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A Network Perspective on Marketing Strategy Performance

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Introduction

Given its historical focus on exchange relationships (Jones and Monieson 1990), marketing has a long tradition of examining dyadic relationships involving buyers and sellers (e.g., Heide 1994), channel partners (Anderson and Narus 1990), and two-party alliances (Bucklin and Sengupta 1993). Often, however, these dyadic relationships are embedded in a larger set of exchange relations called a network (Iacobucci and Hopkins 1992). A network is a group of actors or social entities connected by a set of linkages through which they exchange information or resources, or both (Borgatti and Foster 2003). During the 1990s, a number of prominent marketing strategy scholars suggested that networks will represent the dominant form of economic organization and exchange in the 21st century (e.g., Webster 1992; Anderson, Håkansson, and Johanson 1994; Achrol and Kotler 1999).

The network perspective has been applied to a broad domain of substantive issues across multiple disciplines. In recent years, the network literature has exploded as researchers have come to appreciate the importance of relational and contextual understandings of social and economic life (see Borgatti and Foster 2003 for a research review, Gladwell 2002 for illustrations of network activity in

daily life, and the University of Virginia's "The Oracle of Bacon at Virginia" at www.cs.virginia.edu/oracle for a fun illustration of network ties). In particular, network traditions in sociology (e.g., Freeman 1979; Burt 1992), economics (e.g., Granovetter 1985; Podolny and Page 1998), strategic management (e.g., Pfeffer 1972; Gulati 1998), and organizational science (e.g., Brass 1984; Krackhardt 1990) have had an especially important impact on marketing by shaping the network concepts and tools used by marketing scholars (see Table 1). As documented in this chapter, the logic and techniques used in many strategic marketing network studies provide insights relevant for understanding marketing strategy performance.

Marketing strategy researchers have examined two general types of networks. One body of research examines interorganizational networks, such as networks of alliance partners (e.g., Rindfleisch and Moorman 2001, 2003; Swaminathan and Moorman 2003a, b) and channel members (e.g., Anderson, Håkansson, and Johanson 1994; Antia and Frazier 2001). A second body of research examines intraorganizational networks connecting business units (e.g., Houston et al. 2001) and individual managers within a single business unit (e.g., Ronchetto, Hutt, and Reingen 1989; Bond et al. 2004).

What distinguishes the social network perspective from other approaches for understanding strategic performance? Perhaps the most distinctive feature is that social network analysis focuses on relationships among social entities and on the patterns and implications of these relationships (Wasserman and Faust 1994). The network perspective recognizes that actors and their actions are interdependent. Thus, this perspective focuses on delineating the linkages among actors, assessing the structural and motivational underpinnings of these linkages, and examining their outcomes (Galaskiewicz and Wasserman 1994).

When applying a network perspective to marketing strategy, researchers need to be sensitive to two organizing principles. First, network variables can and do serve as both independent and dependent variables. As an example of network concepts as independent variables, prior research has found that network linkages influence a firm's new product outcomes (Rindfleisch and Moorman 2001) as well as its level of customer orientation (Rindfleisch and Moorman 2003). As an example of network concepts as dependent variables, prior research reveals that network linkages across firms result from a need to reduce a firm's exposure to risk (Gulati 1995) or to obtain information and knowledge that are difficult to obtain by other means (Powell, Koput, and Smith-Doerr 1996).

Second, network relationships can either strengthen or weaken marketing strategy performance. Most network research has highlighted the positive implications of network relationships. However, by creating a rigid set of channels through

Table 1
Selected Empirical Network Studies in Marketing

Paper	Theoretical Domain	Network Level and Focus	Substantive Domain
Anderson, Håkansson, and Johanson (1994)	Interfirm governance	Interorganizational: network identity	Customer-supplier relations
Antia and Frazier 2001	Interfirm governance	Interorganizational: centrality, density	Channel contracts
Bond et al. (2004)	Social capital	Individual: centrality	Cross-functional relations
Frankwick et al. (1994)	Group processes	Intraorganizational: structural equivalence	Cross-functional relations
Frenzen and Davis (1990)	Social capital	Intraorganizational: tie strength	Market embeddedness
Frenzen and Nakamoto (1993)	Word-of-mouth diffusion	Interpersonal: tie strength	Market information flow
Houston et al. (2001)	Social identity	Intraorganizational: centrality	Cross-unit strategy processes
Hutt, Reingen, and Ronchetto (1988)	Strategy formation processes	Intraorganizational: communication ties	Marketing decision making
Hutt et al. (2000)	Group processes	Inter- and intraorganizational: tie strength	New product alliances
Iacobucci and Hopkins (1992)	Social networks	Interpersonal and interorganizational: cliques, equivalence	Opinion leadership and channel power
Money, Gilly, and Graham (1998)	Word-of-mouth diffusion	Interorganizational: centrality, tie strength	Purchasing decisions
Rindfleisch and Moorman (2001)	Organizational learning	Interorganizational: tie strength	New product alliances
Rindfleisch and Moorman (2003)	Customer orientation	Interorganizational: tie strength	New product alliances
Ronchetto, Hutt, and Reingen (1989)	Social capital	Individual: centrality	Influence in purchasing decisions

Paper	Theoretical Domain	Network Level and Focus	Substantive Domain
Swaminathan and Moorman (2003a, b)	Organizational learning, social networks	Interorganizational: network diversity, density, and reputation	Marketing networks
Sirsi, Ward, and Reingen (1996)	Culture	Intraorganizational: tie strength	Consumer beliefs and consumption behavior
Ward and Reingen (1990)	Group processes	Intraorganizational: social cohesion and structural equivalence	Group decision making

which information flows, network relationships may also represent an inertial force that impedes the development and implementation of market initiatives (Frankwick et al. 1994; Houston et al. 2001). Over the past three decades, network researchers have developed a dizzying array of network concepts and analytical tools to operationalize these concepts (see Borgatti, Jones, and Everett 1998 for a review). Table 2 provides an overview of the specific concepts that we believe are most useful for marketing strategy research. In this chapter, we provide an overview of important network concepts as well as illustrative examples from past and current research in the marketing strategy domain that show each concept in action. We also provide a detailed discussion of network analytics. Finally, to help facilitate further inquiry, we suggest some directions for future marketing network research.

Table 2
Network Concepts Useful in Marketing Strategy Research

Concepts	Definition
Network centrality	The nature and level of connectedness in network
Network tie strength	The nature of the relational bond between social actors
Network resources	Resource value of network linkages
Network density	Degree of interconnectedness among actors within a network
Network timing	Time elapsed since first alliance was formed between firms in a given industry pair averaged over all relevant industry pairs
Network diversity	Diversity of information and capabilities across actors within the network
Structural equivalence	Having the same relations with all other members in the network

Key Concepts and Network Tools

This section defines and outlines the key network concepts of centrality, density, diversity, tie strength, and resources and provides examples of how they have been applied to the marketing strategy domain.

Network Centrality

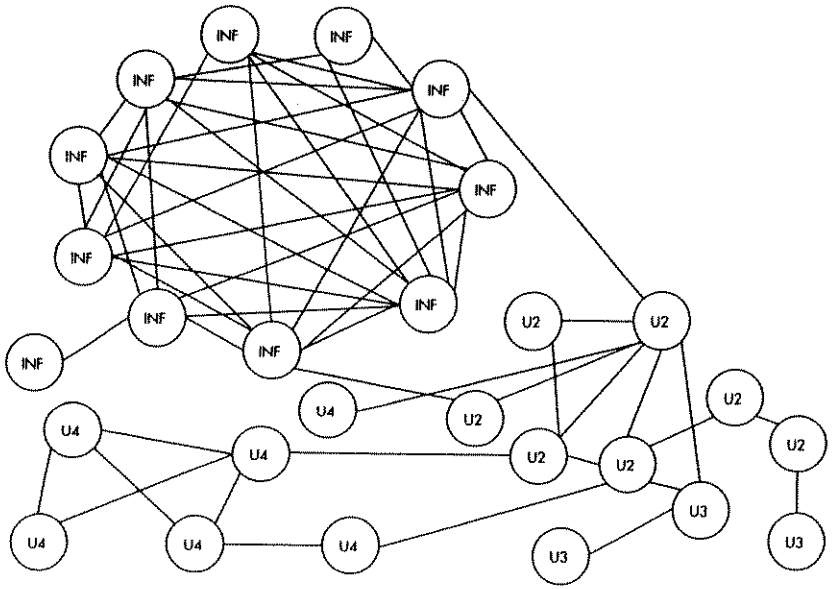
Network centrality has been defined as an actor's involvement in network relations (Leavitt 1951), and reflects the nature and level of connectedness among network actors. Three particular aspects of network centrality have been widely adopted by network analysts: degree, closeness, and betweenness (Freeman 1979). Degree centrality refers to the number of actors to whom a focal actor is directly connected. Prior research has shown that the degree centrality of organizational members is positively associated with the new product development performance of a business unit (Tsai 2001) but negatively associated with the implementation of a new market initiative (Houston et al. 2001).

Closeness centrality is defined as the distance between an actor and other actors in a network, including both direct and indirect linkages. Theoretically, closeness centrality captures an actor's access to information flows in a network; closeness has been linked to power and influence within organizations (Brass 1984; Ronchetto, Hutt, and Reingen 1989; Friedkin 1993) as well as to the reputational effectiveness of cross-functional managers (Bond et al. 2004).

Finally, betweenness centrality is the degree to which an actor is positioned on the shortest path between pairs of other actors. Betweenness centrality is related to an actor's ability to control information flows between other pairs of actors (Brass 1984). Betweenness centrality has been shown to be positively related to innovation and managerial performance (Brass 1984; Mehra, Kilduff, and Brass 2001). These three centrality concepts are more fully described in the section on key technical network tools.

Concept Application (Degree Centrality). Houston et al. (2001) have examined degree centrality to assess the impact of a major structural change (in the case of their study, a shift in ownership of a firm's new Internet business from a business unit called INFOSERVE to Business Unit 2) on the social ties and communication patterns of affected managers (see Figure 1). The authors hypothesized that although the charter for the Internet initiative changed hands from one unit to another, the informal communication patterns among managers would continue to reflect the old (rather than the new) organizational structure.

Figure 1
Degree Centrality Illustration: Strong Ties within and across Units



INF = INFOSERVE Unit
U2, U3, U4 = Other Units

Houston, Mark B., Beth A. Walker, Michael D. Hutt, and Peter H. Reingen (2001), "Cross-Unit Competition for a Market Charter: The Enduring Influence of Structure," *Journal of Marketing* 65 (April), 19-34.

To measure degree centrality, Houston et al. first used the snowball sampling technique (asking an initial set of participants to help identify other possible participants, such that the number of participants snowballs) to identify the set of key managers who were most involved in shaping and competing for the Internet initiative within the firm. Next, they measured the tie strength of all relevant business unit managers. Tie strength is the strength of the relational bond that joins two actors together. The proportion of strong (as opposed to weak) ties that were held by each manager within their own unit was then calculated. Despite the transfer of the charter to a second business unit, strong social ties continued to unite former INFOSERVE managers (as shown in Figure 1), as these managers failed to develop ties to their new colleagues in Unit 2. Using degree centrality as a key dependent measure, the findings clearly demonstrate the inertial forces that develop around the product markets served by business units. Despite charter reassignment, the social network linkages of the former business unit structure continued to endure. As a result, the Internet initiative failed, and was reassigned, once again, to another competing business unit.

Concept Application (Closeness and Betweenness Centrality). Bond et al. (2004) examined the relational skills and informal communication networks of managers who had high levels of reputational effectiveness. Reputational effectiveness is defined as the degree to which a manager has been responsive to the needs and expectations of constituents (Tsui 1984, 1994). Using a two-phase approach, the authors first captured the social network patterns of 268 managers from marketing, R&D, manufacturing, and other business functions who were involved in the new product development process. Specifically, respondents were asked to rate any individuals with whom they interacted at least once every three months. Social contacts within a network were recorded on three dimensions: frequency of interaction, importance of communication, and closeness of the relationship. UCINET IV software (Borgatti, Everett, and Freeman 1992) was used to create measures of closeness and betweenness centrality.

Results indicate that closeness centrality is associated with greater reputational effectiveness. This finding coincides with Kanter's (1988) view that three basic commodities allow managers to achieve their goals: information, resources, and support. Thus, the working relationships of managers with high closeness centrality represent access to others who control these commodities. Betweenness centrality, however, was not found to be related to reputational effectiveness.

Network Density and Network Diversity

Network density is the degree of interconnectedness among actors in a network. In the alliance context, density captures the degree to which a firm's network partners are connected with one another. A key advantage associated with a dense network is the promotion of trust and cooperation among its members (Coleman 1988). First, dense ties promote cooperation by facilitating the diffusion of norms within a network (Meyer and Rowan 1977). Second, because information about deviant behavior can be readily disseminated in a network (and subsequently sanctioned), a dense network can create conditions conducive to establishing norms of cooperation (Walker, Kogut, and Shan 1997). Third, firms in a dense network are aware that their behavior can result in a reputation effect. Therefore, an actor is less likely to cheat other network members, because the other actors are likely to be aware of their actions (Kreps 1990).

Network diversity is the extent to which network partners have unique skills, knowledge, and capabilities. A diverse network provides a firm with access

to complementary and nonredundant information (Burt 1992). Thus, diverse networks are typically viewed as highly efficient due to their lack of redundancy (Baum, Calabrese, and Silverman 2000). Moreover, prior research has observed that a redundant network may limit an actor's ability to gain access to novel information (Uzzi 1999) and may threaten the stability of a network by creating rivalry (Gomes-Casseres 1994).

Concept Application. Swaminathan and Moorman (2003a) examined how network density and network diversity in strategic marketing alliances influence firm performance in the areas of market share, innovativeness, and firm value. They used data drawn from Thomson Financial's SDC Joint Ventures/Strategic Alliances Database (a section of the SDC Platinum Database). They calculated network diversity by examining the degree of overlap in alliance participants' SIC codes. Specifically, they used a variation of the Hirschman-Herfindahl index that computes diversity as one minus the sum of the squared proportion of marketing alliances with partners in each of the different SIC codes divided by the total number of marketing alliances. They calculated network density by assessing the interconnectedness among alliance partners through an analysis of the matrix of ties among a focal firm's marketing partners. This measure of density is obtained by taking the total number of unique relationships between a firm's marketing partners and dividing it by the total number of possible ties among its partners if each partner were tied to every other partner. For example, a firm that has three partners who all have relationships with one another has a density score of 1.0. In contrast, a firm that has three partners only two of whom have relationships with one another would have a density score of .33.

Results reveal that network density has a positive impact on market share but no effect on firm innovativeness or value. These findings suggest that the location of a firm within a dense network of interconnected actors can provide a basis for creating trust and cooperation between alliance partners. Results also suggest that network diversity has a negative impact on firm innovativeness. Additionally, the interaction between the size of the marketing network and network diversity has a significant and negative relationship with firm innovativeness. These results suggest possible benefits of network redundancy (low diversity) on firm performance.

Network Tie Strength

The network perspective also emphasizes the importance of the motives of network actors. The study of network motives dates back to Granovetter's (1973) seminal work on the strength of weak ties, which drew attention to the fact that network linkages vary in terms of the degree of reciprocity and emotional closeness shared

by network actors. Follow-up studies tended to classify network actors as being linked by either a strong tie (indicating close friendship) or a weak tie (indicating a casual acquaintance) and that confidential information is more likely to be transmitted through actors linked by strong ties. In contrast, novel information is more likely to flow though actors connected by weak ties (Frenzen and Nakamoto 1993). This sets up an interesting paradox, as actors with mostly strong ties will have ready access to confidential information, but this information is likely to be largely redundant with their current knowledge base. Thus, a growing number of network researchers recommend that actors should cultivate networks that contain a mixture of both strong and weak ties (Talmud and Mesch 1997; Uzzi 1999).

Concept Application. Rindfleisch and Moorman (2001) investigated the acquisition and utilization of information in multifirm new product alliances. Specifically, they examined information-related practices of firms in alliances dominated by channel members (vertical alliances) as compared with alliances dominated by competitors (horizontal alliances). They argued that strong ties possess two key qualities: first, high levels of relational embeddedness, and second, high levels of knowledge redundancy. Relational embeddedness (e.g., Granovetter 1992) is the degree of reciprocity and closeness among new product alliance participants, while knowledge redundancy (Granovetter 1973; Burt 1992) refers to the degree of overlap in the knowledge base of two or more social actors. In contrast to prior research, which assumes that embeddedness and redundancy go hand in hand, Rindfleisch and Moorman argued that in the context of interorganizational relationships, embeddedness and redundancy may actually be negatively related, as vertical alliance members appear to share high levels of embeddedness but low levels of redundancy (and vice-versa for horizontal relationships). Rindfleisch and Moorman assessed relational embeddedness and knowledge redundancy using two new four-item reflective scales.

Findings reveal that vertical alliances differ from horizontal alliances in displaying higher levels of embeddedness (Vertical = 4.64, Horizontal = 3.81, $p < .01$) and lower levels of redundancy (Vertical = 2.82, Horizontal = 4.54, $p < .001$). In addition, Rindfleisch and Moorman's results suggest that embeddedness is positively related to both information acquisition and utilization, while redundancy is negatively related to information acquisition but positively related to information utilization.

Network Resources

The concept of network resources posits that a firm's network of intra- and interorganizational relationships may serve as an important resource in its quest for sustainable competitive advantage (Gulati 1999; Gulati, Nohria, and Zaheer 2000). The idea that network linkages are valuable and hard to duplicate is related

to the long-standing network concept of social capital (e.g., Coleman 1988; Burt 1997). Thus, network resources and social capital are conceptually akin to, and potentially just as valuable as, a firm's financial or technological resources. Hence, network resources offer one means of evaluating firm valuation.

Concept Application. Anderson, Håkansson, and Johanson (1994) examined the influence of network linkages upon dyadic business relationships by focusing on network attractiveness,[1] which they define as the perceived valence (positive, negative) of a firm as an exchange partner "due to its unique set of connected relations with other firms, links to their activities, and ties with their resources" (p. 4). They suggested that a firm should try to anticipate the effects that a potential dyadic relationship will have on the firm's overall network attractiveness. Specifically, they proposed that the firm should anticipate the degree to which the resources gained from the dyadic relationship will be transferable to other relationships, the degree to which the activities associated with the dyadic relationship will complement the firm's current set of relationships, and the degree to which the formation of the dyadic relationship will affect the way the firm is perceived by other current and potential partners.

Anderson, Håkansson, and Johanson (1994) illustrated these concepts in action through case studies of two European business networks (a saw equipment manufacturer and a printing firm). In addition, they offered some proposed measures for network attractiveness, anticipated constructive effects of a relationship on network attractiveness, and anticipated deleterious effects of a relationship on network attractiveness. All the measures displayed strong face validity and good psychometric properties. Thus, they are a good starting point for researchers interested in assessing network resources.

Key Technical Network Tools[2]

There are three steps a researcher might take in using network analysis to assess marketing strategy performance: identifying network respondents, creating the network instrument, and analyzing the data.

Step 1: Identify Network Respondents (Nodes)

In some studies, the network of interest can be defined prior to data collection. At the intraorganizational level, a researcher might be interested in studying the interactions within or between structurally defined groups, such as marketing and R&D functional groups. In these cases, the researcher can begin by accessing a group or company roster from which the names can be gleaned. Similarly, at the

interorganizational level, if the desire is to study the network within or between clearly identified groups—an industry, for example, or members of a new product alliance—then secondary data sources can be used to identify the relevant population. In many cases, however, the network of interest is not defined by easily accessible structural characteristics. In these cases, the relevant participants must be identified by other network members through the approach known as snowball sampling, described earlier.

Step 2: Create the Network Instrument

Researches must decide whether to provide respondents with a roster of names to consider and rate (a recognition and evaluation task) or to ask respondents to list from memory (recall) people with whom they communicate and then to evaluate any relevant individuals. In most network studies, the roster method has been used. However, as the size of the network increases, a respondent's ability (and willingness) to put forth the effort to carefully consider each name declines. Thus, key social ties may fail to be reported or participants' responses may be clouded by halo effects. On the other hand, there are also potential response biases in which respondents feel compelled to rate individuals with whom they have no true social ties. Ronald Burt (1992) has analyzed fairly small networks and employs a method in which he has an individual (Person A) rate his or her ties to other network members (Persons B, C, and D) and then asks the individual to rate all linkages among the other members (B-C, B-D, C-D). This method allows very sophisticated analyses but becomes geometrically less feasible as the size of the network grows.

Recall methods are far more time consuming for respondents. Task burnout may cause the respondent to list only the members with whom they have the very strongest ties; they may leave out critical network linkages of moderate, yet meaningful strength. An alternative to choosing between the roster and the recall method is to employ a combination method in which respondents are provided a roster containing the names of the known group of interest and then is asked to list and evaluate any other individuals that meet certain criteria but who are not included on the roster.

The next step is to measure respondents' linkages to other network members. Empirical studies have shown the importance of both formal interactions, such as workflow ties, and informal interactions, such as friendship ties. These links can be measured individually (respondents can be asked to place a check next to the names of individuals with whom they interact on a social, friendship basis) or together (respondents can be asked to circle the number that best represents the proportion of their interactions that are driven by workflow as opposed to by social

or friendship motivations, using a 1 – 7 scale with 1 indicating all workflow based, 7 indicating all friendship based, and 4 indicating about half workflow and half friendship). In addition to measuring the presence of these linkages, many network scholars assess tie strength using some measure of frequency of contact or communication between network actors. Exploratory research is often needed to determine the appropriate categories in which to measure frequency. These data can be ratio or interval, but are most often simply categorical. In addition to these raw frequency indicants, subjective ratings of closeness or reciprocity (or both) between network actors are increasingly employed to assess the strength of ties between either individuals or organizations. For example, Rindfleisch and Moorman (2001) employ a four-item, seven-point Likert scale that assesses the degree of relational embeddedness between alliance partners: (1) We feel indebted to our collaborators for what they have done for us; (2) Our engineers share close social relations with the engineers from collaborating organizations in this venture; (3) Our relationship with our collaborators can be defined as "mutually gratifying"; (4) We expect that we will be working with our collaborators far into the future.

Finally, e-mail records and phone logs may also serve as measures of contact frequency among actors in a social network. Unlike survey-based measures that capture subjective ratings of network linkages, e-mail records may provide a more objective source of contact information.

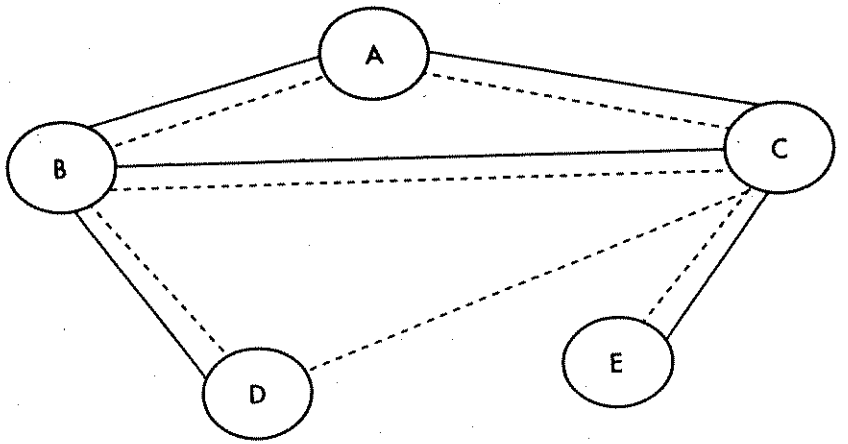
Step 3: Analyze the Data[3]

First, represent ties among respondents in matrix form (filled with 0 = no linkage, 1 = linkage). Most analytical operations require the data to be represented in a matrix form in which rows represent an individual's rating of his or her relationship to every other respondent and the columns represent those other respondents. What goes in each cell of the matrix? In most cases, the researcher makes a judgment as to some cutoff level or intensity of social connection that is required to be considered a tie (for example, one might require a frequency rating of 6 or 7). Researchers often develop separate matrices for friendship networks, workflow networks, and strong-tie and weak-tie networks. If the analyst desires to use the most conservative representation of a network, a requirement can be made that a tie must be reciprocated (that is, reported by both respondents) in order to be included in the network matrix. The operation is straightforward: Transform matrix A and perform matrix algebra operation AA^T to yield a matrix of reciprocated ties.

Next, calculate measures of network properties. There are a number of measures that can be calculated to represent an individual node's role within the network. To illustrate the most typical measures, we present a hypothetical net-

work from Ronchetto, Hutt, and Reingen (1989) with five members (indicated by nodes). Workflow linkages are indicated by solid lines and friendship ties are indicated by dashed lines (see Figure 2).

Figure 2
An Illustrative Example of a Friendship and Workflow Network



Adapted from Ronchetto, John R., Jr., Michael D. Hutt, and Peter H. Reingen (1989), "Embedded Influence Patterns in Organizational Buying Systems." *Journal of Marketing* 53 (October), 51–62.

Degree centrality is the number of individuals to which a node is directly connected. In the hypothetical network presented in Figure 2, for example, Node C has a degree of 3 for workflow and a degree of 4 for friendship. If you use unreciprocated data, it can be useful to separate in-degrees (ties leading into a node) from out-degrees (ties leading from a node).

Closeness centrality is the sum of the shortest distances between a node and every other node. For example, in Figure 2 Node B has direct ties with nodes A, C, and D (each of these ties has a distance of 1). To reach Node E, Node B depends on Node C, who is on the shortest path connecting B and E (the shortest distance between Node B and Node E is 2, which is the number of lines on the shortest path; note that Node B could also reach Node E via nodes A and C, but this would not be the shortest path). Summing yields a closeness score of 5 for Node B for both networks. For Node D, in contrast, the closeness score for work-

flow is 8, which is the sum of the shortest workflow distances between Node D and Node B (1), Node D and Node A (2), Node D and Node C (2), and Node D and Node E (3). Thus Node B has greater workflow centrality than Node D—Node B can reach every other member of the system more independently than can Node D, which must rely on more intermediaries.

Betweenness refers to the frequency with which an actor is between pairs of actors on the shortest paths connecting them. Node E, for instance, is not between any pair of nodes. Thus the betweenness score for node E is 0. Node C, in contrast, is on the shortest workflow paths connecting nodes A and E, B and E, and D and E, but not on the shortest workflow path connecting nodes A and D. The betweenness score for Node C is 3. Thus, Node C has a greater betweenness workflow centrality than Node E.

Following Borgatti (1987), the researcher can normalize these centrality measures. Normalized degree is the degree of a node divided by $N - 1$, which is the largest possible degree in an N-by-N network. Normalized closeness is the theoretical maximum (i.e., $N - 1$) divided by closeness as previously defined. With normalized closeness, larger numbers mean increased closeness and decreased distance. Normalized betweenness is betweenness divided by its theoretical maximum for any node in an N-by-N network: $(N^2 - 3N + 2) / 2$. Properties of the entire network, such as density (number of ties divided by potential number of ties), can also be calculated but are not discussed in detail here. Measures for each respondent can be entered into statistical software and used as independent variables, intermediate variables, or dependent variables.

Future Research Opportunities

Networks as Independent Variables

Organizations are characterized by nested levels of network relationships (Galaskiewicz and Wasserman 1994). For example, individual relational ties (dyads) are embedded in larger interpersonal networks. Interpersonal networks, in turn, are embedded in intraorganizational networks, which may be embedded in one or more interorganizational networks. When network relationships occur simultaneously at both the interpersonal and interorganizational levels, this condition is referred to as "multiplexity" (Molm and Cook 1995). Network researchers assume that networks characterized by high degrees of multiplexity are especially effective at information transmission and control. Thus far, most network researchers have restricted their inquiries to single types of connections. As a result, little is known about the interactive relationship between interpersonal and interorganizational networks or the conditions under which multiplexity or presence in multiple network levels is most effective in achieving an actor's goals. In general, research that links the interdependent levels within a broader network would provide valuable insights into how changes at one level influence network linkages at other levels.

Marketing strategy research indicates that in order to achieve superior performance, market knowledge must be shared and disseminated throughout an organization (Kohli and Jaworski 1990; Jaworski and Kohli 1993; Sinkula 1994; Moorman 1995). Thus far, researchers have tried to understand and explain internal knowledge activities by examining the traits and characteristics (e.g., commitment, trust) of an organization and its members. A network perspective would suggest that in addition to examining the traits of individual actors, strategy researchers should also look at the underlying structure and motives that link these actors. In particular, the strength of ties that connect two managers (Hansen 1999), similarity on socially important attributes (Brass 1995), and physical proximity (Krackhardt 1994) all should play an important role in influencing information exchange in managerial settings.

As a closely related topic, the network perspective has the potential to enrich understanding of how firms develop and maintain a strong market orientation, which is widely recognized as an indicant of strategic performance. As documented by Kohli and Jaworski (1990), an essential ingredient in developing a market orientation is the presence of strong internal support on the part of top management. But how should CEOs, presidents, and other top managers lend such support? Past research has examined the factors that drive market orientation across firms. However, when creating a market-driven organization, individual managers may vary widely in terms of the degree to which they embrace the central tenets of a market orientation. What factors influence the adoption of a marketing orientation by an individual manager? How can a market orientation best be implemented within a firm? A network perspective could be particularly useful in documenting the manner and degree to which a belief in market orientation is spread throughout an organization, as well as the degree to which market-centered beliefs are distributed across different functions and levels of an organizational hierarchy. Tie strength may be an especially important concept for understanding the degree to which marketing orientation is embraced across an organization. Because strong ties are especially important for facilitating the transfer of tacit information across business unit boundaries (Hansen 1999), strong tie relationships that join members of disparate functional domains or units may be

most critical to facilitating the widespread adoption of a market orientation within a firm.

A network perspective can also lend rich insights into improving new product development (NPD) processes. A key element in NPD success is cross-functional participation and communication among marketing and R&D managers (Griffin and Hauser 1996; Atuahene-Gima and Evangelista 2000). A key feature of the marketing and R&D interface centers on how information is created and disseminated so that NPD teams can act on shared (as opposed to divergent) meanings (Moorman 1995). In the process of information exchange, some cross-functional managers are more influential than others at shaping the NPD process. Indeed, some NPD teams are more adept at efficiently creating, sharing, and utilizing information than others. The network perspective suggests that performance differences between cross-functional managers or across NPD teams may be due to how network relationships are structured. Research questions emanating from this focus on optimal networks include: How can interactions be ideally structured to maximize the potential for success in the NPD process? Can networks be evaluated to identify where coordination failures are likely to occur across the marketing and R&D interface?

Networks as Dependent Variables

Recent studies suggest that network membership can provide firms with a strategic competitive advantage (e.g., Anderson, Håkansson, and Johanson 1994; Gulati 1998; Gulati and Higgins 2003). The presumption is that firms with strong linkages to prestigious and important firms will gain increased prestige and importance through association, making them more coveted as potential network partners. In effect, this approach suggests that firms are valuable not just for what they know but also for whom they know. Anderson, Håkansson, and Johanson (1994) provide some preliminary measures for assessing the importance that potential partners might place on a firm's network connections. However, much work needs to be done in terms of quantifying this value and developing appropriate metrics for evaluating the profit implications of a firm's set of network linkages (see Swaminathan and Moorman 2003a, b).

Related to the concept of network valuation is the notion of network competence, which connotes the set of skills necessary to develop, maintain, and leverage network relations (Wilkinson and Young 2002). Firms with high levels of network competence and who are well endowed in terms of network resources should enjoy a competitive advantage. While intuitive and logical, the conceptualization and measurement of network competence needs considerable development. As a

first step, researchers need to develop and specify measures of network resources or competence. Once valid measures of these constructs are developed, the next step would be to relate these measures to traditional indicants of strategic performance such as sales or market valuation. Of course, other variables that may influence performance must also be controlled for in the analysis. This would provide network researchers with a means of calibration to assess the incremental value of either gains in degree of network competence or the addition of a specific network linkage. Such calibration would go far in terms of establishing the network perspective as a valuable tool for assessing marketing strategy performance.

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Notes

1. In the literature, several terms have been used to describe network attractiveness. Anderson, Håkansson, and Johanson (1994), for example, used the term *network identity* while Gulati (1999) employs *network resources*. Because a standard term doesn't exist in the literature, we use the label *network attractiveness* to better reflect the intuitive meaning of the concept.
2. For additional insights regarding the technical aspects of network analysis, please consult Iacobucci and Hopkins (1992), Knoke and Kuklinski (1982), and Reingen and Kernan (1986).
3. An excellent software package that can handle a range of network analyses and types of data is the UCINET package. The product enables the researcher to identify various subgroups within the overall network, evaluate overall properties of networks, and calculate network statistics for individual nodes. Information on the latest version of UCINET (and a trial version) can be accessed via the Internet at www.analytictech.com/.

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13

Challenges and Advances in Marketing Strategy Field Research

Sandy D. Jap and Erin Anderson

Introduction

Field studies are a powerful means of studying marketing strategy. A variety field study tools have proven enormously valuable for systematically understa ing not only the design of marketing strategy but also the payoff value of th efforts to the firm. By examining marketing phenomena in its natural habi researchers gain a bird's-eye view of the internal workings of the firm. Howe field research can be messy and, if incorrectly managed, may waste the research time, resources, and energy without yielding useful insights. Accomplishing eff tive field research is like shooting at a moving target. Key informants and auth izing agents turn over, documentation standards are updated, and organizatio priorities and cultures shift. Lastly, organizations and their environments dynamic, living entities; since a multitude of alternative explanations and poten omitted variables exist, a field study will never provide the same level of contro laboratory experiments. Hence, the researcher's task is to show that efforts h been made to account for the noisy work environments and to provide the m reasonable explanation for the observed outcomes.