working paper

Networks for change:
How networks influence
organizational change

Manuel Portugal Ferreira
Instituto Politécnico de Leiria

2008

Glob
advantage

Working paper n° 21/2008

globADVANTAGE

Center of Research in International Business & Strategy

INDEA - *Campus 5*

Rua das Olhalvas

Instituto Politécnico de Leiria

2414 - 016 Leiria

PORTUGAL

Tel. (+351) 244 845 051

Fax. (+351) 244 845 059

E-mail: globadvantage@ipleiria.pt

Webpage: www.globadvantage.ipleiria.pt

WORKING PAPER Nº 21/2008

July 2008

NETWORKS FOR CHANGE:

HOW NETWORKS INFLUENCE ORGANIZATIONAL CHANGE

Manuel Portugal Ferreira

Escola Superior de Tecnologia e Gestão

Instituto Politécnico de Leiria

Morro do Lena - Alto do Vieiro

2411-911 Leiria, PORTUGAL

E-mail: portugal@estg.ipleiria.pt

Phone: +351-244-843317

Fax: +351-244-820310

&

globADVANTAGE – Center of Research on International Business & Strategy

2008

Networks for change: How networks influence organizational change

ABSTRACT

This paper contributes to the literature on organizational change by examining organizations as social entities embedded in inter-organizational networks. In contrast to extant research that focuses on macro environment and internal factors to explain organizational change we put forth the social network surrounding the firm as a major driver of any change process. In specific we examine organization change as driven by the organizations' positions and relations in an interorganizational network. Our conceptual framework demonstrates that inter-organizational networks are important mid-level environmental factors that complement the macro-environment and internal organizational factors for the study of organizational changes. We conclude with a discussion on normative implications for organizations and avenues for future research.

Keywords: organizational change, social networks.

INTRODUCTION

Organizational change has long been considered essential to understanding the dynamics of organizations (March, 1981; Aldrich, 1999). Organizations change to build and leverage their competencies and updating possible competitive advantages (Greenwood & Hinings, 1996), especially when facing intense competition (D'Aveni, 1994). Organizations change to adjust to changing conditions in the environment. How firms deploy their strategies to react (adjust) or take a pro-active action is one of the focus of strategic management. For instance, firms may acquire other organizations to access knowledge not yet held (Ferreira, 2005), enter into an alliance to access new markets (Contractor & Lorange, 1988) or seek novel opportunities beyond their immediate competitive landscape through network forms of organization.

The extant literature has examined how environmental factors (e.g., societal demographic, customer demands, economic situations, legal and political) and internal conditions (e.g., personnel decisions, organizational strategy) affect the initiation and implementation of organizational change (e.g., Kimberly & Quinn, 1984; Tushman & Romanelli, 1985; Gersick, 1991). However, much less attention has been paid to the role of social networks in organizational change. By organizational change behaviors, we mean the organizational activities associated with initiating and implementing changes.

Organizations may operate change in many ways. In this paper we focus specifically on the role of the organizations' networks – that is on the business and social relationships that firms hold. There is abundant research on the importance of the social networks for firms' success (Jarillo, 1988; Gulati, 1995, 1998; Dyer & Singh, 1998), and more generally to a variety of firms' economic behaviors (Granovetter, 1985). These relationships form structures that are able to influence firms' behaviors, including organizational change, by promoting or constraining their access to information, physical (e.g., manufacturing capacity), financial and social (e.g., legitimacy, power) resources (Granovetter, 1985; Baum, Calabrese & Silverman, 2000).

The firms' social networks may be a major driver (and, similarly, a major barrier) of any organization change process. For instance, Tushman and Romanelli (1985: 177) noted that "networks of interdependent resource relationships and value commitment generated by its structure often prevent its being able to change", suggesting that an organization might be bound by other firms' expectations and needs. Some scholars have studied how interorganizational relations influence organizational learning and innovation (Shan, Walker & Kogut, 1994; Powell, Koput & Smith-Doerr, 1996), but change encompasses more than just learning. Notwithstanding, existing research falls short of clarifying the role of the firms' social networks for change endeavors.

In this paper, we examine how an organizational network influences a focal organization's change behaviors by synthesizing the literature on organization change and on social networks. In specific, we advance that the position and relations (density, centrality, and structural equivalence) of an organization in its network will affect the organization's change behaviors and triggers. The social network in which a focal firm is embedded either constrains or facilitates the firm's access to resources, information, legitimacy, and power (Aldrich, 1979; Granovetter, 1985; Burt, 1992; Rowley, 1997; Gulati, 1998). In sum, we contribute to the current understanding of how organizations change and the importance of the social networks to trigger and operate the change.

This paper is structured as follows. First, we review the literature on organizational change, then on social networks. Third, we examine how networks may influence organizational change behaviors. We develop a set of theory-driven propositions. We conclude with a discussion, implications for theory and practice and pointing out avenues for future research.

ORGANIZATIONAL CHANGE

Organization change may be analyzed from many angles. Following Damanpour (1988), we conceptualize organizational change as including many types of change, such as technological, administrative, strategic, and so forth. For instance, behaviorists study how employees' cognition and behaviors constrain organizational change (e.g., Gersick, 1989; Greve &

Taylor, 2000), and institutionalists emphasize how institutional norms maintain the stability of organizations (e.g., DiMaggio & Powell, 1983; Hannan & Freeman, 1984). Nonetheless, understanding how firms change requires the understanding of the underlying change process (Pettigrew, Woodman & Cameron, 2001). Weick and Quinn (1999) refer to the process of organizational change as encompassing three stages: the initiation, implementation, and the outcome of change. We briefly review these three stages.

The ***initiation*** refers to the causes, or triggers, of organizational change. Huber et al. (1993) found five triggers of change, these were: the macro-environment (e.g., economy, politics, technology, demography), performance, characteristics of top managers, structure, and strategy. More recently Greve and Taylor (2000) explored the role of innovations in catalyzing organizational change. Moreover, the initiation of change should be examined as to whether it is episodic - *episodic* change is mainly driven externally (Romanelli & Tushman, 1994; Tushman & O'Reilly, 1996) – and continuous - *continuous* change is caused by organizational instability and alert reactions to daily contingencies (Brown & Duguid, 1991; Orlikowski, 1996). We argue that the firms' social networks are a likely source of change, namely in terms of triggering change.

The ***implementation*** refers to the process of carrying out organizational change. Firms may face some degree of inertia or inability to change as rapidly as the environment (Pfeffer, 1997). The inertia may take on several forms, such as: deep structure (Gersick, 1991), first-order change (Bartunek, 1993), routines (Gioia, 1992), competency trap (Levitt & James, 1988), top management tenure (Virany, Tushman & Romanelli, 1992), identity maintenance (Sevon, 1996), culture (Harrison & Carroll, 1991), complacency (Kotter, 1996), institutional norms (DiMaggio & Powell, 1983), or technology (Tushman & Rosenkopf, 1992). Perhaps more fundamental are the internal constraints that hinder change, or as Romanelli and Tushman (1994: 1144) put it organizations may resist change because they consist of a "system of interrelated organizational parts that is maintained by mutual dependencies among the parts and with

competitive, regulatory, and technological systems outside the organization that reinforce the legitimacy of managerial choices that produced the parts".

To overcome inertia and proceed with the implementation of change some form of intervention or trigger is needed. Different from episodic change, continuous change requires a somewhat different form of intervention: the redirection of what is already underway (Argyris, 1990). However, to implement change (and most notably radical change) organizations need financial, informational, physical and human resources (Aldrich, 1999). In an isolated organization, resources are either derived from inside (Barney, 1991) or procured from markets (Williamson, 1985). In contrast, in a networked organization, the resources might be obtained from the partners.

The **outcome** of organizational change refers to the effect of change. For instance, it may refer to whether a new technology replaces (e.g., episodic change) or only adjusts (e.g., continuous change) old systems in an organization. The outcome may be evaluated in terms of an improved likelihood of survival, growth, or profitability post-change considered. Notwithstanding, whatever the specific outcome of change, not only the implementation process will impact the outcome of the organizational change, but also holding the resources needed and prior experiences of change will facilitate the change.

In summary, the phases of the change process - initiation, implementation and outcome - are central to studying organizational change behaviors and are foundational to discussing how the social network context affects organizational change behaviors. In the following section we define and discuss organizational social networks, providing some general principles and concepts of social network analysis.

SOCIAL NETWORKS

Organizations are embedded in a wider external environment that shapes how and what organizations do (Aldrich, 1979; Scott, 1991). Several studies have described how firms are engaged in networks of relationships, for diverse purposes. For instance, the resource dependence theory proposes that organizations are not self-sufficient, and they need to engage in interdependent exchanges with other agents in their environment

(Pfeffer & Salancik, 1978). The institutional theory suggests that institutional norms greatly constrain organizational behaviors (Meyer & Rowan, 1977; DiMaggio & Powell, 1983; Hannan & Freeman, 1984). The literature on strategic alliances advocates that firms form alliances with suppliers, distributors, banks, and competitors to gain access to resources (e.g., capital, information, knowledge, technology, social endorsement and legitimacy) to create and maintain competitive advantage (Walker et al., 1997; Gulati, 1995, 1998; Stuart, Hoang & Hybels, 1999).

A social network consists of a "finite set or sets of actors and the relationship or relationships defined on them (Wasserman & Faust, 1994: 20)". In this paper, we follow Lauman, Galaskiewicz and Marsden (1978: 458) definition of social network as "a social system in which a finite set of organizations (e.g., suppliers, distributors, financial institutions, universities, governments) directly or indirectly connect to each other by various social relationships (e.g., strategic alliance, interlocking, personal relationship, affiliation) and whose structural pattern will constrain or facilitate member organizations' behaviors through various mechanisms (e.g., information flow, knowledge sharing, resource complementary)".

The social networks research examines relations among organizations and argues that organizations' economic behaviors are embedded and dependent on their social relationships (Aldrich & Whetten, 1981; Granovetter, 1985; Mizruchi & Galaskiewicz, 1993). These relationships may encompass formal and informal ties, such as exchange (Emerson, 1976), director interlocking (Haunschild, 1992), or personal relationships (Macaulay, 1963).

There is little insight in repeating that network, or inter-organizational, relationships are a vital part of the environment for modern organizations (Park, 1996; Dyer & Singh, 1998). It is now also well understood that organizational adaptation is crucial to success in the context of continuous, sometimes dramatic, environmental changes. However, the social networks effects on organization change are somewhat less understood, although it seems reasonable to sustain that inter-organizational relationships have a vital influence on how organizations change. Notwithstanding, the extant research has piled evidence that most organizations are located in disparate

networks of directly and indirectly linked organizations through a variety of relationships with different purposes. One classic example of these social networks is found in the textile industry cluster in northern Italy, where firms form complex linkages with each other through a wide array of family and business relations, social clubs affiliations, and community ties (Wasserman & Faust, 1994).

A focal firm needs to establish relationships with multiple organizations to obtain resources, institutional legitimacy, information, and so forth (see Gulati & Gargiulo, 1999). The ties connecting firms may take various forms, from contractual agreements such as a strategic alliance (Gulati, 1995; Stuart et al., 1999) to the most informal personal relationships (Macaulay, 1963) binding individuals and firms. Table 1 summarizes the main principles and assumptions in social network analyses.

TABLE 1. Network analysis principles and assumptions

Principles	Assumptions
▪ Behavior is interpreted in terms of structural constraints on activity rather than in terms of inner forces within units.	▪ Actors and their actions are viewed as interdependent units.
▪ Analyses focus on the relations between units.	▪ Relational ties between actors are channels for the transfer of resources.
▪ Concerned with how the pattern of relationships among multiple actors jointly affects network members' behaviors.	▪ Network models focusing on individuals view the network structure as providing opportunities for and constraints on individual actions.
▪ Analytical methods deal directly with the patterned relational nature of social structure.	▪ Network models conceptualize structure (whether social, economic, political, and so forth) as enduring patterns of relations among actors.

Source: Adapted from Rowley (1997).

Networks, Macro-environmental and Internal Factors

In this paper we examine how networks might influence organization change. The social networks are herein suggested to be complementary to the macro-environmental and internal factors in explaining organizational

change. Notwithstanding, the three factors highlight rather distinct change mechanisms. The macro-environmental factors suggest that organizations should proactively initiate changes, such as innovations, to reshape their marketplace (Tushman & O'Reilly, 1996). For example, computer processor manufactures invest heavily in R&D to lead technological change and not be overcome by competitors. Moreover, firms should also try to predict the future direction of environmental shifts and react proactively (Porras & Silver, 1991) to reduce potential negative effects caused by discontinuous environmental changes. On the other hand, the internal factors suggest that organizations focus on addressing internal structures and procedures to facilitate organizational changes (Woodman, 1989; Gersick, 1991). For instance, organizations should develop an organizational culture that embraces change, and deploy flexible organizational structures that embrace adaptability.

The social networks analysis recommends that organizations develop the ties to other firms, in a network, to take the most advantage of their positions and relations (Gulati & Gargiulo, 1999). At least to some level, firms have larger ability to construct and perhaps to manipulate their networks than to deal with macro-environmental factors. For instance, Hite and Hesterly (2001) argued that firms redesign the composition of their networks to fulfill resource needs, when growing from the emergence to the early growth stage. Baum, Calabrese and Silverman (2000) found that start-ups configure their networks to provide efficient access to diverse information and capabilities with minimum costs of redundancy, conflict, and complexity. These studies suggest that network members are possible sources of a variety of physical, social, financial and market resources. We summarize some of the main differences in Table 2. The differences highlighted in table 2 partly explain why the study of social networks will provide somewhat different prescriptive implications for organization change.

[Insert Table 2 about here]

Hence, the networks are likely to be change-initiating triggers on a more regular and continuous base than external and possibly internal factors. Networks often exert a coercive collective pressure impelling the

organization to adapt. Partly, that is because network relationships create interdependence among organizations (Park, 1996), as firms compromise autonomy in exchange for access to some sort of strategic resources (Hite & Hesterly, 2001). Hence, changes in one organization may lead to a "domino effect" in a network, and the more so the stronger and denser the ties connecting firms.

THE ROLE OF SOCIAL NETWORKS IN ORGANIZATIONAL CHANGE

How do organizational networks influence change triggers, implementation factors (e.g., inertia, resources), and change outcomes? In this section we discuss four manners in which social networks influence organization change: innovation, imitation, inertia, structural positioning and structural equivalence.

Innovative Dynamism and Change

The density of a network is perhaps the most widely used construct of connectedness (Friedkin, 1984) and group cohesion[1] (Blau, 1977) among network members. The density of the network in which a firm is embedded is likely to affect change processes. In denser networks there are more ties among firms, and these ties serve as channels for the faster flow of information about markets, best practices and institutional norms (Meyer & Rowan, 1977), innovation, technology, and so forth. Connecting tightly with other organizations, a focal organization has more channels to detect the opportunities and changes in its environment.

The innovative dynamism and access to novel knowledge are often considered an important trigger of organizational change (Weick & Quinn, 1999). Powell (1987) noted the importance of inter-firm interfaces, particularly close and strong connections, in transferring tacit knowledge. Park (1996) using a resource-based view stressed that the transfer of tacit knowledge from other organizations is a critical source for building competitive advantage. Tushman (1977), Burt (1982), Powell (1987), Brown and Duguid (1991), Powell et al (1996) and Ibarra (1993), among others, have shown that interconnectedness plays a critical role in

---

[1] In actuality, density only reflects the number of relationships (or ties) that exist among a set of organizations in the network, without disclosing detail on the nature of the ties (Wasserman & Faust, 1994).

organizational innovation processes, adoption and diffusion. According to Park (1996: 799) "[t]he open-ended, relational features of networks, therefore, greatly enhance the ability to transmit and learn new knowledge and skills for an innovation". Astley and Fombrun (1983) have noted how technological innovations were carried out mainly by a complex and wide range of inter-firm networks in the telecommunication industry. Shan, Walker and Kogut (1994) found that the number of ties between start-ups and established firms is positively related to their innovative output in the biotechnology industry. Hence, it seems reasonable to suggest that organizational change is fuelled by the access to novel opportunities and resources that feed innovations, which will likely be more abundant in denser networks.

> **Proposition 1**. *An organization in a denser organizational network is likely to have more frequent innovations driving organizational change.*

Imitation and Change

The denser the network the more likely that we may observe more intensive imitation – which is another mechanism potentially driving the firms to change. That is, denser networks can drive institutional conformity among members (Meyer & Rowan, 1977; DiMaggio & Powell, 1983). In a study of mimetic processes, Galaskiewicz and Wasserman (1989) argued that organizations in the same network imitate one another's behaviors to gain legitimacy. The inter-firm ties may be realized through interlocking directors which will mimic each other (Haunschild, 1992), namely regarding corporate governance practices. The importance of imitation is reflected in Sevon's (1996: 60-61) statement that "every theory of organizational change must take into account the fact that leaders of organizations watch one another and adopt what they perceive as successful strategies for growth and organizational structure". In sum, imitation in a network might be the trigger for organizational change, as organizations have access to, and use each other as referents.

Membership in a network creates strong interdependence between organizations, particularly when strong tie exist and will pressure organizations to change in line with other organizations. These are

isomorphic pressures whereby organizations tend to resemble each other over time. For instance, in case of complementary exchange ties binding firms, a change in one firm may require others to adjust their operations to keep in pace with each other in order to maintain established exchange patterns and relationships (Rowley, 1997).

In sum, by connecting with other organizations, an organization is subject to not only the changes initiated by itself but also to the changes initiated by other organizations (Aldrich & Whetten, 1981). The frequency of changes will be higher. In a richly joined system, any external influence that had a disturbing influence on one link might eventually affect the entire chain of links, due to the large number of links through which outside events could flow into the chain. Conversely, the sparser the network and the more "isolated" the organization, the less abundant will be the channels for communications and diffusion both within and across the network.

> **Proposition 2**. An organization in a denser organizational
> network is likely to experience change through imitation more
> often than an organization in a sparser network.

Inertia and Change

Interdependency among subunits is a main source of inertia against change (Porras & Silver, 1991). The discussions on alignment (Pfeffer, 1998: Ch. 4), configurations (Miller, 1990), and cultural inertia (Tushman & O'Reilly, 1996) offer some insights into this line of argument. When interrelations among firms are abundant (or dense) and strong, it will take a larger intervention to realign them.

Firms do not exist in an isolated world. In a dense network, hazards in a firm may bear a negative impact on other network members. It is likely that the social norms of the network may pressure a firm to follow other firms' changes and fulfilling the others' expectations (Gersick, 1991). In addition, the larger informational and communication channels among network members will expose the firms to new strategies or management practices used by other organizations, increasing the likelihood of imitation. In contrast, organizations in sparser networks will not have these pressures or opportunities stemming from other organizations.

The density of the network is likely to affect the duration of organizational changes. Organizations in denser networks are more interconnected and interdependent, whereby an eventual change in an organization will also influence other organizations with which it is tied. For example, the introduction of a new product by a firm will require adaptations by the suppliers (e.g., production facilities) and the sellers (e.g., marketing strategies). Thus, changes in one firm will likely carry out implications for other firms up- and down-wards the value chain, requiring connected firms to make complementary changes. Hence, in a network, any organizational change is imprisoned by the partners ability to accompany change. Thus, it seems reasonable to suggest that a change in a focal organization will take longer to implement when engaged in a network. Simon (1962) argued that it takes a longer time for a system with a strong network of links between elements to reach a stable state.

> **Proposition 3**. An organization in a denser network is likely to take a longer period of time to implement and complete change than in a sparser network. This period will be longer the higher the interdependence among the firms in the network

Structural Equivalence and Change

Structural equivalence, also referred to as structural isomorphism (Winship, 1988), occurs when two (or more) actors have identical ties to and from all other actors in the network (Lorrain & White, 1971; Borgatti & Everent, 1992; Wasserman & Faust, 1994). It is likely that in a network some firms occupy similar structural positions, due to the complex interconnections we have discussed. It is thus probable not only the organizations' structural positions influence their behaviors, but also that structurally equivalent organizations behave similarly. For instance, Coleman, Katz and Menzel (1957) found that while a physician is likely to adopt and prescribe a new drug using information gathered from manufacturers and published studies, the likelihood increases once he is aware that other physicians already adopted that same drug. Kilduff (1993) found that people in structurally equivalent positions tend to have similar perceptions.

The organizations in structurally equivalent positions may perceive each other as similar and act similarly. Several studies have argued that social positions such as structural equivalence drive social homogeneity (e.g., Friedkin, 1984; Burt, 1987; Hartman & Johnson, 1990). Following this line of argument, we may suggest that if one firm adopts a novel course of action, a different strategy, an innovation, and so forth, its structural equivalent firms are likely to behave isomorphically, taking identical actions. A general proposition may thus be formulated as:

> ***Proposition 4****. An organization's actions for change are likely to be influenced by those of its structural equivalent others operating in the same network.*

Structural Positioning and Change

The structural positioning, namely the centrality (Freeman, 1979), of the firm in the network matters. The positioning refers to the location of a focal "actor" relative to other firms in the network (Wasserman & Faust, 1994). According to Ibarra (1993), the position of an actor (individuals or organizations) determines its status, the extent of involvement in relationships and visibility to the others. Burt (1992) argued that different positions in a network provide different degrees of access to, and control over, valued resource.

An organization centrality os a core construct in structural positioning. Centrality refers to how close a focal actor is to all the other actors in the network. An actor is central if it is involved in the communication between other two actors (Freeman, 1979). Central organizations serve as communication channels between organizations transferring resources, information and clients (Aldrich & Whetten, 1981). As Aldrich and Whetten (1981: 397) advance "organizations in a central position have easy access to information about the potential innovations and by manipulating the flow of information, as well as exerting influence, can direct the allocation of a population's resources in an innovative direction". The central firms brokers the information flows (Wasserman & Faust, 1994) and centrality concedes its beholder more access to updated information about external environmental changes. Moreover, central organizations have the most ties to other organizations in the network (Wasserman & Faust, 1994) and are

recognized by others as a major channel of relational information. In contrast, peripheral actors are not as active in the relational process (Wasserman & Faust, 1994).

The central organizations have access to a variety of resources pooled together by the network, which enable them to have more chances to innovate than peripheral organizations (Ibarra, 1993). Moreover, the position itself exerts some pressure on the central organization to change if it wants to maintain a competitive advantage. Due to the access to information, it is more likely that the central organization will accurately predict the future directions of environmental shifts and be able to proactively adapt. Porras and Silver (1991: 54) stated that: "[c]reating a better fit between the organization's capabilities and its current environmental demands, or promoting changes that help the organization to better fit predicted future environments".

Proposition 5. A more central organization is likely to change more frequently than a less central organization.

The central actor is the pacesetter, and it is likely that the central firm initiates change. In some instances the central firm is the referent model that others imitate (Haveman, 1993). Due to its control over informational and physical resources, the central organization has more power to coordinate other organizations interdependent on each other (Pfeffer & Salancik, 1978).

In addition to accessing more resources, which will help the central firm change frequently, firms may draw some power from occupying central positions (Mizruchi & Galaskiewicz, 1993). The environmental shifts carry uncertainties and risks that are to a large extent related with holding limited information about them (Williamson, 1985). Firms that access more information and resources are better able to predict the future direction of changes, possibly are able to proceed with implementing small incremental changes to continuously keep pace with environments. These incremental changes are more likely to be successfully implemented.

Proposition 6. A more central organization is likely to change more successfully than a less central organization.

DISCUSSION AND CONCLUDING REMARKS

We have noted that social networks influence organizations' change behaviors in many respects. Organizational change may be scrutinized through macro-environmental, internal and also network factors. Focusing on inter-firms relationships may yield refreshing explanations for organizational change. The normative prescriptions for practitioners from using a networks perspective are likely to complement those prescribed by a focus on the macro-environmental and internal organizational factors.

Studying the impact of social networks on organizational change might be extended in a number of important ways. For instance, future research may seek to delimit the boundaries of a network to better understand which firms have larger influence on any change process, and which firms are most influenced by other's actions. How are firms indirectly connected to the source of change influenced? Furthermore, for simplification purposes we did not delve deep into hybrid governance forms, such as joint venture, equity-based strategic alliance, and interlocking directorates. However, examining these types of inter-firm interfaces may help explaining imitation, inertia and who firms use as referent others.

The examination of constructs such as density or centrality of organizations in a network may be improved upon when we include the types of ties binding firms. The most widely studied characteristic of ties is strong/weak ties. The strength of a ties is given by "a combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie" (Granovetter, 1973: 1361). The strength of a tie may be also determined by the frequency of interaction among firms and, more importantly, is that firms connected by strong ties tend to be similar in various ways (Lorrain & White, 1971; Granovetter, 1973; Haveman, 1993). Friedkin (1984) and Collins (1988) noted that a network tightly connected through strong ties would create homogeneity among members, whereby organizations are less prone in seeking and receiving novel information from outside the network. These organizations are probably lee less likely to initiate change, and will be more isolated from other firms (Collins, 1988).

Future research might even observe how organizational change may vary as to the magnitude and scope (Gersick, 1991) of change, or to how fundamental an organizational change is and to what extent the activities, structures, and so forth, post-change differ from those previously established (Watzlawick, Weakland & Fisch, 1974). Some scholars distinguished between incremental and radical change to reflect that while incremental change is manifest in small and gradual adjustments, which consist essentially of variations on the same theme (Nadler, Shaw & Walton, 1995), radical change entails a substantial departure, divergence, revolution (Weick & Quinn, 1999), quantum change (Miller & Friesen, 1984), or transformation (Porras & Silver, 1991). While the radical changes tend to involve the entire organization, often leading to the shattering of the established pattern of behaviors, the incremental changes are small in magnitude, narrow in scope, and do not change the structures of the firm (Gersick, 1991).

How radical an organizational change is, is central to describing organizational dynamics (Tushman & Romanelli, 1985). The radicalness of the change will likely influence the outcome of the change, and it seems reasonable to suggest that a firm that endeavors and implements more appropriately radical changes will likely outperform competitors. Perhaps future research might explore whether an organization in a denser network will be more likely to experience radical change than an organization in a sparse network.

For research we contributed by establishing a set of propositions on how networks impact organization change. By observing the organization's network we are able to place it in its social millieux. For practitioners we advance that it is fundamental to strategically build the firm's network. The network is likely to be the primary driver of the ability to change, whether adapting or responding pro-actively to environmental shifts. Firms need to invent, learn, adapt to customers' demands, become more efficient and provide that they provide higher quality goods and services if they want to succeed.

To conclude, social networks seem to matter for organization change. The social network members are vehicles for the flow of a variety of social,

physical, financial and informational resources. The network members are also more proximate referent others that firms seek to imitate, but they also form a protective womb that drives to inertia and the inability to proceed with change. Whatever the specific mechanisms considered, the social network in which a firm operate is a fundamental driver of organizational change.

REFERENCES

Contractor, F. & Lorange, P. 1988. **Cooperative Strategies in International Business**. Lexington, MA, Lexington Books.

Aldrich, E. & Whetten, D. 1981. Organization-sets, action-sets, and networks: making the most of simplicity. **Handbook of Organizational Design**, 1: 385-408

Aldrich, E. 1979. **Organizational environment**, Englewood Cliffs, NJ: Prentice Hall.

Aldrich, E. 1999. **Organizational evolving**, Sage Publication Ltd.

Argyris, C. 1990. **Overcoming organizational defenses. Facilitating organizational learning**, Boston: Allyn and Bacon.

Astley, W. & Fombrun, C. 1983. Collective strategy: Social ecology of organizational environments. **Academy of Management Review**, 8, 576-587.

Barney, J. 1991. Firm resources and sustained competitive advantage. **Journal of Management**, 17 (1): 99-120.

Bartunek J. 1993. The multiple cognitions and conflicts associated with second order organizational change. In Murnighan, J. (Ed.) **Social Psychology in Organizations: Advances in Theory and Research**, Englewood Cliffs, NJ: Prentice Hall

Baum, J., Calabrese, T. & Silverman, B. 2000. Don't go alone: Alliance network composition and startups' performance in Canadian biotechnology. **Strategic Management Journal**, 21 (Special Issue): 267-294.

Blau, P. 1977. **Inequality and heterogeneity**. New York, Free Press.

Borgatti, S. & Everett, M. 1992. Notions of position in social network analysis. **Sociological Methodology**, 22: 1-35.

Brown, S. & Duguid, P. 1991. Organizational learning and communities-of-practice: Toward a unified view of working, learning, and innovation. *Organization Science*, 2: 40-57.

Burt, R. 1987. Social contagion and innovation: Cohesion versus structural equivalence. **American Journal of Sociology**, 92 (6): 1287-335.

Burt, R. 1982. **Toward a structural theory of action**. New York, Academic Press.

Burt, R. 1992. **Structural holes: The social structure of competition**. Cambridge, MA: Harvard University Press.

Coleman, J., Kantz, E. & Menzel, H. 1957. The diffusion of an innovation among physicians. **Sociometry**, 20: 253-270.

Collins, R. 1988. **Theoretical Sociology**. New York:Harcourt Brace Jovanovich.

D'Aveni, R. 1994. **Hypercompetition: Managing the dynamics of strategic maneuvering**. New York: Free Press.

Damanpour, F. 1988. Innovation type, radicalness, and the adoption process, **Communication Research**, 15: 545-567.

Deal, T. 1985. Cultural change: Opportunity, silent killer, or metamorphosis? In Kilmann, R., Saxton, M. & Serpa, R. (Eds.), **Gaining control of the corporate culture**. 292-331. San Francisco: Jossey-Bass.

DiMaggio, P. & Powell, W. 1983. The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. **American Sociological Review**, 48: 147-160.

Dyer, J. & Singh, H. 1998. The relational view; cooperative strategy and sources of interorganizational competitive advantage. **Academy of Management Review**, 23 (4): 660-679.

Emerson, R. 1976. Social exchange theory. **Annual Review of Sociology**, 2: 335-362.

Ferreira, M. 2005. **Building and leveraging knowledge capabilities through cross border acquisitions: The effect of the MNC's capabilities and knowledge strategy on the degree of equity ownership acquired**. Unpublished doctoral dissertation, University of Utah, USA.

Freeman, L. 1979. Centrality in social networks conceptual clarification, **Social Networks**, 1: 215-239.

Friedkin, N. 1984. Structural cohesion and equivalence explanations of social homogeneity. **Sociological Methods & Research**, 12: 235-261.

Galaskiewicz, J. 1979. **Exchange networks and community politics**. Beverly Hills, CA: Sage Publications.

Mizruchi, M. & Galaskiewicz, J. 1993. Networks of interorganization relations. **Sociological Methods and Research**, 22:46-70.

Laumann, E., Galaskiewicz, J. & Marsden, P. 1978. Community structures as interorganizational linkages. In Turner, R., Coleman, J. & Fox, R. **Annual Review of Sociology**, Vol. 4, Palo Alto: Annual Reviews.

Galaskiewicz, J. & Wasserman, S. 1989. Mimetic processes within an interorganizational field: An empirical test. **Administrative Science Quarterly**, 34: 454-79.

Gersick, C. 1989. Marking time: Predictable transitions in producing intentional change in organizations. **Academy of Management Journal**, 32: 274-309

Gersick, C. 1991. Revolutionary change theories: A multilevel exploration of the punctuated equilibrium paradigm. **Academy of Management Review**, 16 (1): 10-36.

Gioia, D. 1992. Pinto fires and personal ethics: a script analysis of missed opportunities. **Journal of Business Ethics**, 11: 379-389.

Granovetter, M. 1973. The strength of weak ties. **American Journal of Sociology**, 78 (6): 1360-1380.

Granovetter, M. 1985, Economic action and social structure: A theory of embeddedness. **American Journal of Sociology**, 91: 481-510.

Greenwood, R. & Hinings, C. 1996. Understanding radical organizational change: Bringing together the old and the new institutionalism. **Academy of Management Review,** 21, 1022-1054.

Greve, H. & Taylor, A. 2000. Innovations as catalysts for organizational change: Shifts in organizational cognition and search. **Administrative Science Quarterly**, 45: 54-80.

Greve, H. 1995, Jumping ship: The diffusion of strategy abandonment. **Administrative Science Quarterly**, 40: 444-473.

Gulati, R. & Gargiulo, M. 1999. Where do interorganizational network come from?. **American Journal of Sociology**, 104: 1439-1494

Gulati, R. 1995. Social structure and alliance formation patterns: A longitudinal analysis. *Administrative Science Quarterly*, 40:619-652.

Gulati, R. 1998. Alliance and networks. **Strategic Management Journal**, 19(4): 293-317.

Hannan, M. & Freeman, J. 1984. Structural inertia and organizational change. **American Sociological Review**, 49: 149-164.

Hannan, M. & Freeman, J. 1989. **Organizational ecology**. Harvard University Press, Cambridge, Mass.

Harrison, J. & Carroll, G. 1991. Keeping the faith: A model of cultural transmission in formal organization. **Administrative Science Quarterly**, 36: 552-582.

Hartman, A. & Johnson, J. 1990. Formal and informal group communication structures: An examination of their relationship to role ambiguity. **Social Networks**, 12: 127-151.

Haunschild, P. 1992. Imitation through interlock: A social basis of corporate acquisition activities, Working Paper, Carnegie Mellon University.

Haveman, H. 1993. Follow the leader: Mimetic isomorphism and entry into new markets. **Administrative Science Quarterly**, 38: 593-627.

Hite, J. & Hesterly, W. 2001. The evolution of firm networks: From emergence to early growth of the firm. **Strategic Management Journal**, 22: 275-286.

Huber, G., Suteliffe, K., Miller, C. & Glick, W. 1993. Understanding and predicting organizational change. In Huber, G. & Glick, W. (Eds.) **Organizational Change and Redesign**. New York: Oxford Univ. Press.

Ibarra, H. 1993. Network centrality, power, and innovation involvement: Determinants of technical and administrative roles. **Academy of Management Journal**, 36 (3): 471-501.

Jarillo, J. 1988. On strategic network. **Strategic Management Journal**, 9: 31-41

Kilduff, M. 1993. Deconstructing Organizations. **Academy of Management Review**, 18: 13-31.

Kilduff, M. 1990. The interpersonal structure of decision making: A social comparison approach to organizational choice. **Organizational Behavior and Human Decision Processes**, 47: 270-288.

Kimberly, J. & Quinn, R. 1984. **New futures, the challenge of managing corporate transitions**. Homewood, IL: Dow Jones-Irwin.

Kotter, J. 1996. **Leading change**. Boston, MA: Harvard Business School Press.

Levitt, B. & March, J. 1988. Organizational learning. **Annual Review of Sociology**, 14: 319-340.

Lorrain, F. & White, H. 1971. Structural equivalence of individuals in social networks. **Journal of Mathematical Sociology**, 1, 49-80.

Macauley, S. 1963. Non-contractual relations in business: A preliminary study. **American Sociological Review**, 28: 55-67. .

March, J. 1981. Footnotes to organizational change. **Administrative Science Quarterly**, 26: 563-577.

Meyer, J. & Rowan, B. 1977. Institutional organizations: Formal structure as myth and ceremony. **The American Journal of Sociology**, 83, 340 - 363.

Miller D. 1990. Organizational configurations: Cohesion, changes, and prediction. **Human Relations**, 43: 771-789.

Mizruchi, M. 1992. **The structure of corporate political action**. Cambridge, MA: Harvard University Press.

Mizruchi, M. 1994. Social network analysis: Recent achievements and current controversies. **Acta Sociologica**, 37: 329-343.

Nadler, D., Shaw, R. & Walton, A. 1995. **Discontinuous change**. San Francisco: Josey-Bass.

Orlikowski, W. 1996. Improvising organizational transformation overtime: a situated change perspective. **Information System Research**, 7 (1): 63-92.

Park, S. 1996. Managing an interorganizational network: A framework of the institutional mechanism for network control. **Organization Studies**, 17 (5): 795-824.

Pettigrew, A., Woodman, R. & Cameron, K. 2001. Studying organizational change and development: Challenges for future research. **Academy of Management Journal**, 44 (4): 697-713.

Pfeffer, J. & Salancik, G. 1978. **The external control of organizations: A resource dependence perspective**. New York: Harper and Row.

Pfeffer, J. 1997. **New directions for organization theory**. New York: Oxford University Press.

Pfeffer J. 1998. **The human equation**. Boston: Harvard Business School.

Porras, J. & Silver, R. 1991. Organization development and transformation. **Annual Review of Psychology**, 42: 51-78.

Powell, M. 1987. From competitive strategy to cooperative strategy. **Harvard Business Review**, 65: 433-459.

Powell, W., Koput, K. & Smith-Doerr, L. 1996. Interorganizational collaboration and the locus of innovation: Networks of learning in Biotechnology. **Administrative Science Quarterly**, 41: 116-145

Romanelli, E. & Tushman, M. 1994. Organizational transformation as punctuated equilibrium: An empirical test. **Academy of Management Journal**, 37: 1141-1166.

Rowley, T. 1997. Moving beyond dyadic ties: A network theory of stakeholder influences. **Academy of Management Review**, 22 (4): 887-910.

Schein, E. 1996. Kurt Lewin's change theory in the field and in the classroom: Notes toward a model of managed learning. *Syst. Pract*, 9: 27.47.

Scott, W. 1991. UnPacking institutional arguments. In Powell, W. & DiMaggio, P. (Eds.) **The New Institutionalism in Organizational Analysis**, Chicago, University of Chicago Press.

Sevon, G. 1996. Organizational imitation in identity transformation. See Czarniawska, B. & Sevon, G. (Eds.) **Translating Organizational Change**, 49-68.

Shan, W., Walker, G. & Kogut, B. 1994. Interfirm cooperation and start-up innovation in the biotechnology industry. **Strategic Management Journal**, 15: 387-394.

Simon, H. 1962. **The architecture of complexity**, Proceedings of the American Philosophical Society, 106, December, 467-82.

Stacey, R. 1995. The science of complexity: An alternative perspective for strategic change processes. **Strategic Management Journal**, 16: 477-495.

Stuart, T., Hoang, H. & Hybels, R. 1999. Interorganizational endorsements and the performance of entrepreneurial ventures. **Administrative Science Quarterly**, 44: 315-349.

Tushman, M. 1977. Special boundary roles in the innovation process. **Administrative Science Quarterly**, 22(4): 587-605.

Tushman, M. & O'Reilly, C. 1996. The ambidextrous organizations: Managing evolutionary and revolutionary change. **California Management Review**, 38: 1-23.

Tushman, M. & Romanelli, E. 1985. Organizational revolution: A metamorphosis model of convergence and reorientation. **Research in Organization Behavior**, 7: 171-222.

Tushman, M. & Rosenkopf, L.1992. Organizational determinants of technological change: Toward a sociology of technological evolution. **Research in Organizational Behavior**, 14: 311-347.

Virany, B., Tushman, M. & Romanelli, E. 1992. Executive succession and organization outcomes in turbulent environments: An organizational learning approach. **Organization Science**, 3: 72-91.

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**. Cambridge University of Press.

Watzlawick, P., Weakland, J. & Fisch, R. 1974. **Change**. New York: Norton.

Weick, K. & Quinn, R. 1999. Organizational change and development. **The Annual Review of Psychology**, 50: 361-86.

Williamson, O. 1985. **The economic institutions of capitalism: Firms, markets, relational contracting**, New York: Free Press; London: Collier Macmillan.

Winship, C. 1988. Thoughts about roles and relations: an old document revisited. **Social Networks**, 10: 209-231.

Woodman, R. 1989. Organizational change and development: New areas for inquiry and action. **Journal of Management**, 15: 205-228.

TABLE 2. Contrasting the macro-environmental, internal, and network factors' influence on organization change

Dimensions	Macro-environmental Factors	Internal Factors	Inter-organizational Factors
Level of analysis	Macro-level	Organizational/ group/individual level	Organizational network
The role of organizations in response to changes	Organizations respond passively to environmental changes without too much latitude to manipulate environments. Notwithstanding, organizations can reasonably predict environmental changes and take proactive actions.	Organizations have complete control over internal changes in terms of radicalness, frequency, and duration. However, outcomes of internal changes also depend on external factors.	The degree of control that organizations have over changes initiated inside the network depends on their positions and relations in networks.
The scope of influence	Changes in macro-environments usually have impact on the wide range of organizations, for example, an industry.	Internal changes generally have direct impact on organizations' subunits. Without the existence of interorganizational ties, these changes will be confined inside organizations.	Changes taking place inside a network will mainly be confined inside the network. The range of influence depends on the whole configuration of the network. An organization's position and relations in the network define how much influence it can be subject to.

Change mechanisms	Change is initiated by macro-factors that are out of the organizations' control. The influence will be directly felt by organizations. Some changes will diffuse through interorganizational interdependence.	Organizations usually initiate organizational change by themselves and implement change in a top-down fashion. Administrative power plays an important role.	Two types of change mechanisms:
			• Possibility to change
			  a. Imitation
			  b. Diffusion
			  c. Resource Accessibility
			  d. Diverse and new information
			  e. Power leverage
			• Pressure to change
			  a. Interdependence
			  b. Division of labor

Representative studies	Huber et al. (1993); Romanelli & Tushman (1994); Anderson (1986)	Gersick (1989); Schein (1996); Morrison & Milliken (2000)	Powell et al. (1996)