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Social Networks and Marketing

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ized products. In contrast, very little information was shared among greeting card companies, which served the national market and competed on design creativity rather than price and delivery. Hence, one must be careful to generalize about the amount of information sharing among competing firms. As common sense suggests and this study supports, whether or not competitive considerations preclude sharing information about purchased products is strongly related to the intensity of rivalry among them. Still, since interfirm contacts have been observed in several studies and industries, it appears safe to use as baseline assumption that such contacts are likely to exist (e.g., Czepiel 1974).

Martilla (1971) also finds that opinion leaders were more exposed to impersonal sources of information than other buying influentials in the firm were. This is consistent with the two-step flow hypothesis mentioned in our discussion of opinion leadership in Chapter 4.

In a smaller study of 58 firms, Webster (1970) similarly finds that buying firms engaged in a fair amount of communication with other buying firms. About 20% of the respondents reported talking with buyers in other firms; this percentage remained constant across the awareness, interest, and evaluation stages. More respondents reported talking to other firms' engineers, and this fraction increased from about 25% at the awareness stage, to about 35% at the interest stage, to about 45% at the evaluation stage. Respondents were unanimous in reporting that they would not contact anyone previously unknown to them when searching for information. They limited their search mostly to nearby firms. Unsurprisingly, the regional association of purchasing professionals seemed to play an important role in acquainting purchasing people with one another. Several other studies that document the presence and effects of inter-organizational networks are discussed in the next chapter.

In short, existing network research into industrial buying indicates that industrial marketers and salespeople who understand the informal network within the DMU will better understand who the true influentials are, and how information and influence from outside the firm can seep into the DMU and must be reckoned with.

Inter-organizational Networks

As noted earlier, the potential benefits of social capital include improved coordination, access to resources, control over the flow of resources, and status. These benefits also apply to networks in which firms and other organizations, rather than consumers or employees, are the nodes. In this chapter, we focus on five substantive areas where the structure of inter-organizational networks matters: coordinating channels, accessing resources through alliances, gaining status, managing competition, and adopting new suppliers, technologies, and practices.

Coordinating Channels

Most existing knowledge on channel coordination stems from dyadic research. Two issues have been studied extensively: (1) power and conflict and (2) the development of long-term relationships over time. Until the late 1980s, most research applied ideas from social psychology and social exchange theory to channel dyads (e.g., Emerson 1962; Thibaut and Kelly 1959). Subsequent applications of the transaction cost approach (Williamson 1975, 1985) to issues of inter-organization coordination strengthened the focus on the isolated dyadic transaction. Game-theoretical analyses go beyond dyads, but focus only on very stylized network structures. As a result, we know much about dyadic-relational issues such as relational affect and attitudes, relationship continuity and trust, personal attachments, the history of inter-firm cooperation, and coordination failures due to poor incentive alignment, but very little about how these issues are affected by network structure. Further, there has been virtually no attention in channel research to the network exchange literature developed in the late 1980s and 1990s (Cook and Whitmeyer 1992; Markovsky, Willer, and Patton 1988). This is rather odd, since this stream of theory and research focuses on coordination and conflict issues, with particular attention to power (e.g., Skvoretz and Willer 1993) and justice (e.g., Molm, Quist, and Wiseley 1994)—issues that channel researchers have studied for decades from a purely dyadic perspective.

Few marketing studies have examined the governance implications of triadic or network structures. A recent exception is Wathne and Heide's (2004) examination

of the fashion apparel industry in which they surveyed both apparel companies and their retailer-customers. They find that apparel companies' efforts in qualifying and selecting their upstream suppliers increased their ability to accommodate uncertainty in the downstream market. Another exception is an experimental study of computer network buyers by Wuyts et al. (2004). They find that buyers' preference for strong ties with their systems integrators varied as a function of these vendors' portfolio of upstream ties to suppliers. Both studies point to the need to go beyond dyadic accounts when thinking about channel structure and coordination issues. Below, we discuss why networks matter in terms of channel coordination.

Network Structure Effects on Coordination Network closure supports several mechanisms relevant to channel coordination: boosting reputational effects, boosting the emergence of cooperative norms, and diminishing the possibility of exploitative brokering. Two-step leverage is a fourth mechanism we discuss, but one that does not require closure.

Closure and reputation As is well known from the "Iterated Prisoners' Dilemma" and similar game-theoretical problems, efficient cooperation between two actors is more likely to occur when each knows and remembers the other's prior actions (e.g., Axelrod 1984). The same idea applies to situations where a focal actor plays the game repeatedly with a different counterpart in every round, but where the focal actor's alters have high closure so they can share information about the focal actor (e.g., Raub and Weesie 1990). Buyers can communicate the supplier's opportunistic exploitation to other potential buyers (Macaulay 1963; Raub and Weesie 1990), and thus, damage the supplier's reputation as a trustworthy exchange partner (Dollinger, Golden, and Saxton 1997) and eventually even cause the supplier to lose future contracts (Greif 1993; Houston and Johnson 2000). This reputation mechanism is most effective when information is easily communicated throughout the network, i.e., when network density and network centrality are high (Buskens 1998).²⁰ In this regard, Antia and Frazier (2001) survey 213 managers in franchisor organizations and investigate the effect of franchisees' network density and centrality on how severely the franchisor enforces the contract in the case of contract violations. They find that enforcement is weaker in cases of higher density and severity. Their interpretation is that other network members could view severe enforcement as unfair, which might lead to a negative backlash against the "unfair" franchisor.

In addition to facilitating the punishment of opportunistic behavior, network closure can facilitate the rewarding of honest and benevolent behavior. Both good and bad news travel more rapidly and extensively among a focal actor's trading partners in a dense network.

Closure and cooperative norms Because network closure increases feelings of identification and commonality with other actors, it also facilitates the emergence of group norms that serve as standards for appropriate behavior. Attempts to violate clear group norms can trigger stronger reactions among network members than attempts to violate unclear norms. Wuyts and Geyskens (2005) interviewed 177 purchasing managers at small and medium-sized firms about the governance of purchasing agreements with supplier firms. They find that detailed contracts are more effective governance mechanisms for reducing opportunism when the dyadic exchange relationship is more strongly embedded in a network of mutual contacts (i.e., when closure is high). Thus, the authors argue, in addition to fostering the reputational mechanism, closure fosters the emergence of norms regulating behavior and legitimating group sanctions in case of contract violations.

Closure and protection against exploitative brokering Closure can also mitigate information transfer problems associated with structural holes. When the vendor serves as go-between for otherwise unconnected firms, as in systems selling where the vendor bridges the structural hole between buyer and suppliers, the vendor firm might exploit this position and selectively pass on information from the upstream component suppliers to the downstream buyer firm. Buyers can avoid this information asymmetry by building ties directly with component suppliers, i.e., by increasing closure and reducing the structural holes in the information network (Wuyts et al. 2004).

Two-step leverage Triads may also assist actors in accessing and mobilizing resources indirectly through "two-step" leverage. In a study of an agro-business cooperative, Gargiulo (1993) examines a social network of 59 actors and finds that leaders built cooperative ties with actors who were in a position to affect their performance directly. When policy divergences or personal frictions made such ties untenable, leaders built strong ties with third parties able to influence those actors. Two-step leverage in an open triad may replace direct leverage in a dyad, as Gargiulo documents. However, two-step leverage can also be used in closed triads to further strengthen direct leverage in a dyad. For example, a customer who feels he is being treated unfairly by a car dealer can call upon the car manufacturer to exert influence on the car dealer. Also, vendors such as car dealers and systems integrators may try harder and treat their customers better if they know that periodic satisfaction surveys offer customers the opportunity to commend them to manufacturers.

The effectiveness of two-step leverage is largely contingent upon the third party's willingness and ability to exert influence. In a conjoint experiment, Wuyts and colleagues (2004) find that buyers have a stronger preference for system integrators with intensive ties to component suppliers if the buyers themselves have direct ties to com-

ponent suppliers. Such preferences are consistent with two-step leverage: calling upon supplier firms to constrain a vendor is likely to be more effective if these supplier firms have intensive contacts with the buyer as well as the vendor.

Network Structure and Affective Commitment Although firm interactions may be mostly calculative, as Williamson (1996) posits, there are indications of affective dimensions as well (e.g., Kumar, Scheer, and Steenkamp 1995a, 1995b). The network structure in which channel participants are embedded will affect the degree to which they experience the economic or technical need to maintain a particular relationship; this is often referred to as their "calculative commitment" to these relationships (e.g., Geyskens et al. 1996). However, network structure may also impact channel members' "affective commitment," i.e., the extent to which they would like to maintain their relationship with specific partners, regardless of economic consequences. As we have discussed, strong ties and closure can increase feelings of identification with other actors, which in turn can lead to affective commitment. A case study of the New York City garment industry by Uzzi (1997) shows that actors embedded in personal and business networks sometimes decided to maintain ties with business partners even if that clearly deviated from maximizing their own economic interests in the short and long term.

Adverse Effects of Social Networks in Channel Coordination While social networks may contribute to channel coordination, one should not overlook potential adverse effects. As noted above, relational continuance can supersede economic imperatives in case of close social networks. Networks also create the possibility of multiple actors colluding against one other actor (Simmel 1950), leading to distrust that increases the level of opportunism. Moreover, exercising punishment power (through reputation, norm enforcement, or two-step leverage mechanisms) may intensify rather than alleviate inter-firm conflict (Lusch 1976), and consequently enhance opportunism in the dyad (John 1984). As discussed above, Antia and Frazier (2001) find that being centrally located or being part of a dense network constrained a firm from severely enforcing contracts, even in the presence of a contractual violation. However, as Wuyts and Geyskens (2005) point out, network closure may also reduce the incidence of such opportunistic contractual violations.

Accessing Resources Through Alliances

Firms ally with other firms primarily to gain access to external resources. Alliances enable firms to build critical mass to jointly fend off competition (often observed in the telecom and airline industries), access complementary technology for complex products (such as the cooperation between Apple, Sony, and Sharp for lap-

tops), or access complementary marketing resources (such as alliances between pharmaceutical firms with a large sales force and biotech start-ups, or that between PepsiCo and Starbucks to commercialize the latter's DoubleShot and Frappuccino products). The alliance allows partners to identify available resources, but to realize the actual transfer of resources, the conditions of opportunity, motivation, and ability must be met. Below, we discuss how network structure can facilitate these conditions.

Identifying Network Resources In order to access external resources, one first needs to locate them. We have already discussed Granovetter's (1973) strength-of-weak-ties argument and noted that its key insight is about redundancy, not tie strength. We have also discussed the search-transfer problem, noting the benefits of bridging weak ties in locating new knowledge but their limitation in transferring that knowledge when it is complex rather than simple (Hansen 1999) or when it is very valuable (Frenzen and Nakamoto 1993).

A very interesting study by Rowley, Behrens, and Krackhardt (2000) investigates alliance networks in the steel-producing and semiconductor-manufacturing industries, and finds that a firm holding strong inter-firm ties performs better if the network of these ties is characterized by low density. This is consistent with the idea that, in the absence of network redundancy, strong ties are more valuable than weak ties. Interestingly, high closure among a firm's partners decreases performance in the semiconductor industry (where exploring new ideas is important) and increases performance in the steel industry (where exploiting existing ideas is important). This is consistent with the idea that the presence of bridging ties in the network boosts the search for new information, whereas network closure boosts the transfer and exploitation of knowledge.

Two other studies illustrate the importance of network nonredundancy for search and exploration. Wuyts, Dutta, and Stremersch (2004) examine alliance networks in the biopharmaceutical industry, where exploration is paramount, and find that firms with partners in diverse technological fields are more innovative than those with partners in overlapping technological fields. Rindfleisch and Moorman (2001) observe that tie strength and knowledge redundancy were inversely related in the alliance settings they studied. Horizontal alliances between competitors were characterized by low tie strength but high knowledge redundancy, whereas vertical alliances between channel members were characterized by high tie strength but low knowledge redundancy.

Accessing Network Resources Tie strength is a crucial explanatory variable in resource transfer. As discussed in Chapter 2, "tie strength" captures both the intensity and valence of interaction. Tie intensity (frequency of contact) determines the partners' ability to share resources. Valence is directly related to the motivation to

share resources: if positive, both parties are more likely to be willing to exchange information. For instance, when firms in a learning alliance are also competing in markets beyond its scope, the alliance often fails since both firms try to leak as little knowledge as possible (Doz and Hamel 1998).

Tie strength is especially crucial for accessing knowledge that is complex (requiring higher ability for sharing to take place) and has proprietary value (requiring a higher motivation). Studies by Hansen (1999), Szulanski (1997), and Szulanski, Cappetta, and Jensen (2004) document how the understanding and absorption of more complex knowledge requires intensive interaction and relation-specific heuristics. A qualitative study at several Chicago-area banks (Uzzi and Lancaster 2003) finds that arm's-length ties were a popular means of accessing knowledge that was simple and publicly available, whereas the same ties inhibited effective transfer of private knowledge. Similarly, a study of franchised pizza restaurants finds that valuable procedural knowledge gained through learning-by-doing was shared with other units, but that the transfers were limited to units owned by the same franchisee (Darr, Argote, and Epple 1995).

The effects of closure and two-step leverage we discussed in the realm of channel coordination apply to alliances as well. Bae and Gargiulo (2004), for instance, analyze alliances in the U.S. telecommunications industry and find that a firm facing nonsubstitutable (and hence powerful) partners was better off when its alliances were embedded in third-party ties, which allowed the firm to gain indirect leverage in addition to direct leverage on such alliance partners.

Adverse Effects of Alliance Networks in Accessing External Resources The downside to using the network to access resources and knowledge transfer is knowledge leakage (Dutta and Weiss 1997). Networks that facilitate the assimilation of knowledge also enhance the risk of leaking strategically important knowledge to competitors since a firm's exchange partner may have ties with the focal firm's competitors. The exchange partner may also exploit its structural position in between the focal firm and its competitor, and collude with the competitor against the focal firm. Alternatively, the partner in the middle may play the focal firm and its competitor against each other (the *divide et impera* principle).

Gaining Status from One's Network

An important manifestation of the network as a resource is the perceived quality of a firm and its products (Podolny 1993, 2005; Stuart, Hoang, and Hybels 1999). Just as consumers use brand names to infer unobservable product quality, so do people and firms sometimes use a firm's network to make inferences about that firm and its products. This is called a status effect. Note that status is different from reputa-

tion: "Whereas reputation is a signal of quality and an indication of future behavior that is based largely on prior actions and behaviors, status is a signal of quality and an indication of future behavior that is based largely on the positions that occupants hold.... With status, there is an assumption that prior actions or achievements at some point led to one's position, but it is because of the positions themselves that occupants are accorded respect or not" (Smith 2005, p. 8). In practical terms, it is the difference between "I expect this firm will do well because it has performed well in the past" (reputation) and "I expect this firm will do well because it is connected to several prestigious firms" (status). Sometimes, the mere number of a firm's alliance partners can serve as a basis of quality and social status (Baker, Faulkner, and Fisher 1998).

A study of law firms in a large Midwestern city indicates that law firms with higher status, in the sense of belonging to a cluster of structurally equivalent law firms that serve more profitable clients, were able to negotiate higher prices (Uzzi and Lancaster 2004). This suggests that status derived from network position has dollar value. A study by Jensen (2003) of commercial banks' entry into investment banking between 1991 and 1997 finds that network status facilitated market entry. Also consistent with the interpretation that status is a proxy for unobserved quality, the effect decreased over time after market entry and network status was less important to customers with more market experience.

Managing Competition

Ties between competitors may not always be negative in valence. Managers of competing firms may form friendships. Cohesive friendship networks among competitors—characterized by strong ties, local closure, and overall density—can even lead to higher performance (Ingram and Roberts 2000). They do so by enhancing information exchange among firms and increasing collaboration, which may ultimately benefit customers, and also by mitigating competition, which in the extreme may result in tacit or explicit collusion.

Cohesive friendship networks may be especially important to maintaining collusion against customers who seek to play competitors against one another. Ingram and Roberts (2000) give examples from the Sydney hotel industry, where customers can negotiate lower prices by pitting one hotel against the other but where friendship networks among hotel managers contain the extent of competitive behavior. Density, however, also increases the chance of detection by investigators in truly collusive arrangements, as it is easier to be linked to other malefactors. Baker and Faulkner (1993) find that centrally located managers in three price-fixing conspiracies had a higher chance of being found guilty and tended to receive stiffer sentences.

Multi-market contact among firms—which occurs when firms encounter the same rivals in many markets—may also soften competition (e.g., Gimeno and Woo 1999). It may strengthen oligopolistic coordination since the gains from aggressive competitive behavior in one market may be weighed against the danger of retaliatory forays by the competitor in other markets, especially in markets where the firm has more to lose. This suggests that suppliers with strongly overlapping segment or customer portfolios, i.e., with strong structural equivalence, may be able to better manage their rivalry than suppliers with lower levels of overlap and equivalence. This is somewhat at odds with the standard interpretation of equivalence as a metric of rivalry, and suggests the possibility of an inverse U-shaped relationship between structural equivalence and extent of competitive intensity between firms. However, we are not aware of any investigation into this conjecture. Moreover, contact over many markets also adds complexity, which may inhibit effective coordination (Evans and Kessides 1994). In short, the interrelationship between multi-market contact, structural equivalence, and the ability to manage competition is intriguing, but merely conjectural at this time.

Adopting New Suppliers, Technologies, and Practices

Our discussion of industrial buying behavior noted that members of decision-making units may use ties that cross firm boundaries to collect information. Here we discuss a few studies that explicitly study the role of inter-firm network ties in the context of adoption behavior.

Money, Gilly, and Graham (1998) examine how national culture affects referral behavior for industrial services such as advertising, banking, and accounting. Both U.S. and Japanese firms tended to rely more on strong ties outside their country of origin than in their own home market. This suggests that when uncertainty is higher, firms turn to stronger rather than weaker ties. This runs against a naïve interpretation of “the strength of weak ties” but is consistent with the more nuanced and accurate interpretation that strong ties are better at providing support and complex information.

An intriguing finding is that the referral networks that firms (either U.S. or Japanese) used outside their country of origin had more degree and betweenness centralization than those in their own home market. This might be because firms used central intermediaries to introduce them to others abroad, but also because firms chose to avoid closure in foreign countries out of fear of becoming overly dependent on a clique of densely interconnected alters. The data reported in the study do not allow one to adjudicate between these two possibilities.

In a study of 32 steel mills, Czepiel (1974, 1975) finds that they had regular opinion/advice relationships with on average two to three other firms in the indus-

try. When considering the adoption of continuous casting as a new production method, steel mills contacted on average five to six other steel mills. Also, Czepiel finds that there were two cohesive subgroups. Members of the first subgroup consisted mostly of mini-mills and had several referral ties to the members of the other group consisting mostly of Big Steel firms, whereas only one tie went in the other direction. In other words, the network had the high status-low status structure described in our discussion of blockmodeling in Chapter 2. Interestingly, Czepiel finds no association between time of adoption and being an opinion leader (measured as number of nominations received, i.e., in-degree). So, the cautionary remark we made about not confusing being an influential consumer with being an early adopter translates to business markets as well.

A study of the diffusion of new technologies in the Australian insurance industry finds a very different network structure than Czepiel does in the U.S. steel industry. While the latter finds two densely interconnected subgroups with a high status-low status structure between them, Midgley, Morrison, and Roberts (1992) find a network without any subgroup. Instead, there were three firms centrally located in the network but with considerable overlap in their alters. The contrast between these two studies clearly indicates that it is hard to predict what network structure will occur in what industry unless one has at least some a priori knowledge about institutional details.

Finally, we draw attention to a branch of organizational theory called neoinstitutionalism. This research tradition suggests that “technical” and “utilitarian” mechanisms such as awareness, risk reduction, and competitive concerns are likely to operate early rather than late in the diffusion process, whereas the opposite is suggested for normative pressures. A study by Westphal, Gulati, and Shortell (1997) on the adoption of Total Quality Management (TQM) among 2,700 U.S. hospitals provides some support for this idea. They find that early adopters of TQM customized quality practices to the hospital’s specific needs and capabilities, whereas late adopters were more likely to mimic TQM models adopted in other hospitals. Also, the mimetic behavior of late adopters was stronger for hospitals that had more ties to other hospitals that had already adopted TQM (pointing at conformity rather than economic efficiency as main motivation to adopt among late adopters). Not surprisingly, TQM provided significantly less economic benefits to late adopters. A study by Kraatz and Zajac (1996), however, finds little support for the hypothesis that technical considerations matter more early than late in the diffusion process. At this time, the conjecture must be treated as an interesting idea rather than as a documented fact.