews and with the analysis, we realised that a three-group classification was a more accurate description of the firm. The dimensions used to define groups were their current degree of responsibility, their involvement and the type of reference group that they had. There were strong linkages between these three dimensions. Using these dimensions, groups within the firm are:

- *High-responsibility group (HRG)* including people with managerial positions in the firm, high involvement and a closed reference group.
- *Medium-responsibility group (MRG)* comprising people with intermediate positions in the firm, high involvement but less identification, and a less sharply defined reference group.
- *Low-responsibility group (LRG)* formed by blue collar workers with lower involvement and identification, and who belong to a more disconnected group from the others.

4.1 To what extent are groups dissimilar in terms of social capital?

Once groups are identified we can proceed to analyse the extent of similarities and differences between them in terms of social capital. For this purpose we use the dimensions of social capital to describe the nature of social capital within each group. Detailed results of this analysis are available upon request.

The **structural dimension** is composed of the network ties and network configuration. We observed that the three groups had different network configurations, which are illustrated in Figure 3. The HRG has a small, clearly defined reference group. This means that it is easy to distinguish members from non-members; all the members have direct relationships with each other, and they share the same intensity and frequency of

contacts. Consequently, bonds among members are relatively homogenous and extremely strong. The structural dimension of the MRG is quite different. The main cluster is not as clear as in the HRG. In other words, it includes more people with variable intensity of relationships. In addition, there are members who have no contact with others, and in some cases the relationships are indirect through other members. The strength of ties is also variable; stronger with direct work colleagues but weaker with other departments. Finally, the LRG has a clearly delimited reference group. However, inside this group there are smaller groups formed by sub-groups of three or four people with stronger ties. They have more interaction among them than with the rest of the wider main group. The peculiarity of the LRG is the existence of a central person, who is the manager of the department. His role is linking the group with the others, and channelling most information flow between the members of the LRG and the rest of the organisation. This makes the members of the LRG more isolated, but at the same time closer to their small group.

Insert Figure 3 about here

For **cognitive dimension** we could observe that the HRG and the MRG have a shared vision of the goals of the organisation, while the LRG has a more partial one. The clear difference between groups was the presence of shared codes and narratives in the HRG, which we had the opportunity to observe directly in managerial meetings. Participants in the same meetings but belonging to the MRG did not play the same game with language and metaphors. As for the LRG, we could not observe them in meetings, since they did not take part in formal meetings. However, we could learn about their involvement when talking about some of their issues.

The **relational dimension** comprises trust, norms, obligations, and identity. All the people interviewed agree that trust is very important in the organisation, but there are differences in the intensity of trust within groups. While the HRG and MRG trust group members and the organisation, members of the LRG only trust their reference group, and have little confidence in other groups or the organisation as a whole. For example, a production worker explained that he ignores the timetable produced by the administration workers, and does not care when the manager is in or out of the firm, and the production workers complain about the job of the engineering department. Another indication of this lack of trust is that some production employees believe that their ideas are not considered by managers. As one employee said, “Why should we suggest ideas if nobody reviews them? We do not know if our ideas arrive to the right person or if somebody examines their validity”.

Secondly, the degree of identification was also very different within groups. The HRG is the group with the greatest identification with the organisation, because the personal goals of the members are related to business goals. As one member put it, “Personal and business objectives, what is the difference?” In this way, personal goals focus on the growth of the firm as well as the achievement of benefits. The other two groups had less identification, especially the LRG.

The other elements are values, norms and obligations. People in the HRG have very strong professional values; they refer frequently to reciprocity with the organisation and being very responsible in their tasks. One said, “We should take care with the requirements of our job”. Although the MRG also has professional values, they place fewer demands on themselves and give especial importance to human values. For these

reasons, employees of the HRG and MRG express their responsibility and it is a norm or obligation to accomplish the requirements of their jobs. Finally, the LRG gives more importance to harmony in the working place and with their colleagues. When asked about values within the organisation there is a common answer: “Good atmosphere at work”. An employee commented that anyone tried to disrupt this good atmosphere, criticising their colleagues, creating misunderstandings or confrontations for example, the reaction of their co-workers would be to ignore them and do not them into their reference group. Concerning norms and obligations, the LRG needs more authority and control, so it has operative norms and obligations like being on time or having the working place clean and tidy.

4.2 Why are there differences in social capital?

The stock of social capital is mostly influenced by its determinants, namely the drivers of social capital: stability, closure, interdependence and interaction. Thus, we expect that social capital differences between groups can be explained in terms of diversity in their drivers. For each of the three groups we studied the characteristics of drivers. The details of these data are available upon request.

As mentioned in the previous sections, we could find differences in the network configurations of the structural dimension of social capital of the groups. The HRG has a closed group with high cohesion among members. Moreover, all members have direct relationships with each other. The MRG has a more widespread group with indirect relationships among members. Finally, the LRG has a structure composed of some very closed and little groups inside. We suggest that the driver closure can explain such differences, because marks the boundary between who belongs to the group and how

open the group is. For example, the MRG has less closure, which is apparent in its more widespread reference group, and it does not neatly separate members from non-members.

A second relevant driver to explain differences in connections between members of the groups is interaction. We observed that the HRG, which has more intense relationships among members, has the highest levels of interaction. The frequency of relational contacts influences the strength of the bonds among members. Moreover, interaction also may define the pattern of the relationships – network configuration – because the latter represents who is connected to whom.

To explain the main differences concerning the cognitive dimension, where the HRG has more shared language and narratives, we find that it is related to a higher interaction within this group. Although other groups also have frequent interactions, the HRG has more high quality contacts and relations among all members to create a visibly higher involvement. Moreover, higher interaction added to a considerable level of stability, allowing the HRG to live and accumulate enough collective experiences to build a stronger shared vision, language and narratives.

As regards the possible drivers of the relational dimension of social capital, we can say that stability is not identified as a relevant influence on trust, common norms and obligations and identification, because stability happens to be very similar for all the groups. In order to explain the degree of trust in each of the groups, which was an outstanding difference, we can point to closure. Since closure places limits on the characteristics of the groups, it is easy to be aware of the reactions and attitudes of

group members when confronted with possible situations. For this reason, trust among group members is enhanced by predictable behaviour. Similarly, identification was stronger with a more closed group of reference. A closed group allows members to identify clearly and share a similar identity. In particular, in the case of the HRG, closure is higher, and this is consistent with higher levels of trust and identification. In the MRG closure was reduced, and trust decreased in quantity and quality. As for the LRG, staff feel less trust towards outsiders of their small main group, in less coherence with their distributed network. However, identification could also be affected by the driver interdependence, since it provides common goals and needs. Finally, the development of norms and identity can be affected by interaction. Interaction can be seen to be higher in the HRG which underlines the importance of reciprocity norms. Interaction establishes the basis for the implementation of behavioural and social rules.

4.3 How do social capital differences influence innovation capabilities?

For each of the groups, we have studied their innovation readiness and innovation capabilities, and we further explore the possible reasons for differences in terms of social capital differences between groups. Some of the capabilities relate to the individual level and others need group level interactions to be developed and used. This analysis for each of the groups is presented in the following sections.

4.3.1 Innovation capabilities in the HRG

The HRG is more prone to innovation than the other two groups. Members of this group consider that innovation is a key success factor for the firm, and that innovation skills are needed in their jobs. They conceive innovation as the satisfaction of new market needs, mainly by means of product innovation. They are conscious of the most recent

two radical innovations launched to the market, one driven by a customer need and the other generated by internal curiosity, developed within their group. They also use competitor analysis and benchmarking to generate new ideas. Also, most members of this group have the opportunity to visit customers and trade fairs more than members of other groups. They perceive innovation as challenging, but express more satisfaction than fear. They understand that innovation has to be systematic and systematised: “The best way to improve innovation is via the systematisation of the innovation process”. As for barriers to innovation, all groups identify lack of time, but in this group they refer to the risk of being closed to the environment and being narrow-minded.

The higher innovation readiness and wider capabilities of the HRG can be explained by a set of personal and group capabilities derived from their social capital. The most important one is the promotion of a creative environment which facilitates innovation. Firstly, all members have high risk taking, which can be based on their strong mutual trust. Also, it is a consequence of the complicity visualised in their shared codes and narratives, because it provides a source of empathy which helps them to understand the worries of colleagues. This can be very useful when group members encounter difficulties and need encouragement. The stronger emotional bonds (interdependence) among members are also a characteristic of their social capital and it promotes group identification. The high identification with the organisation and its goals makes all members share a similar identity and purpose, and provides them an individual concern for the collective. If we consider that strong trust, associability, and intrinsic professional values are related to reciprocity with the organisation and being self-critical, the result is a willingness to cooperate and to get involved in collective action for innovation. As an effect of associability, another capability of the HRG is goal

alignment, which is critical for innovation because it ensures that every employee concentrates his or her efforts in the correct organisational direction. This is reinforced through the concern for the collective since it provides shared goals and visions for the members. Within this group we find references to the use of more flexible work schemes, rather than more rigid styles utilised for other groups. The adoption of flexible work relies more on associability norms and cross-functional cooperation than on hierarchy and formal control mechanisms (Leana and Van Buren, 1999).

4.3.2 Innovation capabilities in the MRG

Innovation readiness and capabilities in the MRG are less developed. Although they identify innovation as a key success factor, they refer to changes as necessary but at the same time costly. They consider process innovation to be more important within the firm, and understand it more reactively, as a way to stay in tune and be updated, more than an opportunity to satisfy unmet demands of customers. They are able to describe the source of ideas and identify the most flagship innovations, but they see themselves more as facilitators than as promoters of innovation, and that informs the way that they act. They also point to systematisation of the innovation process as a means to develop innovation capabilities and improve time management.

This level of innovation capabilities can be explained by means of lower social capital. The group's network configuration is less compact and interactions are less frequent. Although the quantity of interactions is not poor, it seems not to be enough to develop shared narratives and metaphors within the cognitive dimension. The quality of the relational dimension is lower too. On the one hand, trust is not so strong because closure is more widespread, so that members of this group are not so similar to each other, and

this makes more difficult to predict the behaviour of others. Related to trust, their risk taking is significantly lower, they seem to be more afraid of innovations, and thus they make fewer suggestions and contribute less to the generation of new ideas. On the other hand, closure also has an effect on identification. We found lower identification, despite the fact that they share goals and vision; they do not sound passionate about them. Therefore, this kind of goal alignment is more imposed through organisational guidelines than personal motivation. Accordingly, their level and type of social capital facilitates information access, communication and cooperation, but does not seem to reach the level of associability or concern for the collective. This lack of individual innovation capabilities creates a less creative environment within their reference group, and generates a gap with the capabilities of the HRG. For these reasons, members of the MRG are more process innovators, who like formalising roles and norms, and value process innovation more than product innovation.

4.3.3 Innovation capabilities in the LRG

The concept of innovation among members of the LRG is technically correct, but with a pragmatic approach: “Each of our products is somehow an innovation, since it is customised to the customer”. They understand innovation as a way to stay updated, learning and practicing continuous improvement. They are very modest with their contribution to innovation; they feel that they can contribute to incremental innovation, but not to radical innovation, which they state it is not their job. Their perception is that there is no point in being creative or making suggestions, because their ideas are probably not evaluated. This causes a lack of motivation to become involved in innovation activities. Their suggestions to improve innovation are also the

systematisation of the innovation process, with a specific emphasis on making their suggestions flow to the right decision committees and get feedback on their ideas.

Their lower innovation readiness is due to the distinct characteristics of their social capital. First, the structural dimension reflects a fragmented network configuration. This produces interactions that are frequent only with some members of the reference group but limited with the rest. Moreover, they are less in contact with the rest of the organisation, since communication flows through their managers. This factor explains why they only have a partial vision of the mission and goals of the organisation, related to their single department. Their type of interaction also has an effect on the relational dimension. Despite the scanty relation among the whole group, they have developed a set of behavioural norms, such as preserving harmony in the workplace. However, relationships are not strong enough to create involvement in order to share metaphors or build strong ties. Concerning closure, it is high in small groups but there is not much closure with the rest of the reference group and even less with the rest of the organisation. This leads to a lack of awareness of other people and departments, and does not promote trust in them. The members of the LRG feel rather distant from other colleagues and isolated. This can have an influence on identification since it is difficult to feel kinship with somebody who is not close to you. Altogether, social capital is not enough to reach associability or concern for the collective, so people in the LRG are unwilling to cooperate in collective actions concerning innovation. In addition, social capital does not seem to produce the necessary conditions for a creative environment which facilitates risk taking and innovation. Thus, it acts more as a control mechanism within their small groups than as a promoter of innovation readiness.

The main relationships found between innovation capabilities at individual and group level and their antecedents dimensions of social capital are depicted in Figure 4.

Insert Figure 4 about here

5 CONCLUSIONS

5.1 Discussion and contribution

This study aims to provide an answer to calls for further research on groups within the same organisation, that is, to study intra-organisational differences. An intra-organisational study has the advantage of providing comparisons in naturalistic settings, since for all individuals interviewed, the company and competitive context were the same (size, sector, technological intensity, industry environment, etc.).

We have identified social capital diversity between groups due to differences in their drivers, which finally affect innovation capabilities. In this way, we have connected social capital with innovation capabilities of groups within the organisation. We have found complementarities across groups, which can be used to develop innovation capabilities. Our focus on groups is quite new in the literature.

The recurrent analysis of results obtained and the reconsideration of existing theory, allows for an extension of existing theory about the influence of social capital on innovation in two main ways. First of all, for each group we have explored the relationship between the main drivers of social capital and the three dimensions of social capital – namely cognitive, structural and relational – by means of identifying the drivers that affect each of the three dimensions and how this influence occurs. We find

that stability and interaction are the most influential drivers for the cognitive dimension. They produce an accumulated history, create involvement, and allow for the continuous creation of collective experience. As for the structural dimension, we argue that it is mostly influenced by closure and interaction. Closure identifies membership of the group and interaction defines the pattern of relationships and the strength of bonds between members. The relational dimension appears to be the result of closure, interaction and interdependence. These characteristics influence trust, norms, obligations and identification.

All of the connections found between drivers and dimensions of social capital and the nature of their influence are summarised in Figure 5. This framework contributes to answering why differences in social capital exist in terms of the different intensity or quality of drivers. It also explains how these processes of influence – from drivers to social capital – take place. This analysis could be further explored theoretically but can also be of practical use in the steering of social capital into the desired direction.

The second way in which our findings contribute to theory is the identification of several capabilities arising from social capital that can foster innovation. The theoretical review, enriched with our qualitative approach, has allowed us to identify innovation capabilities, some of which have not been described in the literature. Moreover we have identified that some of these capabilities are more individual, while others are developed and used at the group level.

Insert Figure 5 about here

Our empirical evidence can be used for drawing conclusions about the development of social capital and innovation capabilities. Our theoretical synthesis and discussion can be the starting point for future theoretical research.

5.2 Limitations and future research

Although this research is theoretically grounded, the main limitation of our findings and frameworks proposed is their reliance on a single organisation. This makes it important to be cautious about the results and take them as exploratory, although they may already inspire some theoretical insights on the intra-organisational complexity of social capital and its effects on innovation capabilities. Of course, further evidence would provide a firmer basis for this research stream.

Our focus on social capital has already suggested that it can make a significant contribution in promoting innovation. However, we cannot ignore the existence and role of the other two elements of intellectual capital, namely human capital and organisational capital. Human capital provides individual skills that can facilitate innovation, either directly or via the mediating effect of social capital. Some authors state that human capital needs to be mediated by social capital in order to produce innovations (Carmona-Lavado, et al., 2009 and Subramaniam & Youndt, 2005). In the case of organisational capital, since it includes efforts to make knowledge explicit and systematise processes, we have to recognise its role in the promotion of innovation, both directly (Carmona-Lavado, et al., 2009) or indirectly (Subramaniam & Youndt, 2005). However, it will probably be a more effective driver in the case of incremental innovation than radical innovation. Actually, most of the people in the organisation under study stated quite explicitly that they wanted more process systematisation in

order to be more innovative. In conclusion, an interesting line for future research would be the exploration of the relative roles of each of the three subcategories of intellectual capital in innovation, and their interaction effects.

The existing paradigm concerning the generation of social capital is mostly linear, and assumes that social capital drivers generate social capital, in its nature and quantity. Our exploratory process leads us to question this and think about a feedback process from social capital to its drivers. There seems to be a particularly strong case for this view in relation to the structural dimension and the relational dimension, but not so much in the case of the cognitive dimension. For example, stability, interaction, interdependence and closure are found to generate the current structural configuration of social capital and its ties. But at the same time, network configuration and ties influence interaction, interdependence and closure by identifying members and non-members of the reference group and expected relationships among them. As for the relational dimension, drivers influence the level and types of trust, norms, obligations and identification, whilst these in turn influence the quality of interactions, shape interdependence and modify existing closure.

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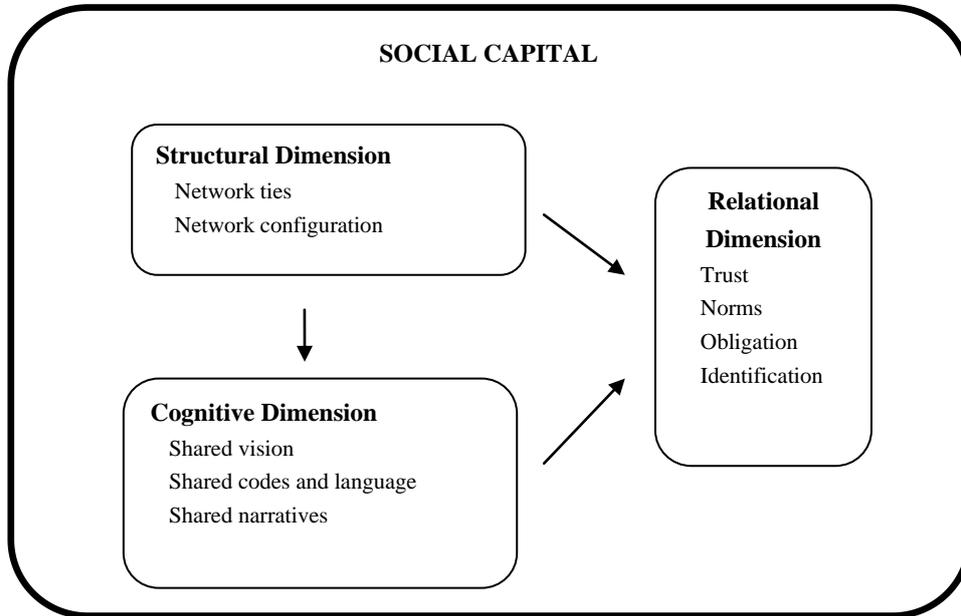
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7 FIGURES

Figure 1: Social capital dimensions



Source: Adapted from Leana & Van Buren (1999); Nahapiet & Ghoshal (1998); Pearson, et al. (2008).

Figure 3: Illustrations of the network configuration for each group

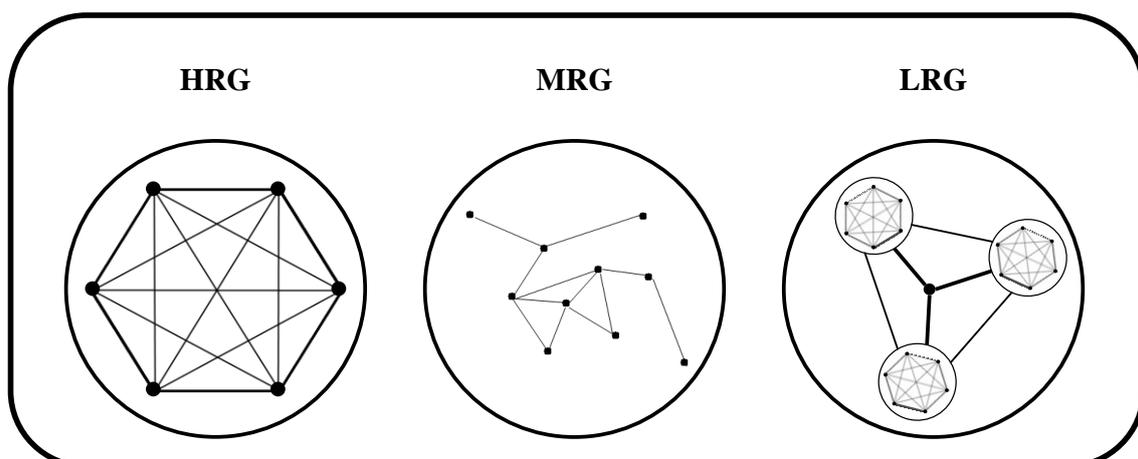
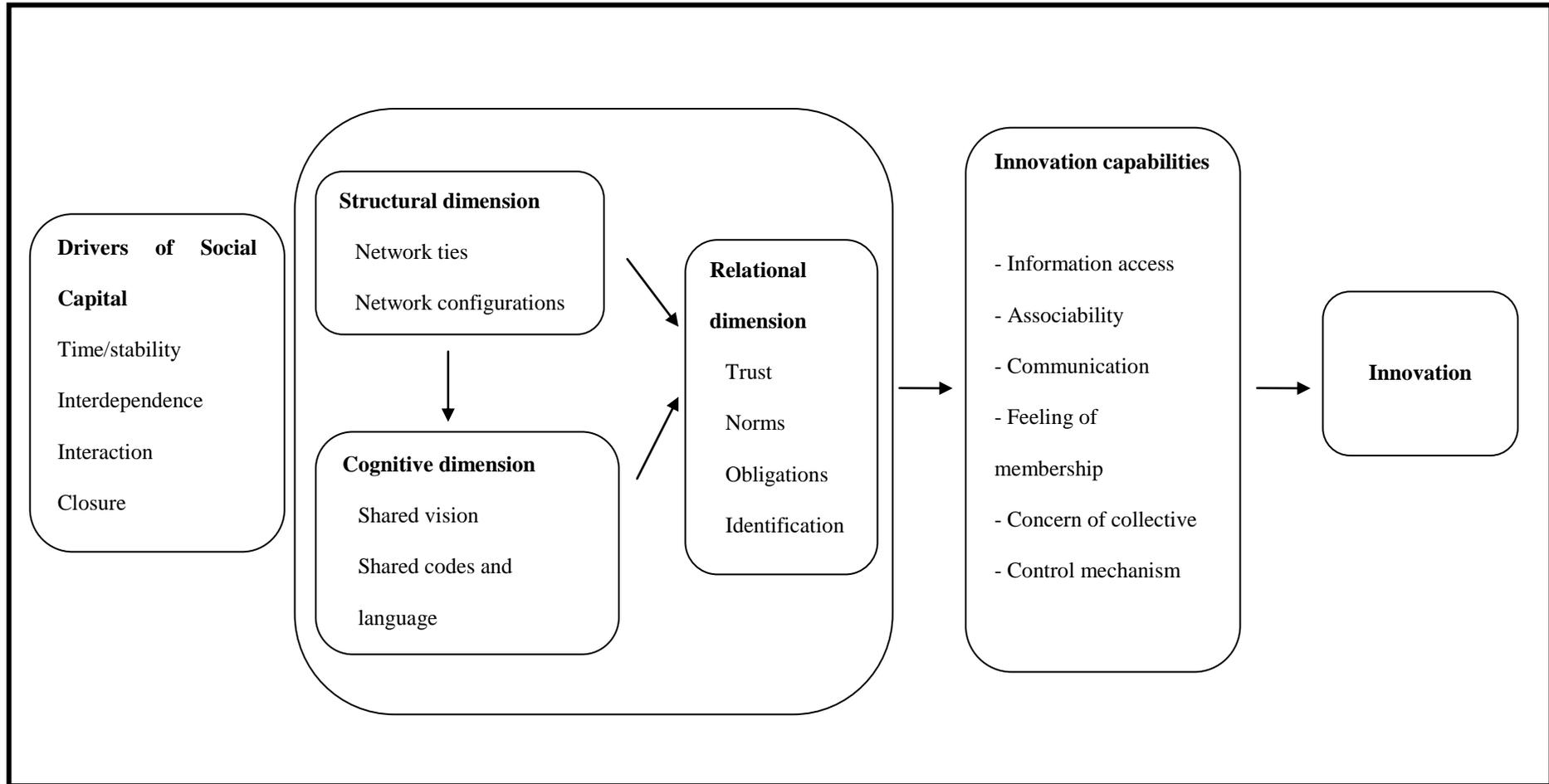


Figure 2: Integrated view of social capital



Source: Adapted from Arregle et al. (2007); Leana and Van Buren (1998); Nahapiet & Ghoshal (1998); Pearson et al. (2008).

Figure 4: Innovation capabilities and social capital antecedents

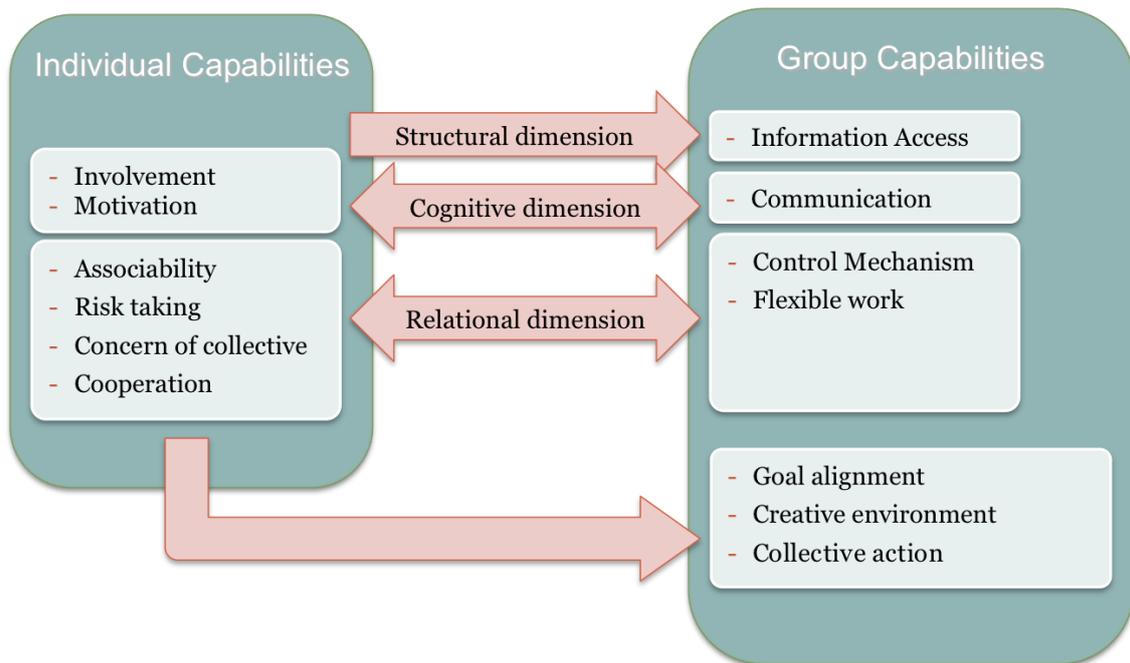


Figure 5: The effect of drivers on social capital dimensions

