

A MULTILEVEL MODEL OF GROUP SOCIAL CAPITAL

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We introduce the concept of group social capital—the set of resources made available to a group through members' social relationships within the social structure of the group and in the broader formal and informal structure of the organization. We argue that greater group social capital resources lead to greater group effectiveness and that there are many different conduits through which group social capital resources flow. We present a multilevel, multidimensional model arguing that an optimal balance of all these conduits maximizes group social capital resources and group effectiveness.

Business organizations are increasingly using groups as their fundamental unit of organizational structure in order to respond more flexibly and quickly to rapidly changing environments (Manz & Sims, 1993; Mohrman, Cohen & Mohrman, 1995). Groups can be more responsive in large part because of the recurrent pattern of dynamic relationships among people within and outside the group (Sherif, 1967). This makes understanding the relationship between these intragroup and intergroup social relationships and group effectiveness increasingly important. Groups are inherently multilevel: simultaneously they are the foci of social interactions among individual actors (Feld, 1981), they are potential breeding grounds for subgroup formation (Festinger, Schachter, & Back, 1950; Weick, 1979), and they are embedded within a larger

formal and informal organizational social structure. We introduce the concept of group social capital as a way of examining resources made available to groups through social relationships within and outside groups while considering all of these levels simultaneously.

Social capital—a set of resources that inheres in the structure of relations of individual actors (Bourdieu, 1986; Burt, 1992, 2000; Coleman, 1988, 1990; Nahapiet & Ghoshal, 1998)—has attracted attention from scholars as a concept that can link individuals' and collectivities' actions (Coleman, 1988; Portes, 1998). However, 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.

The main purpose and contribution of this paper is to take social capital research on groups beyond treating a group exclusively as a whole unit, or, as is more typical, as merely the sum of its individual parts, by explicitly considering individuals as embedded simultaneously in the social structure of subgroups, groups, and the overall organization (Firebaugh, 1980; Manson,

We thank Dan Brass, Martin Kilduff, and the members of the Department of Management of Organizations in the Hong Kong University of Science and Technology (especially Jaepil Choi, Gary Katzenstein, Tai-Young Kim, Kenneth Law, and Anne Tsui) for helpful comments on earlier versions of this paper. Special thanks to David Ralston (the handling editor) and the three anonymous reviewers for their suggestions. This research was financially supported by Hansung University in 2005. An earlier version of this work was presented at the 2003 Academy of Management annual meeting in Seattle. The authors contributed equally to this piece.

1993; see also Klein, Dansereau, & Hall, 1994, and Rousseau, 1985). For example, a group that is well connected to other groups, but where all the intergroup ties run through one person, might have fewer social capital resources compared to a group where the intergroup relationships are spread across more people.

Our model of group social capital also serves to expand the work conducted on group boundary management and effectiveness (e.g., Ancona, 1993; Ancona & Caldwell, 1992; Gladstein, 1984). Ancona and her colleagues have shown that a group needs to manage relationships with other groups and external members in the organization to pull in important informational and political resources to improve effectiveness (Ancona, 1993). Our group social capital model examines how group members manage *all* of their group's boundaries, both within and outside the group (including boundaries between subgroups and boundaries between groups and the larger organization) and considers these cross-boundary relationships together. Thus, our work adds greater specificity to our knowledge of group boundary management.

DEFINITION OF GROUP SOCIAL CAPITAL

We define group social capital as *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*. Group social capital is a metaconstruct composed of both the set of resources flowing through relationship conduits and the configuration of the conduits themselves (cf. Seibert, Kraimer, & Liden, 2001). Several aspects of this definition bear discussing in further detail, because they differ slightly from some previous definitions of social capital.

First, the group itself has a social structure and must be considered both as a whole and as an aggregate of its parts. Group members can be heterogeneous in terms of their position in the vertical hierarchy or in the horizontal division of labor. Groups can also have multiple subgroups whose goals and desires have varying overlap with the overall group's goals and desires. In the same way that having financial capital invested in multiple financial accounts might affect one's ability to tap into those resources quickly, group social capital is affected

by the existence of subgroups that can affect the group's information processing capability (Duncan, 1974; Thomas & McDaniel, 1990).

Second, this definition also recognizes that groups must be considered in their broader context (e.g., Firebaugh, 1980; Gladstein, 1984). Some groups will find that they have greater "liquidity" of their social capital because of their members' relationships in the organization's overall structure—that is, they can tap into resources passed along through their social ties quickly if they need them. For example, *timely* access to information or political support is likely to be enhanced for groups with members in critical positions within the organization's formal workflow structure, as well as for groups with members in prestigious positions within the organization's informal social network structure. This aspect of the definition recognizes that the organization's formal structure might be very different from the informal relationships through which work is actually accomplished (e.g., Morey & Luthans, 1991)

Our definition of group social capital refers to "resources" more broadly than some definitions of social capital. For example, Burt (1992) generally limits his discussion of social capital to encompass access to disparate information and referrals. Clearly, instrumental benefits such as timely access to *information* from disparate arenas allow for enhanced opportunities to generate solutions that are more innovative, more entrepreneurial, and potentially more rewarding (Burt, 2000). There is also an instrumental benefit derived from access to *political resources* and to referrals from others (Ancona & Caldwell, 1992). Here, as well, it is important that these resources are liquid—easily and quickly accessed. For example, if an executive is attempting to shut down a task force, the task force's ability to access political resources to prevent it only helps if the task force can do this quickly.

Another group social capital resource is the *mutual trust* that develops from exchange reciprocity in an environment where norms are well enforced and free riding is kept in check (e.g., Coleman, 1988, 1990). This allows for greater "credit risk" to be extended—as in I'm more willing to extend a favor to another because I know that the favor will ultimately be returned by another member of the group (e.g., Edmondson, 1999; Kramer, Hanna, Su, & Wei, 2001). As Coleman suggests, this reduces the transaction

costs for all group members, as well as between groups, if we are discussing intergroup interactions, thus generating benefits for all.

Beyond these instrumental benefits, social ties also bring expressive benefits such as *emotional support* (e.g., Ibarra, 1993; Wellman, 1992), an often undervalued and underresearched resource. There are many times when setbacks might destroy morale, or when unexpected tragedies might cause a group to lose its focus, and social ties are called on to assist and support.

GROUP SOCIAL CAPITAL RESOURCES AND GROUP EFFECTIVENESS

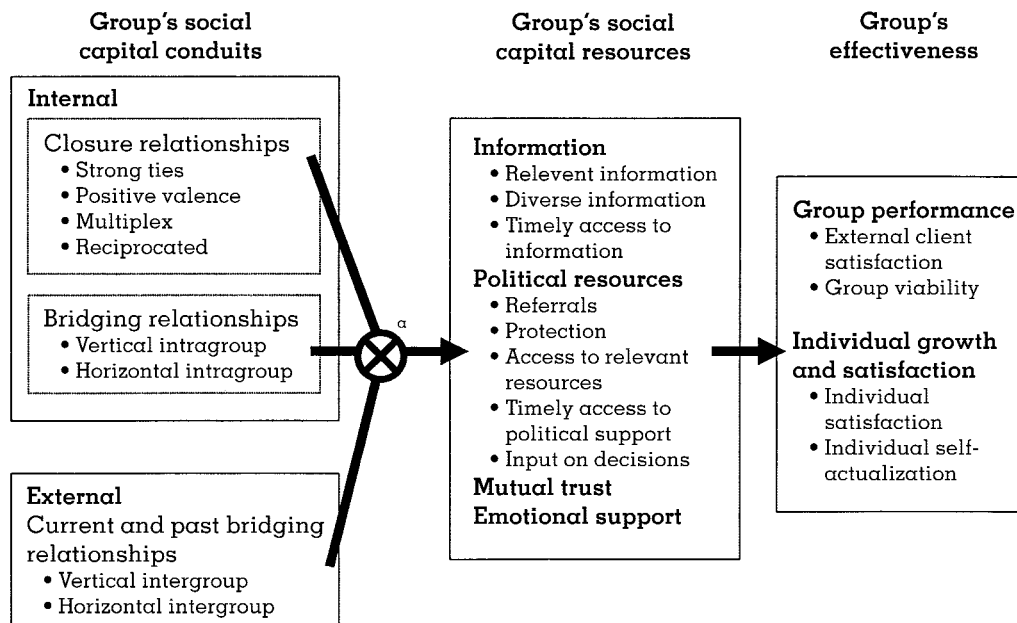
We argue that, in general, more group social capital resources will lead to greater effectiveness. We use a multilevel definition of group effectiveness (Guzzo & Shea, 1992; Hackman, 1987). At the group level, effectiveness is measured by such standards as satisfying external clients' needs, reaching agreed upon goals, and being able to come together again at some future point to do more work if so needed. At the individual level, effectiveness is measured by individual members' goals and needs being met.

Group effectiveness research has traditionally followed a partially mediated input-process-output model (e.g., Gladstein, 1984). Inputs associated with increased group effectiveness include group composition, group structure, group task, organizational resource availability, and organizational structure. Processes related to improved effectiveness include task-related behaviors focused on solving problems (e.g., workload sharing and boundary management) and maintenance behaviors focused on smoothing the group's internal functioning (e.g., open communication, supportiveness, and cohesiveness). Group social capital is not intended to negate previous research on intragroup and intergroup relationships. Rather, it enhances our understanding of processes leading to effectiveness by considering relationships both within and outside the group that are used for both task-related and maintenance purposes. The group social capital construct pushes us to ask questions like "Does improving intragroup cohesiveness negatively affect group effectiveness because it reduces the possibility for intergroup bridging relationships?"

We expect that greater group social capital resources will make it easier for members' goals and needs to be met, make the group more likely to want to come together again in the future, and, ultimately, allow the group to reach its goal more easily and with better results. However, we emphasize that there are multiple conduits through which group social capital resources flow and that maximizing the flow of resources through one conduit at the expense of other conduits is counterproductive. Thus, group social capital needs to be understood from an optimal configuration perspective: it is the overall balance of relationships that leads to the maximum flow of group social capital resources. There are relationships that reach across hierarchical levels within the group as well as outside the group, there are relationships that reach across different horizontal boundaries within the group (such as subgroups) and outside the group (such as departments), and there is an interplay between formal and informal relationships across all these levels. The group must have *all* of these relationships in order to maximize group social capital resources and, ultimately, to improve group effectiveness (see Figure 1; the *x* in the circle denotes the tradeoffs implied in an optimal configuration perspective).

Our arguments on group social capital are broadly but not universally applicable. Our full model is most useful for groups in which the following elements are present: awareness of the group's existence, a salient group boundary perceived by its members, at least moderately complex and interdependent tasks, a team leader, regular and frequent interaction, a higher level of intragroup interaction than intergroup interaction, and group size large enough to have subgroups (at least five members). In contrast, a "team" of sales personnel or telephone operators who have little more than pooled interdependence (Thompson, 1967) of their individual performances is less likely to fit our model. Similarly, certain types of virtual or globally distributed teams where there is little intragroup interaction, and where the members might not even view themselves as being part of a group or team (Armstrong & Cole, 1996), are less likely to fit our full model. We recognize that the use of these types of teams is growing, but they still remain a small minority of teams in organizational structure, and many aspects of our model would apply even to these teams.

FIGURE 1
Model of Group Social Capital



^a The x in the circle denotes the tradeoffs implied in an optimal configuration perspective.

Although we use a software development team as a continuing example in this paper, our model is broadly applicable across a wide variety of groups, including new product development teams, task forces, professional support groups (e.g., information technology groups), organizational subunits (e.g., departments), and process teams (see Napier & Gershenfeld, 1999, for a typology of groups).

GROUP SOCIAL CAPITAL CONDUITS

In social capital research, two main conduits through which social capital resources flow have been suggested: closure relationships and bridging relationships (Burt, 2000). Through the closure mechanism, group members connected by strong relationship ties benefit from embedded and dense networks in a closed group (Coleman, 1988, 1990). The brokerage mechanism, in contrast, emphasizes the importance of bridging ties connecting different people.

Closure Conduits

A group's level of closure is defined by the characteristics of the relationships among

group members and by the overall social network properties of the group. In strong-closure ("closed") groups, group members are connected by *strong, positive, multiplex, and reciprocated* relationship ties; there is a relative *lack of negative* relationship ties; there is a relative *lack of negative* relationship ties; and the group's overall network is, thus, very dense. For example, a software development team that is composed of a close-knit group of friends who enjoy both interacting in the workplace and seeing each other socially after work is more likely to establish norms and to have members build trust in each other more readily (Krackhardt, 1992; Verbrugge, 1979), thus creating a web of social exchange within the group (Levine, 1991). The dense, strong-closure group should benefit from greater cooperation, greater conformity to agreed upon norms, greater information sharing, and less tendency to engage in social loafing and opportunism, thereby leading to better group effectiveness.

However, contrary to previous studies suggesting simple positive linear relationships between network density and performance (e.g., Reagans & Zuckerman, 2001; Sparrowe, Liden, Wayne, & Kraimer, 2001), we argue that excessive group closure may negatively affect group

social capital resources and, ultimately, group effectiveness. The software development team connected by strong and multiplex ties tends to have mainly similar and redundant information available to it (e.g., Burt, 1992; Gargiulo & Benassi, 2000). Strong-closure groups can constrain individual group members' contacts with diverse others outside and can restrict access to more varied resources and innovative information available beyond the closed group (Hansen, Mors, & Løvås, 2005; Portes & Sensenbrenner, 1993). Similarly, positive ingroup biases and negative outgroup biases possibly generated in the tightly knit group limit the absorption of innovative external information (cf. Coser, 1956; Pruitt & Rubin, 1986; Simmel, 1955; Tajfel & Turner, 1985). Thus, it is at moderate levels of group closure—that is, where moderate numbers of positive relationships are strong, multiplex, and reciprocated and few or no negative relationships exist—that group social capital resources will be maximized.

Proposition 1: Group closure will have an inverted U-shaped relationship with group social capital resources, which are maximized at a moderate level of closure.

Bridging Conduits: Crossing Internal/External and Vertical/Horizontal Boundaries

The brokerage mechanism emphasizes the importance of relationships that bridge structural holes—that is, gaps between disconnected people. These structural holes exist because individuals are differentiated according to their

positions in the organization's formal and informal structure (Blau, 1969), and these differences can be captured using a two-dimensional typology. The first dimension shows whether the individuals are vertically differentiated (e.g., the person occupying the node is in a leader versus follower position) or whether they are horizontally differentiated (e.g., the person is in a different functional department or subgroup). The second dimension differentiates between intragroup and intergroup relationships. Combining these two dimensions creates a two-by-two matrix (see Figure 2), which captures the various boundaries that bridging relationships can span within the group and the organization in which it is embedded. Only by considering all of these group boundaries can we accurately gauge the level of resources made available through bridging relationships.

Quadrant 1: Intragroup vertical bridging relationships. Organizations impose vertical differentiation on groups, such as software development teams, by assigning a formal leader. The groups themselves also create informal intragroup vertical differentiation through their interaction patterns. That is, as certain individuals become more central to the interaction patterns of the group (e.g., through advice giving), they become *informal leaders* (Freeman, Roeder, & Mulholland, 1980). Formal and informal leaders have access to different types of power and resources. The formal leader represents access to power and resources at the higher levels of the organization and knowledge of the organization's formal goals (Etzioni, 1965). The informal leader understands the goals and

FIGURE 2
Typology of Bridging Conduits for Group Social Capital Resources

	Intragroup relationships	Intergroup relationships
Vertical differentiation	I. Vertical intragroup relationships: <i>Relationships between the formal and the informal leader</i>	IV. Vertical intergroup relationships: <i>The focal group's ties to powerful people in the organization's dominant coalition</i>
Horizontal differentiation	II. Horizontal intragroup relationships: <i>Relationships between the formal leader and the intragroup cliques</i>	III. Horizontal intergroup relationships: <i>The focal group's diverse ties to other groups in the organization</i>

needs of followers, has access to resources and followership (or acquiescence) within the group (Mechanic, 1962; Meindl, 1995), and has power and control over those resources (Brass & Burkhardt, 1992; Fernandez, 1991; Freeman, 1979; Knoke & Burt, 1983). Further, informal leaders perceive their groups' attitudes toward group-relevant issues more accurately than other group members (Chowdhry & Newcomb, 1952) and, thus, play a critical role as opinion leaders for the important issues in the group.

An effective group can quickly bridge the multiple levels of power to access the proper resources and different goals and needs from organizations and followers and can bring them to bear on improving group performance. For example, the software team's formal leader can gain more varied information on the issues affecting developers via the informal leader. The formal leader can also communicate his or her opinions and ideas to followers both directly and through the informal leader, and he or she can even persuade other followers on important issues with the help of informal leaders (March & Sevón, 1988). Thus, group social capital resources will be highest when the dyadic relationship between the formal leader and the informal leader is strongest. As the tie between the formal and informal leader becomes less reciprocated, less multiplex, less frequent, or negative in valence, the tie becomes weaker and group social capital resources will suffer.

Proposition 2a: The stronger, more multiplex, more reciprocated, and more positive the dyadic relationship between the group's formal leader and its informal leader, the greater group social capital resources there will be.

There is also the possibility that the same person occupies the formal and informal leadership roles. This indicates that, for example, the software team leader has successfully bridged the formal and imposed goals from the upper level of the organization and the informal and personal goals and needs of followers within the groups. On the formal side, the leader spends time and energy pursuing important external ties that will assist in gaining needed resources for the group and in shaping the overall goals of the organization. On the informal side, group members will be more likely to trust,

to follow, and to exert greater effort on behalf of the leader and the group as a whole. Thus, leaders who combine formal leadership roles with informal ones tend to be more effective (Balkundi & Harrison, in press; Barnes & Kriger, 1986; Etzioni, 1965). This arrangement makes group social capital more "liquid," in the sense that the leader knows he or she can tap into potential resources more quickly than in a situation where a negotiation with the informal leader is necessary.

Proposition 2b: If a group's formal leader is also the group's informal leader, group social capital resources will be greater than in groups in which different members occupy those roles.

Quadrant 2: Intragroup horizontal bridging relationships. A group can also become differentiated horizontally into subgroups based on the different interests and needs of its members (Alba, 1973; Frank & Yasumoto, 1998; Tichy, 1973). Formal differentiation occurs when a leader imposes subgroups by creating a division of labor—for example, by focusing some developers on designing and others on testing. Informal differentiation occurs when the members' interactions emergently form social cliques within the group, with only some group members sharing social ties. The introduction of formal or informal horizontal differentiation brings with it an increase in the need for an integrator—the team leader—as a focal point in the group. The leader's role is to be an integrator across the many contributions of the group members that bring the group toward task completion and individual growth.

A leader's ability to connect various subgroups determines the overall effectiveness of the group. Given limited time, attention, and resources, the leader needs to develop ties with these formal and informal subgroups in the most effective way. From a bridging perspective, the greater the number of different subgroups to which the leader has access through at least one person, the greater the diversity of information and social support to which the leader has access (Snijders, 1999). Thus, an efficient way for the leader to quickly access information and resources in the various subgroups within the group is to establish ties with at least one person in each subgroup (Krackhardt &

Brass, 1994). If the leader has redundant ties with people in only one or two subgroups, the followers in the subgroups that are not connected to the leader may be dissatisfied (Krackhardt & Brass, 1994). The fragmented group can suffer from a lack of communication and increasing conflict, resulting in lower group performance. Thus, because it is unlikely that the formal leader will have a strong relationship with every member of the group (Graen & Uhl-Bien, 1995), his or her ability to maintain a strong relationship with at least one member of each formal or informal subgroup within the group (particularly if the strong relationship is with the subgroup's informal leader) will enhance overall group social capital.

Proposition 3: Groups in which formal leaders have strong, multiplex, reciprocated positive relationships with at least one member of each subgroup will have greater overall group social capital resources than groups in which formal leaders are not connected to all of the subgroups.

Quadrant 3: Intergroup horizontal bridging relationships. Because groups exist in the broader social structure of the organization, we need to consider the group's boundary-spanning activities, which are critical determinants of a group's social capital resources and, ultimately, its effectiveness (Ancona, 1990; Geletkanycz & Hambrick, 1997; Gruenfeld, Matorana, & Fan, 2000; Tushman, 1977). Groups that communicate more frequently with different people in outside groups have greater access to actual and potential resources outside the group (e.g., Hansen, 1999; Tsai, 2001). For example, a software development team that has quick access to timely information, diverse ideas, and critical instrumental, political, and emotional resources and that has built up trust credits in its intergroup relationships because of its external connections to diverse groups, such as other software teams, marketing groups, and sales groups, is more likely to come up with creative decisions and to gain leverage over those outside groups through its broker position, resulting in better performance (Ancona, 1993; Ancona & Caldwell, 1992; Milliken & Martins, 1996). Thus, we expect that the group whose members are connected to a broader range of nonredundant outside

groups will tend to have more group social capital resources.

Proposition 4a: Groups with a broader range of positive nonredundant relationships to other groups will have greater group social capital resources compared to groups with a narrower range of external relationships.

We also need to consider the mechanism through which those external resources are brought into the group and processed. For example, if all of the software development team's external ties are more concentrated in a small number of group members, or just one group member, the remaining group members might become insulated from diverse information and opinions available externally. This insulation of the group from its environment invites more homogeneity of ideas and, thus, reduces its overall decision-making capacity (Hensley & Griffin, 1986; McCauley, 1989). It also slows down the flow of information between external groups (e.g., other software development teams, marketing and sales groups) and members of the group who might directly need the information. Further, the group becomes excessively reliant on one person or a small set of group members to interpret the external information and resources from other parts of the organization and has fewer alternatives in decision making (Moorhead & Montanari, 1986).

Previous network research supports this argument, suggesting that, for complex and uncertain tasks that are characteristic of most modern groups, centralized communication networks where few members dominate the information flow should be avoided (Brass, 1985; Shaw, 1964; Sparrowe et al., 2001). We extend this idea to the realm of intergroup relationships. We propose that concentrating external ties in a few hands will be detrimental to overall group social capital resources and, ultimately, to group effectiveness.

Proposition 4b: Groups whose positive nonredundant external relationships are distributed among more members will have greater group social capital resources compared to groups where those relationships are concentrated in a smaller number of group members.

Quadrant 4: Intergroup vertical bridging relationships. Having diverse external ties is important, but having specific external ties to people who have the power to influence the focal group is also important. Every organization has a dominant coalition of powerful actors (Thompson, 1967), and connections to that dominant coalition facilitate one's ability to upwardly influence and to gather needed resources in a timely manner to accomplish tasks (cf. Brass, 1984; Seibert et al., 2001). While this is true for individuals, it is also true for the group as a whole. For example, a software development team, through its members, must be able to access the dominant coalition in the organization. These boundary management activities facilitate the group's ability to absorb outside political pressure, protect the group from external threat, coordinate and negotiate with outsiders, and, ultimately, allow it to be more successful (Ancona, 1993; Ancona & Caldwell, 1992). This effect might be particularly important because members of an organization's dominant coalition tend to have the ability to act quickly and with broader latitude, making this a very liquid source of group social capital resources. Therefore, we argue that groups whose members are connected to a greater number of powerful actors in the organization's dominant coalition have greater social capital resources and will ultimately be more effective than those with fewer such ties.

Proposition 5a: Groups with more positive relationships with formal higher-ups will have greater group social capital resources than groups with fewer positive relationships with formal higher-ups.

Beyond ties to formal higher-ups, ties with informal leaders in other groups are also crucial conduits for resources. Because of their central network position in the organization, informal leaders have access to power and hold the ability to facilitate change and to provide necessary resources and assistance when it is critical (Brass, 1992; Brass & Burkhardt, 1992). Access to these informal leaders in other groups facilitates a group's ability to engage lower-level workers from other groups when necessary (Perry-Smith & Shalley, 2003). For example, if a task force is trying to reengineer the software development process in a company, the ability of the members to tap into informal leaders in

various groups that need to be involved in software development (e.g., marketing and sales groups) will allow them to gain important information, as well as reduce the possibility of resistance from lower-level workers to any change that might need to be implemented in the process. In Proposition 4a we argued that a group's external ties to another group will increase social capital resources, without distinguishing who is on the other end of the tie. Here we are arguing that when those external ties are to individuals that are more central to those external groups, the focal group's social capital resources and, ultimately, its performance are more greatly enhanced.

Proposition 5b: Groups with more positive relationships with more informal leaders in other groups will have greater group social capital resources than groups whose positive external connections are to more peripheral individuals.

Power is not generally a zero-sum game in most organizations, so the more people who have access to power, the greater power everyone has (Lawler, 1993; Tannenbaum, 1968). In groups where ties to powerful individuals are brokered through a small number of individuals, or even just one individual, the other members will have little access to power, which can slow down their ability to get work done. If, however, access to power is distributed more evenly, the group as a whole has greater power, as do all the individuals within the group (with the possible exception of the former leader).

This scenario allows the group to manage its boundary more effectively. The group boundary management activities we mentioned earlier (e.g., absorbing outside political pressure, protecting the group from external threat, and coordinating and negotiating with outsiders) can occur more quickly, because there are multiple conduits for the necessary resources to flow into the group. For example, the developers on a software team might need quick access to travel funds to get a better understanding of how software is used on a factory floor. Having many developers with direct ties to powerful individuals in the organization will facilitate fast access to those funds compared with a team where the team leader is the only person with access to powerful individuals. We argue that when there

are low power access differences in a group, the group will have more group social capital resources, whereas when there are high power access differences in a group, the group will have fewer group social capital resources.

Proposition 5c: Groups whose positive external relationships with formal higher-ups and informal leaders are distributed among more members will have greater group social capital resources compared to groups whose positive ties to formal higher-ups and informal leaders are concentrated in fewer members.

Past Relationships As Group Social Capital Conduits

All of the above bridging conduits point toward existing relationships. The next step in social capital research is to consider the possibility that the bridging conduits of group social capital mentioned above have a "stickiness" to them that moves beyond the current group members' ties. For example, it is possible that a developer in the software development team has a very strong relationship with a member of the dominant coalition and creates a great amount of trust for the activities of the team. Even after that developer departs the group, or even the organization, the group might be able to tap that now nonexistent link.

Most current views of social capital consider the social capital to be gone when an individual leaves, because the tendency has been to approach group social capital as the aggregate of the social capital of its members (e.g., Burt, 2000). But we argue that group social capital is a property of the group itself, and, as such, even past relationships held by former members can provide social capital resources (Soda, Usai, & Zaher, 2004). Intergroup relationship ties that were positive and were severed on good terms (e.g., because someone retired or took a job in a different organization) might still provide potential access to such benefits as political support when needed.

There are, however, some caveats to this argument. First, these "residual" ties are likely to be more tenuous and are not likely to last long if current group members do not transform them to direct ties. Second, we do not expect that these

past relationships will provide as many group social capital resources as existing relationships. They will probably not be as "liquid," in the sense that while a former link might provide the current group members access to political support, that political support might take longer to mobilize than if the dyadic relationship were still intact. The final caveat is that if the relationship was severed because it turned into a negative relationship (i.e., where one party began to dislike the other), group social capital resources would be harmed rather than helped (e.g., Brass & Labianca, 1999; Labianca & Brass, 2006).

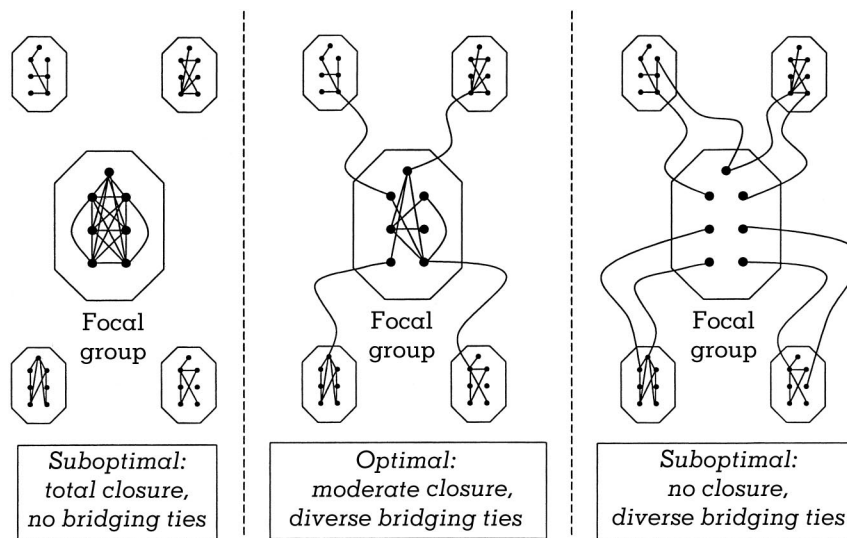
Proposition 6: Groups with access to important bridging relationships through recent former members will have greater group social capital resources than groups where these relationships are lacking.

Optimal Configuration of Closure and Bridging Conduits

The tendency in social capital research has been either to examine the closure and bridging conduits separately or to pit the two in a "horse race" to see which is a better predictor of the phenomenon of interest (cf. Burt, 1987). We believe that a more complex, multilevel model is necessary to understand group social capital. The ideal is a group where all group members are tightly connected to one another, as well as to everyone else in the organization, because these large, dense networks will allow more social capital resources to flow to group members. Unfortunately, there is a limit to the time and attention that group members can spend on cultivating and maintaining relationships. Thus, we have argued that closure conduits will have an inverted U relationship with social capital resources and that the four bridging conduits will each have positive linear relationships with social capital resources.

Ultimately, the optimal mix of the closure conduits and the four bridging conduits we have described must be maintained for the group to maximize its group social capital resources (see Figure 3). At one extreme, maximizing the closure conduits that encourage intragroup integration and particularly enhance expressive resources, such as mutual trust within the group,

FIGURE 3
Illustration of Group's Social Capital Conduits



will, to some extent, make the maintenance of large numbers of bridging ties difficult by drawing a member's social focus internally to the group, thus depriving the group of such instrumental resources as political support from the dominant coalition (see Figure 3, left side). At the other extreme, maximizing the bridging conduits that particularly enhance such instrumental resources as information and political support will deprive the group of the closure that can enhance intragroup integration and mutual trust (see Figure 3, right side). Members of this type of group might not be willing to use their personal networks to assist their group because they might not feel emotionally invested enough in the group (Adler & Kwon, 2002). The optimal profile would be a group where there is moderate closure within the group, the group's formal and informal leadership roles are either fulfilled by the same person or by closely connected individuals, the formal leader has close connections to each of the group's subgroups, various group members have nonredundant external ties to a diverse range of other groups in the organization, and members have ties to influential dominant coalition members whom they can count on for political support as needed (see Figure 3, center).

Proposition 7: Groups with the optimal configuration of closure conduits and the four bridging conduits (moderate

level of closure conduits and high level of bridging conduits) will have the most group social capital resources and, ultimately, the maximum group effectiveness.

DISCUSSION AND FUTURE DIRECTIONS

We have suggested a multilevel optimal configuration model of group social capital where at least minimal levels of the different closure and bridging conduits through which group social capital resources flow must be maintained in order, ultimately, to maximize group effectiveness. We identified vertical and horizontal and intragroup and intergroup boundaries that must be bridged to maximize group social capital resources. Doing so allowed us to contribute to the group boundary management literature (Ancona, 1993; Gladstein, 1984) by specifying multiple levels of group boundaries.

We believe that our approach has implications for the study of structural holes in a group setting, because it introduces the problem of entityity (Shaw, 1976) to social capital theory. Burt (2000) argues that structural holes appear between any two disconnected groups. However, this ignores the fact that groups create boundaries that are both cognitive and real, that are meaningful to the members, and that affect subsequent identification and behaviors (cf.

Krackhardt, 1999). Thus, being an "entrepreneur" between different groups in an organization, which is Burt's usual brokerage metaphor, is different from being an "intrapreneur" who is bridging interactions across subgroups embedded in a group. Those subgroups might have more fuzzy boundaries and little to no awareness of their existence, which makes the task of bridging the structural hole different. The possibility of ingroup/outgroup bias, for example, is higher when the group boundary is more salient; thus, the entrepreneur might have to negotiate around legitimacy issues to a greater degree, or deal with intergroup conflict more at the intergroup level. At the intragroup level, the intrapreneur might have to deal more with issues of interpersonal differences or conflicts. These different types of holes therefore require different sets of skills and sensitivities for brokers, and this might be a fruitful future avenue of research.

Methodological Considerations

Testing our model requires access to an organization or set of organizations having a large number of groups, such as new product development teams (see Hansen, 1999, and Sparrowe et al., 2001). Data could be collected using a modified egocentric-total network approach where the researchers collect a total *intragroup* network and an egocentric *intergroup* network (Wasserman & Faust, 1994). For example, within the group, researchers can provide a group membership roster and ask respondents to describe each relationship, allowing the researchers to calculate group closure (tie strength, valence, multiplexity, and reciprocity), as well as to identify cliques and informal leaders. For intergroup bridging ties, respondents can identify individuals outside the group with whom they have relationships that convey social capital resources (e.g., information, political support, emotional support) and can report that external contact's group affiliation (e.g., Finance, HR, software development team D).

Network questions should include instrumental and expressive questions that tap into both dyadic relationship conduits and individuals' assessments of group-level social capital resources. Subgroups can be determined by conducting clique analyses that are available through UCINET, a social network analysis soft-

ware package (Borgatti, Everett, & Freeman, 2003). The diversity of a group's social ties can be operationalized using the concept of "range" (Burt, 1983). We also recommend collecting some past relationships data to determine the extent to which these ties might provide the group with enhanced social capital resources. These relationships can be accessed either through a longitudinal study of teams or by asking group members retrospective questions.

Managerial Implications

We believe that group social capital is malleable. The first step in managing a group's social capital is uncovering group members' social ties. Previous research suggests that people are poor at identifying other people's social ties (e.g., Marsden, 1990), so providing group members with information about each other's social contacts, as is done in some knowledge management databases, would allow members to access needed resources more quickly through indirect ties. Second, managers can assess a group's configuration of ties using our model. For example, does the software development team have ties to top management, to other organizational groups, and to informal leaders in other groups? Are these bridging ties concentrated too heavily in one person, or are they spread across multiple group members? Is the formal team leader also the informal leader, or does the formal leader at least have a strong relationship with the informal leader? Are there any subgroups within the team with which the manager needs to create a tie? Are there relationships that the group recently lost through group member turnover that need to be reinitiated, before the tie is lost forever? Is the leader asking about these ties in exit interviews? Finally, if the group is found to be lacking in certain types of ties, members can be actively encouraged to develop those ties or find additional members with the necessary ties.

Conclusion

There are multiple conduits for group social capital resources, and we need to consider them together in more complex models that acknowledge that social capital belongs to the group as a whole, not simply to its individuals. Having too much of one source of group social capital

(e.g., external relationships to the dominant coalition) while having too little of another source (e.g., strong closure within the group) can negatively affect the group's social capital resources. Understanding the conduits for group social capital resources involves thinking more deeply about the way individuals and subgroups are embedded in groups and groups are embedded in organizations, and the way that the formal and informal structures of groups and organizations interact.

REFERENCES

- Adler, P. S., & Kwon, S. 2002. Social capital: Prospects for a new concept. *Academy of Management Review*, 27: 17–40.
- Alba, R. D. 1973. A graph-theoretic definition of a sociometric clique. *Journal of Mathematical Sociology*, 3: 113–126.
- Ancona, D. G. 1990. Outward bound: Strategies for team survival in an organization. *Academy of Management Journal*, 33: 334–365.
- Ancona, D. G. 1993. The classics and the contemporary: A new blend of small group theory. In J. K. Murnighan (Ed.), *Social psychology in organizations: Advances in theory and research*: 225–243. New York: Prentice-Hall.
- Ancona, D. G., & Caldwell, D. F. 1992. Bridging the boundary: External activity and performance in organizational teams. *Administrative Science Quarterly*, 37: 634–665.
- Armstrong, D., & Cole, P. 1996. Managing distances and differences in geographically distributed work groups. In S. E. Jackson & M. Ruderman (Eds.), *Diversity in work teams*: 187–215. Washington DC: American Psychological Association.
- Balkundi, P., & Harrison, D. A. In press. Ties, leaders, and time in teams: Strong inference about network structure's effects on team viability and performance. *Academy of Management Journal*.
- Bames, L. B., & Kriger, M. F. 1986. The hidden side of organizational leadership. *Sloan Management Review*, 28(1): 15–26.
- Blau, P. M. 1969. *The dynamics of bureaucracy: A study of interpersonal relations in two government agencies* (2nd ed.). Chicago: University of Chicago Press.
- Bourdieu, P. 1986. The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education*: 241–258. New York: Greenwood Press.
- Borgatti, S. P., Everett, M. G., & Freeman, L. C. 2002. *UCINET 6 for Windows*. Columbia, SC: Analytic Technologies.
- Brass, D. J. 1984. Being in the right place: A structural analysis of individual influence in an organization. *Administrative Science Quarterly*, 29: 518–539.
- Brass, D. J. 1985. Technology and the structuring of jobs: Employee satisfaction, performance, and influence. *Organizational Behavior and Human Decision Processes*, 35: 216–240.
- Brass, D. J. 1992. Power in organizations: A social network perspective. *Research in Politics and Society*, 4: 295–323.
- Brass, D. J., & Burkhardt, M. E. 1992. Centrality and power in organizations. In N. Nohria & R. Eccles (Eds.), *Networks and organizations: Structure, form, and action*: 191–215. Boston: MA: Harvard Business School Press.
- Brass, D. J., & Labianca, G. 1999. Social capital, social liabilities, and social resources management. In R. T. A. J. Leenders & S. M. Gabbay (Eds.), *Corporate social capital and liability*: 323–338. Boston: Kluwer Academic.
- Burt, R. S. 1983. Range. In R. S. Burt & M. J. Miner (Eds.), *Applied network analysis: A methodological introduction*: 176–194. Beverly Hills, CA: Sage.
- Burt, R. S. 1987. Social contagion and innovation: Cohesion versus structural equivalence. *American Journal of Sociology*, 92: 1287–1335.
- Burt, R. S. 1992. *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University Press.
- Burt, R. S. 2000. The network structure of social capital. *Research in Organizational Behavior*, 22: 345–423.
- Chowdhry, K., & Newcomb, T. M. 1952. The relative abilities of leaders and non-leaders to estimate opinions of their own groups. *Journal of Abnormal Social Psychology*, 47: 51–57.
- Coleman J. S. 1988. Social capital in the creation of human capital. *American Journal of Sociology*, 94(Supplement): S95–S120.
- Coleman, J. S. 1990. *Foundations of social theory*. Cambridge, MA: Harvard University Press.
- Coser, L. A. 1956. *The functions of social conflict*. New York: Free Press.
- Duncan, R. 1974. Modifications in decision structure in adapting to the environment: Some implications for organizational learning. *Decision Sciences*, 5: 705–725.
- Edmondson, A. 1999. Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, 44: 350–383.
- Etzioni, A. 1965. Dual leadership in complex organizations. *American Sociological Review*, 30: 688–698.
- Feld, S. L. 1981. The focused organization of social ties. *American Journal of Sociology*, 86: 1015–1035.
- Fernandez, R. M. 1991. Structural bases of leadership in intraorganizational networks. *Social Psychology Quarterly*, 54: 36–53.
- Festinger, L., Schacter, S., & Back, K. 1950. *Social pressures in informal groups: A study of human factors in housing*. Palo Alto, CA: Stanford University Press.
- Firebaugh, G. 1980. Groups as contexts and frog ponds. In K. H. Roberts & L. Burstein (Eds.), *Issues in aggregation*: 43–52. San Francisco: Jossey-Bass.
- Frank, K. A., & Yasumoto, J. Y. 1998. Linking action to social structure within a system: Social capital within and between subgroups. *American Journal of Sociology*, 104: 642–686.
- Freeman, L. C. 1979. Centrality in social networks: Conceptual clarification. *Social Networks*, 1: 215–239.
- Freeman, L. C., Roeder, D., & Mulholland, R. R. 1980. Central-

- ity in social networks: II. Experimental results. *Social Networks*, 2: 119–141.
- Fukuyama, F. 1995. *Trust: Social virtues and the creation of prosperity*. London: Hamish Hamilton.
- Gargiulo, M., & Benassi, M. 2000. Trapped in your own net? Network cohesion, structural holes, and the adaptation of social capital. *Organization Science*, 11: 183–196.
- Geletkanycz, M. A., & Hambrick, D. C. 1997. The external ties of top executives: Implications for strategic choice and performance. *Administrative Science Quarterly*, 42: 654–681.
- Gladstein, D. 1984. Groups in context: A model of task group effectiveness. *Administrative Science Quarterly*, 29: 499–517.
- Graen, G. B. & Uhl-Bien, M. 1995. Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *Leadership Quarterly*, 6: 219–247.
- Gruenfeld, D. H., Matorana, P. V., & Fan, E. T. 2000. What do groups learn from their worldiest members? Direct and indirect influence in dynamic teams. *Organizational Behavior and Human Decision Processes*, 82: 45–59.
- Guzzo, R. A., & Shea, G. P. 1992. Group performance and intergroup relations in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial organizational psychology*, vol. 3 (2nd ed.): 269–313. Palo Alto, CA: Consulting Psychologists Press.
- Hackman, J. R. 1987. The design of work teams. In J. Lorsch (Ed.), *Handbook of organizational behavior*: 315–342. Englewood Cliffs, NJ: Prentice-Hall.
- Hansen, M. T. 1999. The search-transfer problem: The role of weak ties in sharing knowledge across organizational subunits. *Administrative Science Quarterly*, 37: 422–447.
- Hansen, M. T., Mors, M. L., & Løvås, B. 2005. Knowledge sharing in organizations: Multiple networks, multiple phases. *Academy of Management Journal*, 48: 776–793.
- Hensley, T. R., & Griffin, G. W. 1986. Victims of groupthink: The Kent State University Board of Trustees and the 1977 gymnasium controversy. *Journal of Conflict Resolution*, 30: 497–531.
- Ibarra, H. 1993. Personal networks of women and minorities in management: A conceptual framework. *Academy of Management Review*, 18: 56–87.
- Klein, K. J., Dansereau, F., & Hall, R. J. 1994. Level issues in theory development, data collection, and analysis. *Academy of Management Review*, 19: 195–229.
- Knoke, D., & Burt, R. S. 1983. Prominence. In R. S. Burt & M. J. Miner (Eds.), *Applied network analysis: A methodological introduction*: 195–222. Beverly Hills, CA: Sage.
- Krackhardt, D. 1992. The strength of strong ties: The importance of Philos in organizations. In N. Nohria & R. G. Eccles (Eds.), *Networks and organizations: Structure, form and action*: 216–239. Boston: Harvard Business School Press.
- Krackhardt, D. 1999. The ties that torture: Simmelian tie analysis in organizations. *Research in the Sociology of Organizations*, 16: 183–210.
- Krackhardt, D., & Brass, D. J. 1994. Intraorganizational networks: The micro side. In S. Wasserman & J. Galaskiewicz (Eds.), *Advances in social network analysis: Research in the social and behavioral sciences: 207–229*. Thousand Oaks, CA: Sage.
- Kramer, R. M., Hanna, B. A., Su, S., & Wei, J. 2001. Collective identity, collective trust, and social capital: Linking group identification and group cooperation. In M. E. Tumer (Ed.), *Groups at work: Theory and research*: 173–196. Mahwah, NJ: Lawrence Erlbaum Associates.
- Labianca, G., & Brass, D. J. 2006. Exploring the social ledger: Negative relationships and negative asymmetry in social networks in organizations. *Academy of Management Review*, 31: 596–614.
- Lawler, E. J. 1993. From revolutionary coalitions to bilateral deterrence: A nonzero-sum approach to social power. In J. K. Murnighan (Ed.), *Social psychology in organizations*: 269–295. Englewood Cliffs, NJ: Prentice-Hall.
- Leana, C. R., & Van Buren H. J., III. 1999. Organizational social capital and employment practices. *Academy of Management Review*, 24: 538–555.
- Levine, D. N. 1991. Simmel and Parsons reconsidered. *American Journal of Sociology*, 96: 1097–1116.
- Manson, P. 1993. What is a group? A multilevel analysis. *Advances in Group Processes*, 10: 253–281.
- Manz, C. C., & Sims, H. P. 1993. *Business without bosses: How self-managing teams are building high-performing companies*. New York: Wiley.
- March, J. G., & Sevon, G. 1988. Gossip, information and decision making. In J. G. March (Ed.), *Decisions and organizations*: 429–442. Oxford: Blackwell.
- Marsden, P. V. 1990. Network data and measurement. *Annual Review of Sociology*, 16:435–463.
- McCauley, C. 1989. The nature of social influence in groupthink: Compliance and internalization. *Journal of Personality and Social Psychology*, 57: 250–260.
- Mechanic, D. 1962. The sources of power for lower participants in complex organizations. *Administrative Science Quarterly*, 7: 349–364.
- Meindl, J. R. 1995. The romance of leadership as a follower-centric theory. *Leadership Quarterly*, 6: 329–341.
- Milliken, F. J., & Martins, L. L. 1996. Searching for common threads: Understanding the multiple effects of diversity in organizational groups. *Academy of Management Review*, 21: 402–433.
- Mohrman, S. A., Cohen, S. G., & Mohrman, A. M., Jr. 1995. *Designing team-based organizations: New forms for knowledge work*. San Francisco: Jossey-Bass.
- Moorhead, G., & Montanari, J. R. 1986. An empirical investigation of the groupthink phenomenon. *Human Relations*, 39: 399–410.
- Morey, N. C., & Luthans, F. 1991. The use of dyadic alliances in informal organization: An ethnographic study. *Human Relations*, 44: 597–618.
- Nahapiet, J., & Ghoshal, S. 1998. Social capital, intellectual

- capital, and the organizational advantage. *Academy of Management Review*, 23: 242–266.
- Napier, R. W., & Gershenfeld, M. K. 1999. *Groups: Theory and experience* (6th ed.). Boston: Houghton Mifflin.
- Perry-Smith, J. E., & Shalley, C. E. 2003. The social side of creativity: A static and dynamic social network perspective. *Academy of Management Review*, 28: 89–106.
- Portes, A. 1998. Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, 24: 1–24.
- Portes, A., & Sensenbrenner, J. 1993. Embeddedness and immigration: Notes on the social determinants of economic action. *American Journal of Sociology*, 98: 1320–1350.
- Pruitt, D., & Rubin, J. Z. 1986. *Social conflict: Escalation, stalemate, and settlement*. New York: Newberry Award Records.
- Putnam, R. 1993. *Making democracy work: Civic traditions in modern Italy*. Princeton, NJ: Princeton University Press.
- Reagans, R., & Zuckerman, E. W. 2001. Networks, diversity, and productivity: The social capital of corporate R&D teams. *Organization Science*, 12: 502–517.
- Rousseau, D. M. 1985. Issues of level in organizational research: Multi-level and cross-level perspectives. *Research in Organizational Behavior*, 7: 1–37.
- Seibert, S. E., Kraimer, M. L., & Liden, R. C. 2001. A social capital theory of career success. *Academy of Management Journal*, 44: 219–237.
- Shaw, M. E. 1964. Communication networks. *Advances in Experimental Social Psychology*, 1: 11–147.
- Shaw, M. E. 1976. *Group dynamics*. New York: McGraw-Hill.
- Sherif, M. 1967. *Social interaction: Process and products*. Chicago: Aldine.
- Simmel, G. 1955. The web of group affiliations. In *Conflict and the web of group affiliations*: 125–195. Glencoe, IL: Free Press.
- Snijders, T. A. B. 1999. Prologue to the measurement of social capital. *Tocqueville Review*, 20(1): 27–44.
- Soda, G., Usai, A., & Zaheer, A. 2004. Network memory: The influence of past and current networks on performance. *Academy of Management Journal*, 47: 893–906.
- Sparrowe, R. T., Liden, R. C., Wayne, S. J., & Kraimer, M. L. 2001. Social networks and the performance of individuals and groups. *Academy of Management Journal*, 44: 316–325.
- Tajfel, H., & Turner, J. C. 1985. Social identity theory of intergroup behavior. In S. Worchel & W. G. Austin (Eds.), *Psychology of intergroup relations* (2nd ed): 7–24. Chicago: Nelson-Hall.
- Tannenbaum, A. S. 1968. *Control in organizations*. New York: McGraw-Hill.
- Thomas, J. B., & McDaniel, R. R. 1990. Interpreting strategic issues: Effects of strategy and the information-processing structure of top management teams. *Academy of Management Journal*, 33: 286–306.
- Thompson, J. D. 1967. *Organizations in action*. New York: McGraw-Hill.
- Tichy, N. 1973. An analysis of clique formation and structure in organizations. *Administrative Science Quarterly*, 18: 194–208.
- Tsai, W. 2001. Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance. *Academy of Management Journal*, 44: 996–1004.
- Tushman, M. L. 1977. Special boundary roles in the innovation process. *Administrative Science Quarterly*, 22: 587–605.
- Verbrugge, L. 1979. Multiplexity in adult friendships. *Social Forces*, 56: 576–597.
- Walker, G., Kogut, B., & Shan, W. 1997. Social capital, structural holes and the formation of an industry network. *Organization Science*, 8: 109–125.
- Wasserman, S., & Faust, K. 1994. *Social network analysis: Methods and applications*. New York: Cambridge University Press.
- Weick, K. E. 1979. *The social psychology of organizing* (2nd ed.). Reading, MA: Addison-Wesley.
- Wellman, B. 1992. Which types of ties and networks provide what kinds of social support. In *Advances in group processes*. 9: 207–235.

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