

# From Individual to Group: Sharing Social Capital Across Levels in Organizations

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*We know little about how and when social capital is shared from individuals to their teams and how this sharing might facilitate team innovative performance. This paper offers three important contributions. First, I argue that individuals' willingness to share their external ties with their teammates is not automatic. Secondly, I propose that individuals with greater levels of team-related relational and cognitive social capital, tertius iungens orientation, and team member interdependence are more likely to share their ties with their team. Finally, I examine the interactive role of external and internal team ties in promoting team innovative performance.*

*Keywords: social capital, social networks, teams, multilevel theory*

## INTRODUCTION

To accomplish key objectives, organizations frequently rely on work teams. In many ways teams have become an inextricable part of work life. As organizations implement flatter and more distributed organizational structures, they must heavily utilize teams for their ability to handle complex and ambiguous work environments (Mathieu, Maynard, Rapp, & Gilson, 2008). Current organizational teams draw membership from various functional areas, enabling members to share expertise and unique resources with the team. Diverse team membership provides improved cross-functional integration and increased production and response time that allows organizations to adapt more readily to customer needs and environmental demands (Poole, 1999). However, organizations and team leaders are challenged when determining how best to build effective teams that work together seamlessly while successfully utilizing the resources that are distributed throughout their membership.

One important predictor of effective teams is the set of connections or ties that team members share with one another (Oh, Chung, & Labianca, 2004; Oh, Labianca, & Chung, 2006). In particular, *social networks*, or the patterns of informal ties among individuals, have the potential to facilitate and constrain the flow of resources within and between teams and thus have important individual and team implications (Brass, 1984). For example, scholars have used social networks to examine job performance (Sparrowe, Liden, Wayne, & Kraimer, 2001), turnover (Krackhardt & Porter, 1985), promotion (Burt, 1992), innovation (Obstfeld, 2005), creativity (Burt, 2004), and unethical behavior (Brass, Butterfield, & Skaggs, 1998).

The resources embedded within social networks have been studied extensively through the lens of social capital. *Social capital* is defined as “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships between individuals and in a social unit”

(Nahapiet & Ghoshal, 1998, p. 243). Similar to social networks, social capital also has important team-related implications including increased trust (Fukuyama, 1995; Putnam, 1995), friendship (Richardson, 1986), productivity (Reagans & Zuckerman, 2001), collaboration (Subramaniam & Youndt, 2005), and improved knowledge transfer (Hansen, 1999).

The main purpose and contribution of this paper is to advance the understanding of how social capital develops at the team level and the role individual social capital plays in the development of group social capital (Kilduff & Krackhardt, 2008)<sup>1</sup>. Although it may seem intuitive that teams will incorporate the social capital connections of their members, this process is not as automatic or simple as it first appears. Individual agency, or free choice, plays a significant role in determining to what extent individuals allow their personal social capital to become part of the group's social capital (Kilduff & Krackhardt, 2008; Kilduff & Tsai, 2003, p. 129-130). Additionally, individuals who are strongly embedded in their teams may see more compelling reasons for sharing their personal ties such as higher levels of trust and cohesion with their teammates, and thus may be more willing to do so. Investigating the relationship between individual and team social capital will help us understand how, and under what specific circumstances, an individual will choose to share their social capital with their team.

The second contribution of this paper is to further our understanding of how the dimensions of social capital work in tandem as well as with other related variables that potentially encourage the development of team social capital. Social capital has been previously conceptualized as having three distinct dimensions: structural, relational, and cognitive. Relatively little is known about the interrelationships between these three dimensions, however, since most research has implemented a single dimension focus (Nahapiet & Ghoshal, 1998; Putnam, 1995). For example, structural social capital is linked to better overall job and group performance as well as increased job effort (Sparrowe et al., 2001). Relational social capital encourages collaboration (Coleman, 1990) and can help overcome resistance to organizational change (R.M. Kramer, 1999). Cognitive social capital promotes integration and collective responsibility (Coleman, 1990). I propose that the dimensions work together to encourage team members to share their personal ties with their teams.

Finally, this paper's third contribution is the investigation of group social capital development in the context of successful team innovation. An important objective of many work teams is in generating and implementing novel ideas and procedures, often termed *team innovative performance* (Anderson, De Dreu, & Nijstad, 2004). Consistent with other team outcomes, team innovative performance is subject to influence by many different team-related factors and processes (Kozlowski & Bell, 2003), including social capital (Mehra, Dixon, Brass, & Robertson, 2006). However, findings from a social capital perspective regarding successful team innovative performance have been somewhat confusing and contradictory. On one hand, social capital research has found that innovative teams with strongly interconnected members achieve greater levels of value creation (Tsai & Ghoshal, 1998), knowledge sharing (Hansen, 1999; Reagans & McEvily, 2003), and overall performance (Reagans & Zuckerman, 2001). Alternatively, teams with weakly interconnected members are more effective at searching for useful knowledge (Hansen, 1999) and at having their ideas judged as valuable by senior management (Burt, 2004). Additionally, Fleming and colleagues (2007) found that teams with strongly interconnected members had a net *negative* effect on innovation, even when considering career histories and length of relationships of the team members involved. Thus, despite some investigation into the successful use of social capital for innovative team outcomes, contradictory findings suggest that important gaps remain in our knowledge of the phenomenon. To anchor my theoretical ideas, I begin with an overview of social capital.

### **What Is Social Capital?**

Social capital research suggests two distinct conduits through which social capital manifests in teams: *bridging* relationships and *bonding* relationships (Adler & Kwon, 2002; Burt, 2000; Carmeli, Ben-Hador, Waldman, & Rupp, 2009; Oh et al., 2006). Bridging relationships involve spanning gaps between disconnected individuals, either within relatively large teams or across team boundaries. These external connections can promote cooperation and information sharing between diverse groups. In contrast, bonding is about individuals' level of connectedness with other members of the team. Bonding demonstrates how

embedded individuals are within their team network. Prior studies of social capital in teams have tended to focus on either bridging or bonding ties, depending upon the type of team studied. For example, members of innovation teams frequently utilize bridging ties to tap resources or knowledge that is not available within their team (Hansen, 1999). In action/response teams, interdependencies between members are more critical to team success (Kozlowski & Bell, 2003), since they allow teams to better coordinate the activities necessary for increased responsiveness and sharing the technical and customer information needed for quick problem solving (Hansen, Mors, & Lovas, 2005). However, this division of the usefulness of bridging and bonding ties amongst different types of teams may be quite artificial, as both conduits of social capital may prove useful to many different teams.

It is important to understand how social capital is used and, particularly, developed in teams as groups with more robust social capital connections have stronger reciprocity norms and cohesion, and less self-serving behavior, relative to teams with weaker relationships (Krackhardt, 1999). Additionally, an environment where social loafing, or the tendency for individuals to put forth less effort in group contexts, is minimized and norms are clear and consistent fosters the development of mutual trust (e.g., Coleman, 1990; Levine, 1991). In this trusting environment, team members feel psychologically safe to offer assistance and social support to one another, knowing that their assistance and support will most likely be reciprocated (Edmondson, 1999). Thus, social capital reduces team transaction costs such as time spent searching for and integrating knowledge, minimizes the need for monitoring activities, and provides benefits for all team members (Seers, 1989; Uzzi, 1997).

### **Dimensions of Social Capital**

In the context of organizational research, Nahapiet and Ghoshal (1998) advance a multi-dimensional model of social capital with structural, relational, and cognitive dimensions. The distinction between the facets is built on Granovetter's (1992) discussion of structural and relational embeddedness. Structural embeddedness includes the properties of both a social system and a network of relations as one. However, relational embeddedness concerns the type of intimate relationships that individuals develop with each other through ongoing contact (Granovetter, 1992). The literature on social capital and organization studies contains findings of interest on all three of these dimensions of social capital.

The pattern of links between individuals, or whom individuals reach and how they reach them, is the *structural* dimension of social capital (Burt, 1992). This dimension has been widely studied by scholars using social network approaches to social capital research (e.g., Burt, 2001, 2005; Leana & Pils, 2006; Tsai & Ghoshal, 1998). Prior work on the structural dimension of social capital suggests that it includes several key components such as network ties, network configurations, and patterns of social exchange (Nahapiet & Ghoshal, 1998).

Structural social capital also operates at the team level of analysis. *Group social capital*, a concept advanced by Oh, Chung, and Labianca (2004, p. 570), considers "the set of resources made available to a group through group members' social relationships within the social structure of the group itself, as well as in the broader formal and informal structure of the organization." The authors posit that groups can leverage their network of relationships to create access to important resources such as information, influence, and support. Additionally, Oh and colleagues' (2004) theoretical framework proposes the utility of an examination of bonding and bridging social capital simultaneously, which does not happen frequently in structural network studies, and suggests that these structures may have simultaneous effects on group and organizational performance.

The *relational* dimension of social capital refers to the affective aspect of relationships (Nahapiet & Ghoshal, 1998). Work on this dimension considers how the patterns of interactions that exist between individuals impact the quality of the personal relationships that develop between team members. Prior work on the relational dimension of social capital suggests that it includes several key components such as trust and trustworthiness, norms and sanctions, and obligations and expectations (Nahapiet & Ghoshal, 1998).

The *cognitive* aspect of social capital enables groups to form a shared understanding of goals and objectives provides a foundation for group action (Nahapiet & Ghoshal, 1998). To the extent that members of the team operate with a common mental model upon which plans are developed and decisions are made,

the group's direction and priorities are more focused, which leads to higher performance levels. Prior work on the cognitive dimension of social capital suggests that it includes several key components such as shared codes, language, and narratives (Nahapiet & Ghoshal, 1998).

Studies that do consider the multi-dimensional nature of social capital often group the structural, relational, and cognitive dimensions together and then suggest that they predict some outcome variable of interest, such as intellectual capital (Nahapiet & Ghoshal, 1998) or work flexibility (Leana & Van Buren, 1999). However, few studies have investigated how the dimensions might work together and interact to predict important organizational outcomes. The model proposed in this paper offers one perspective on the advantages of considering the interactions between the dimensions.

### **The Multilevel Nature of Social Capital**

How social capital functions across multiple organizational levels such as individuals and teams is another question that remains relatively unexplored. As noted by Oh and colleagues (2006, p. 569):

most researchers have limited their view of social capital to discrete levels of analysis, including individuals (Burt, 1992), organizations (Leana & Van Buren, 1999), communities (Putnam, 1993), industries (Walker, Kogut, & Shan, 1997), and nations (Fukuyama, 1995), without taking on the more difficult task of integrating different levels of analysis when discussing social capital.

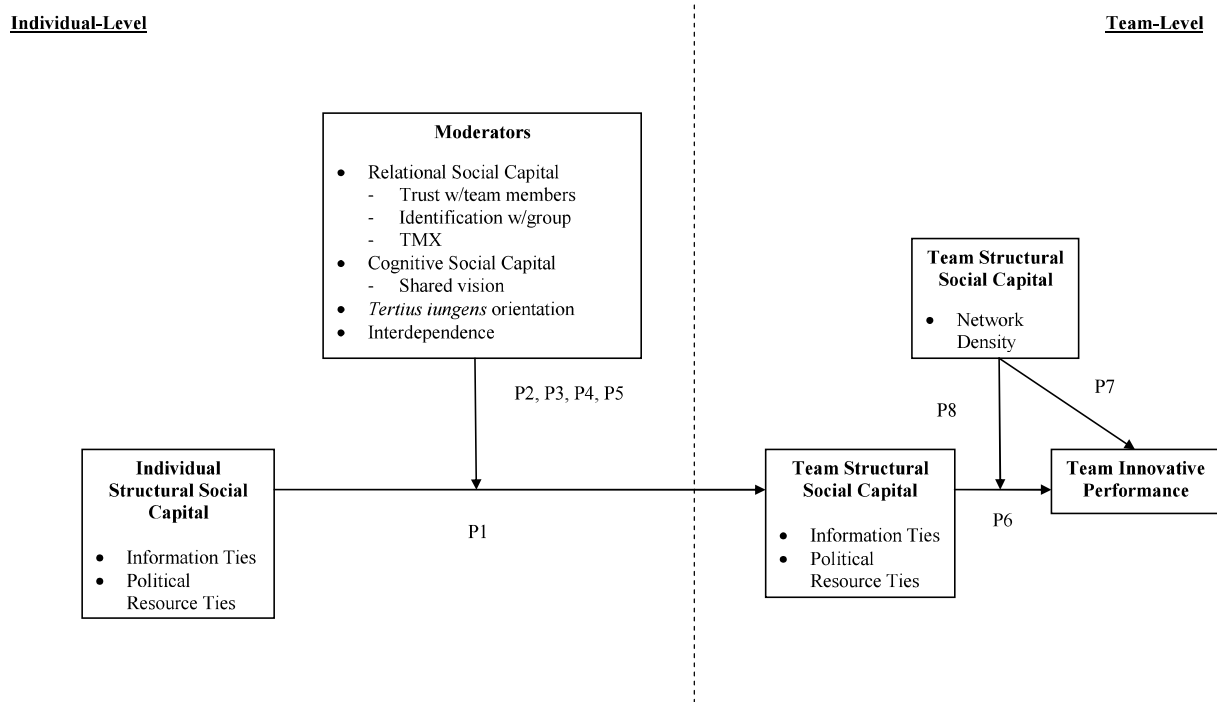
In broader social network literature, multilevel phenomena have received more attention since several prominent authors suggest that network research can be enriched by work that considers multiple levels of analysis as well as work that examines cross-level phenomenon (Brass, Galaskiewicz, Greve, & Tsai, 2004; Monge & Contractor, 2003). For example, in their review of networks and organizations, Brass and colleagues (2004) suggest that interpersonal, inter-unit, and inter-organizational levels of analysis are very important to network research and that cross-level dynamics have a significant impact on the realization of networks. Therefore, advancing a multilevel model is both timely and useful for social network literature.

There are two theoretical implications of considering multiple levels. First, scholars who advocate a cross-level approach to networks suggest that local network patterns driven by individuals combine to create the global structure of the entire network (Monge & Contractor, 2003). One level influences the next level to create the global structure. Second, by considering networks at multiple levels, different outcomes are observed. For example, in their study of subgroup structure among mental health agencies and their clients, Provan and Sebastian (1998) found that integration among small subsets of agencies was positively associated with effectiveness, yet the overall level of network integration was negatively related to effectiveness. This pattern suggests that local networks do not always combine directly to create more global networks but rather that the compilation process must be considered carefully when investigating phenomenon across multiple network levels.

While the multi-level nature of social networks has been previously addressed in the literature (Brass et al., 2004; Monge & Contractor, 2003), less attention has been paid to how network ties may be shared from one level to another. I suggest that group social capital emerges from a complex conglomeration of individual team members' personal ties. Group social capital may reflect any of the following, depending upon the situation: the sum of individual team members' capital; the least-well-connected team member's contribution (the team has no better resources than its weakest member); the most-well-connected team member's contribution (one team member can carry the team to a high level); the variability of team members' connections (the more varied team members' connections, the greater the number of non-redundant resources available to the team); or some more complex combination of team member connections (Klein & Kozlowski, 2000). In this paper, the relationship is quite complex as both individual member connections as well as each individual's *willingness to share* these connections with teammates combine to contribute to team-level social capital.

Thus far, I have defined social capital; introduced its structural, relational, and cognitive dimensions; and described its multilevel nature. Based on this introductory information, I now turn my attention to building my theoretical model and the propositions that underlie it. The model is presented in Figure 1.

**FIGURE 1**  
**HYPOTHESIZED THEORETICAL MODEL**



**LITERATURE REVIEW AND PROPOSITION DEVELOPMENT**

**The Relationship Between Individual Structural Social Capital and Team Structural Social Capital**

The tendency for social capital research to focus on either individual or group social capital has caused theoretical and practical dilemmas when integrating both levels (Ibarra, Kilduff, & Tsai, 2005). The term ‘social capital’ is used across several literatures to refer to the social relations and resource advantages of both individuals and groups (Kilduff & Tsai, 2003). However, as stated by Ibarra and colleagues (2005, p. 360), “the nuances of the concept have tended to vary greatly, depending on whether individual or collective advantage is the focus”. The individual social capital stream of research takes the perspective that social capital benefits accrue from individuals’ network connections (Tsai & Ghoshal, 1998). This research assumes that individuals use their network ties to pursue opportunities to their personal benefit (Ibarra et al., 2005). For example, Burt (1992; 2004) suggests that individuals use diverse information and resources from their bridging connections to advance their own careers. In contrast, research on group social capital takes the perspective that connections between team members promotes public goods to the benefit of the entire network (Ibarra et al., 2005; Putnam, 1993, 1995). For example, Nelson (1989) suggests that strong social ties within and between informal organizational groups reduces the effects of negative events in organizations.

Ties from *both* individual and group social capital are necessary for effective performance in a team-based innovation context. Individual team members must have external contacts to find novel and useful information and resources that the team needs in order to innovate successfully (Granovetter, 1973; Hansen, 1999). However, teams must also be able to share this information through their ties for the information to benefit the team rather than just the individual member.

This expectation is consistent with strategy research that suggests an empirical relationship between individual and group social capital. For example, Dyer and Singh (1998) found that individual ties are an important force behind the resources obtained from inter-firm networks. Similarly, in their study of communities of practice, Brown and Duguid (1998) found that individuals' external social ties give organizations access to valuable knowledge bases. Additionally, Bouty (2000) found that intellectual resources were more easily acquired by firms when their R&D scientists had and used their well-developed social ties.

Structural social capital ties are imbued with a variety of different types of content and resources, such as friendship, kinship, and advice relationships (Oh et al., 2004; Sparrowe et al., 2001). A *resource* is a source or supply of something with a real or perceived value available to be used for attaining goals (Foa, 1971). However, individuals may be more willing to share ties containing resources of some types more than others, as resources are not equally valuable or easily acquired. As Foa and Foa (1974) describe in their theory, resources of various types are available through social interactions and positive relationships with others. Individuals can be much more selective about exchanging some resources than others. For example, love is a resource that individuals are typically only willing to exchange with family and friends, whereas money is a resource individuals are likely to exchange with strangers, such as store clerks and bank tellers (Goldsmith, 2005).

In an innovative performance context, two resources that are particularly important for success are information and political resources (Burt, 2004; Hansen, 1999; Yuan & Woodman, 2010). Information ties are important since they provide a flow of unique and novel information to an individual or team (Burt, 2004; Hansen, 1999). Political resource ties are also vital since they provide individuals and groups with a sense of psychological safety for their innovation work as well as encouragement and facilitation through any obstacles the innovators may encounter (Yuan & Woodman, 2010). Drawing on Foa and Foa's model (1971), I suggest that these two types of ties are quite different from one another. Information ties are similar to money since they are easily exchanged with others while political resource ties are positioned similarly to love in the Foa and Foa model and are likely to be very selectively exchanged.

In the context of individuals sharing ties with their team members, I expect that individuals will share their informational resource ties more freely than their political resource ties. Prior work on information sharing suggests that novel information is most effectively obtained through weak ties (e.g., Hansen, 1999) that require relatively little investment of time and effort to cultivate or maintain. In contrast, political resource ties require a trust relationship to exist between two connected actors. Trust relationships take time to form and require ongoing contact and effort to maintain. Individuals are more willing to share informational ties than political resource ties since they create much less risk to themselves and their ongoing relationships. Therefore, I propose that:

***Proposition 1a:*** *Individual information ties are positively related to team information ties.*

***Proposition 1b:*** *Individual political resource ties are positively related to team political resource ties.*

***Proposition 1c:*** *The relationship between individual and team level information ties will be stronger than the relationship between individual and team level political resource ties.*

### **The Moderating Role of Relational and Cognitive Social Capital, *Tertius Iungens* Orientation, and Interdependence**

The type of resource is not the only variable that may help explain the strength of the association between individual and team bridging social capital. Combining the individual and team levels of social capital in a single model raises a host of potential questions including when individuals might choose to share their network connections with their teams. What individuals think and feel about their teams, their orientation toward connecting with others as well as the level of interdependence they shares with other team members are also important factors to consider in the relationship between individual and group social capital.

As explicated earlier, social capital is not a one-dimensional construct. In addition to the structural form theorized about thus far, the concept also has relational and cognitive aspects (Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998). This multi-dimensional nature of social capital helps to decrease inefficiencies when sharing resources, such as structural ties, across individuals and groups (Lee, 2009). The relational dimension of social capital has been described variously as the “affective aspect”, the “quality of relationships” (Nahapiet & Ghoshal, 1998) and the normative conditions that guide individual’s relations (Uzzi, 1996). Research suggests that the relational dimension has significant influence on an individual’s willingness to share (Nahapiet & Ghoshal, 1998) since individuals with strong relational social capital have greater access to others for resource exchange and are also more motivated to engage in sharing of resources (Nahapiet & Ghoshal, 1998).

The most commonly researched aspect of relational social capital is *trust*. The concept of trust revolves around the expectation that others will behave in a way that is expected rather than a way that is feared (Deutsch, 1973). Trust comprises both individual’s beliefs about others as well as their willingness to use knowledge of those beliefs as a foundation for action (Luhmann, 1979). Combining these ideas has led to a definition of interpersonal trust as “the extent to which a person is confident in, and willing to act on the basis of the words, actions, and decisions of another” (McAllister, 1995, p. 25).

Previous work on trust suggests that it is a two-dimensional construct with an affective and a cognitive component (McAllister, 1995). While the cognitive facet proposes that individuals make choices about whom and under what circumstances to trust, affect-based trust resides in interpersonal connections (J. D. Lewis & Weigart, 1985) and captures the emotional bond between individuals. This form is more closely associated with relational social capital since it is an emotional asset rooted in a social relationship; thus, I focus on affective rather than cognitive trust in this paper. Individuals with high levels of affective trust are more likely to use their structural ties on behalf of the team and are less prone to worry that they will be ‘taken advantage of’ by the other party (Tsai & Ghoshal, 1998). Cooperative behavior, including tie sharing, is more probable to emerge when trust is present in a relationship (Tsai & Ghoshal, 1998).

A second important form of relational social capital is *group identification*, which is “the process through which individuals see themselves as one with another person or group of people” (Nahapiet & Ghoshal, 1998, p. 256). This connectedness often results from an individual’s membership and ongoing participation in a group (Tajfel, 1982). The probability of a relationship between individual and group ties is strengthened when group identification is high since individuals value collective processes and outcomes (R. M. Kramer, Brewer, & Hanna, 1996). Group identification positively influences an individual’s perception of the relative value of a resource exchange as well as the motivation to participate in the exchange itself (Nahapiet & Ghoshal, 1998). In their empirical work, Lewicki and Bunker (1996) found that significant group identification increases both the perceived opportunities for sharing as well as the actual frequency of cooperation among team members. Conversely, in groups where members have distinct or contradictory identities, information sharing, learning, and knowledge creation are inhibited (Simon & Davies, 1996). Therefore, group identification is likely to foster an atmosphere conducive to tie sharing.

When team innovative performance is critical, a third important form of relational social capital is *team-member exchange* (TMX). TMX is defined as the quality of an individual’s exchange relations within the team (Seers, 1989). In an innovative context, quality exchange is important since teams whose members have higher levels of TMX are more likely to successfully execute an exchange or a combination of resources required for group-level innovation. Thus, a strong relationship is more likely to exist between individual and group bridging ties when team members view each other positively and believe their working relationship is important and of high quality. TMX is often used to study questions related to ideas, assistance, communication, and support located within exchange relationships (Seers, 1989; Seers, Petty, & Cashman, 1995). Although no empirical work has looked specifically at TMX and tie sharing, a prior study did find that TMX predicted organizational citizenship behaviors, which is a closely related voluntary behavior that can improve team performance (Kamdar & Van Dyne, 2007).

The strength of the association between individual and team bridging social capital is thus dependent upon a team member’s perception of the relational social capital factors. When team members trust their teammates, strongly identify with their group, and/or have high quality relationships with other team

members, the relationship between individual and team bridging social capital is stronger. Stronger relationships occur since individuals who feel invested in working with others feel positively about maintaining relationships that are personally important. Thus, I suggest that:

**Proposition 2:** *The relational social capital dimensions of trust, group identification, and TMX moderate the relationship between individual structural social capital and team structural social capital such that the relationship is stronger when the individual experiences high levels of trust, group identification, and TMX.*

The third dimension of social capital is the cognitive one. Cognitive social capital refers to the meaningful contexts of communication among and between actors (Nahapiet & Ghoshal, 1998). The creation of shared understanding between group members is dependent upon the extent to which ‘meaningful communication’ is present (Nahapiet & Ghoshal, 1998). Additionally, shared meaning provides cohesion and support for a group and its members (Starkey & Tempest, 2004).

One important form of cognitive social capital is shared vision. Shared vision provides a reference for expected behavior amongst members in a social system as well as a common understanding of collective goals (Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998). Shared vision represents the degree to which each team member’s vision of the team’s goals and aspirations is consistent with the vision of the team as a whole (Lechner, Frankenberger, & Floyd, 2010). Shared vision is beneficial since it provides team members with an enhanced understanding of how their individual actions facilitate the goals of the team (Lechner et al., 2010). A feeling of shared responsibility and a willingness to integrate are the result of shared vision and goals, and the group values that underlie them (Coleman, 1990). Social loafing problems diminish when team members collectively hold a set of similar goals (Leana & Pils, 2006). Shared vision also increases a variety of important interpersonal processes including communication efficiency (Tsai & Ghoshal, 1998) and reduces the likelihood that misunderstandings will develop among group members (Lechner et al., 2010). Additionally, individuals are more likely to interact and share information with one another when they share the same vision regarding their work (Mohammed & Dumville, 2001).

The strength of the relationship between individual and team bridging social capital is thus dependent upon a team member’s level of shared vision with the team. When team members view the goals and objectives of the team as their own, the relationship between individual and team bridging social capital will be stronger. Individuals see both personal and group benefit in achieving the team’s goals and objectives, and they become willing to use their own ties to benefit the work of the team. Therefore, I posit that:

**Proposition 3:** *The cognitive social capital dimension of shared vision moderates the relationship between individual structural social capital and team structural social capital such that the relationship is stronger when the individual experiences a high level of shared vision.*

The relational and cognitive dimensions of social capital are not the only potentially important moderators of the relationship between individual and team bridging social capital. Other characteristics that encourage connections between individuals may also play a significant role.

Individuals with a *high tertius iungens* orientation engage in brokerage activities that focus on facilitating coordination, collaboration, and a pursuit of common goals by joining previously unconnected parties (Obstfeld, 2005). These individuals may be complete strangers or, alternatively, may have a previous connection that is unrelated to the current project or initiative. Additionally, individuals with high *tertius iungens* orientation operate within both sparsely and densely connected networks (Obstfeld, 2005). Higgins suggests that the way an individual prefers to tackle problems in a social context is a ‘strategic orientation’ (2001). The term ‘orientation’ is used to suggest a construct that lies between a highly specific attitude and a more general personality trait (Frese & Fay, 2001).

Several empirical studies have considered the role of the *tertius iungens* orientation. In an ethnographic study of technology brokering at the influential design firm IDEO, Hargadon and Sutton (1997) found that



engineers in the firm routinely transported ideas between unconnected industries in their innovation work. This cross-pollination allowed IDEO to maximize new combinations of old technologies taken from both inside and outside a particular client's industry and created quicker and more innovative solutions to design issues. In a study of 152 employees involved in automotive design, Obstfeld (2005) found that *tertius iungens* orientation significantly predicted individual involvement in innovation. Additionally, the study found that the *tertius iungens* mechanism accounts for innovation involvement that is independent of network density, further solidifying its importance in innovation-related research. Finally, in an in-depth case study conducted in the natural gas industry, Garriga (2009) found that a context for selective cooperation is created by network structures among firms. The role of each firm in the cooperative process was determined by its member's *tertius iungens* orientation, with firms containing members having higher orientations more likely to engage in collaborative and joining activities.

Individuals with a strong *tertius iungens* orientation are more likely than those with a weaker orientation to see the potential benefits of sharing their personal network connections with other members of their team, especially in an innovation-related context. Individuals who are active in introducing dissimilar others and facilitating action among those in their social network will be more involved in sharing ties with others and in encouraging others to share their own ties (Obstfeld, 2005). Thus, a strong *tertius iungens* orientation will lead to more sharing of ties between individuals and their team. Therefore, I propose that:

***Proposition 4:*** *Tertius iungens orientation moderates the relationship between individual structural social capital and team structural social capital such that the relationship is stronger when the individual experiences a high level of tertius iungens orientation.*

The degree of interdependence members have with their team may also play a significant role in tie sharing. Interdependent work requires the input of several people in order for it to be completed successfully (Wageman, 1995). Interdependence increases both the efficiencies with which work is done as well as the motivational properties of work (Campion, Medsker, & Higgs, 1993). High levels of interdependence among group members increases members' felt responsibility toward the group (Pearce & Gregersen, 1991), as well as group members' communication and information sharing (Crawford & Haaland, 1972). Additionally, a high level of interdependence among group members promotes norms of cooperation that increases the likelihood of members enacting helping behaviors (Shaw, 1981). Research to this point has considered interdependence as a team-level phenomenon (Campion et al., 1993; Pearce & Gregersen, 1991; Wageman, 1995). In this paper, however, I explore interdependence as an individual-level variable, thereby offering a different perspective of a very well-researched construct.

Therefore, I argue that the strength of the association between individual and team bridging social capital is dependent upon team members' perception of how interdependent they envision their work with other members of the team. When team members view their work and that of their teammates as highly interdependent, the relationship between individual and team bridging social capital will be stronger. Similar to cognitive social capital, individuals will see both personal and group benefit in maximizing the performance of the group since their own performance and rewards are entwined with those of the group, and they will therefore be willing to use their own ties to benefit the work of the team. Thus, I suggest that:

***Proposition 5:*** *Interdependence moderates the relationship between individual structural social capital and team structural social capital such that the relationship is stronger when the individual experiences a high level of interdependence.*

### **The Relationship Between Group Social Capital and Team Innovative Performance**

There is much research in the sociology literature concerning the relationship between network structure and innovation. However, most research focuses on the adoption or diffusion of innovation rather than the generation of innovations (Ahuja, 2000). Network metaphors have flourished in the popular press, but only recently have scholars begun to study the network structure-innovation generation relationship. A handful of network and social capital theory papers have considered the association between bridging, or

weak, ties and innovative outcomes. Work on bridging ties suggests that social capital is a resource inherent in a social network that provides a link between individuals (Adler & Kwon, 2002). According to this perspective, the differential success of individuals and groups across a variety of performance outcomes is facilitated by their links to others in a social network (Adler & Kwon, 2002). Bridging ties are often viewed as valuable since they allow an individual access to novel information that typically resides outside their team or regular work group (Burt, 1987).

Network theory has also considered the strength of ties and their relationship to performance outcomes. In his seminal work on the strength of weak ties, Granovetter (1973, p. 1378) argued that “weak ties are indispensable to individual’s opportunities and to their integration into communities”. Strong ties, on the other hand, breed local cohesion, but can lead to fragmentation within a larger network (Granovetter, 1973). Thus, both weak ties and strong ties have their uses and their value is dependent upon the context at hand. In innovative contexts, weak external ties are generally thought of as more valuable due to their usefulness in searching for and locating knowledge and information needed by members of a new product development team (Hansen, 1999). Therefore, I posit that:

***Proposition 6: Team information and political resource ties are positively related to team innovative performance.***

However, I do not believe that bridging ties are the only form of network structure that is important to a team’s ability to perform. Prior research suggests the importance of bonding social capital and dense networks in innovation and innovation-related tasks such as knowledge transfer. *Density* is a measure of bonding social capital that defines the general level of interconnection amongst individuals in a network (Scott, 2000). This linkage represents the interpersonal relationships between team members, with greater density indicating stronger team bonding. Dense teams tend to benefit from greater cooperation, conformity to agreed-upon norms, and information sharing, thereby leading to better team effectiveness and performance (Oh et al., 2006).

Prior empirical work supports the link between bonding social capital and innovation outcomes. In a study of R&D teams, Reagans and Zuckerman (2001) found that increased communication network density resulted in higher innovation team productivity. Additionally, in a study of 79 senior partners in a global management consulting firm, Mors (2010) found that when crossing both firm and geographic boundaries, partners with dense networks had higher innovation performance. The author argued that dense network interactions facilitate partners’ ability to integrate diverse information when working in heterogeneous contexts.

In related work, Uzzi (1997) and Hansen (1999) found that the fine-grained information transfer of tacit knowledge is a function of stronger, embedded ties. These ties are often found in dense social networks (Granovetter, 1973; Reagans & McEvily, 2003). Tacit knowledge sharing frequently involves not only technical knowledge transfer but also information about the social and political context in which innovations are conceived and pursued over time. Therefore, I posit that:

***Proposition 7: The density of the team’s internal network is positively related to team innovative performance.***

Once new knowledge has been acquired, it must be integrated and incorporated into the focal project (Hansen, 1999). Complex knowledge, such as that acquired from outside the team during innovation work, tends to be highly codified and difficult to transfer (Zander & Kogut, 1995). A strong relationship between the two parties within the transfer eases this process in two ways. First, the strong ties present in dense networks allow two-way communication between the parties, thereby permitting multiple attempts at transfer and increasing the chances of success (Polanyi, 1966). Second, strong ties provide motivation to complete the transfer based on the personal nature of the relationship (Hansen, 1999). More effective transfer of knowledge leads to more innovative performance.

This theorizing regarding strong ties is supported by empirical evidence. In his study of 120 new-product development projects in a large electronics company, Hansen (1999) found that weak inter-unit ties help project teams search for useful knowledge in other subunits but impede the transfer of complex knowledge that tends to require a strong tie between the two parties engaged in a transfer. Having weak inter-unit ties speeds up projects when knowledge is not complex but slows them down when the knowledge to be transferred is highly complex. Additionally, in his longitudinal study of firms in the international chemicals industry, Ahuja (2000) found that exclusive, cohesive, and non-redundant connections can be important forms of social capital for innovation, dependent upon the actions that the social network seeks to facilitate (Lawrence & Lorsch, 1967).

The strength of the association between team bridging social capital and innovative performance is thus dependent upon a team's level of bonding social capital. When team members have strong interconnections with one another, the relationship between team bridging social capital and innovative performance is stronger. This increased strength is due to the increased ability of team members to disseminate the information and support gathered from their external contacts through well-established processes of coordination and communication. Thus, I posit that:

***Proposition 8:*** *Team network density moderates the relationship between team information ties/political resource ties and team innovative performance such that this relationship is stronger when network density is higher.*

## **DISCUSSION AND FUTURE DIRECTIONS**

In this paper, I postulate a model that addresses three specific aspects of individual and team social capital within an innovative context. First, I propose that the personal social capital of team members is an important predictor of the group's social capital. Second, I suggest that relational, cognitive, and task components influence an individual's willingness to share resources. Finally, I examine how internal and external social capital connections interact when explaining the relationship between group social capital and team innovative performance. Taken together, these propositions provide some indication of the important role that individual social capital plays in the development of group social capital and factors that influence these relationships.

### **Methodological Implications**

Testing this model requires access to an organization or set of organizations having a large number of groups involved in innovation work, such as new product development teams (e.g., Hansen, 1999; Sparrowe et al., 2001). To ensure that the teams studied are working on problems of sufficient complexity to require outside information and political resources, the innovation work should be more radical than incremental in nature.

Data should be collected using a modified egocentric-total network approach where researchers collect a whole within-team network and an egocentric external ties network (Wasserman & Faust, 1994). For example, within the team, researchers can provide a group membership roster and ask respondents to describe each relationship as well as the tie sharing activities that take place between themselves and each teammate. For external bridging ties, respondents can identify those individuals outside of the group with whom they have relationships that provide social capital resources (e.g., information, political support) and can report that external contact's group affiliation (e.g., Finance, HR, marketing).

Finally, the model proposed in this paper postulates a *micro-macro situation*, where a dependent variable at the group level is influenced by explanatory variables at a lower level of analysis (Snijders & Bosker, 1999). Most multilevel models in organization studies propose models that are *macro-micro*, where a dependent variable at the individual level is influenced by explanatory variables at the same or higher levels of analysis (Snijders & Bosker, 1999). While analysis methods and statistical packages are readily available for macro-micro models such as hierarchical linear modeling (HLM), this is not the case for micro-macro models. One potential solution to this dilemma is offered in a recent paper by Croon and van

Veldhoven (2007) that suggests a latent variable model approach to testing this type of model. This approach associates a latent variable with each of the explanatory variables at the lower level and treats the individual scores on these variables as reflective indicators for that latent variable (Croon & van Veldhoven, 2007).

### **Managerial Implications**

The relationships proposed in this paper have practical implications for both individuals and managers working within innovative contexts. First, although it may seem predictable that groups will have access to the social capital connections of their members, this process is neither simple nor automatic. Managers need to understand that individuals will make *choices* about whether to use their ties on behalf of others or allow others to have direct access to their ties. Managers can increase the likelihood of tie sharing by ensuring that relational and cognitive social capital components (such as identification with the group, quality of relationships with team members, and level of shared vision) as well as interdependence levels are strong so that members feel that the team's successes are an integral part of their own success.

Additionally, those managers who support innovation project teams must assist their teams to develop strong bonding ties. Tie development is integral to helping teams encode and access the diverse information brought into the team through bridging social capital ties. To develop strong bonding ties, managers must ensure that teams frequently meet in face-to-face situations (e.g., meetings, activities) even if the teams are mature, as personable interaction is essential for helping bonding ties emerge and capitalizing on current ties (K. Lewis, 2004).

### **CONCLUSION**

This paper takes a significant step toward developing a greater understanding of the role of individual social capital in the development of team social capital. Social capital is a complex construct, and further advancement to our understanding of the phenomenon requires that we think deeply about its multilevel nature as well as its multidimensionality. Much work remains to be done before we fully understand the development and use of social capital in work teams and how its usage fosters team innovation.

### **ENDNOTE**

- <sup>1</sup> In this paper, the terms 'group social capital' and 'team social capital' are used interchangeably. 'Group social capital' was previously established as a construct by Oh, Labianca, and Chung (2006). Consistent with the original authors, I suggest that this concept applies to groups with a salient group boundary working on complex and interdependent tasks with frequent interaction, commonly thought of as a team.

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