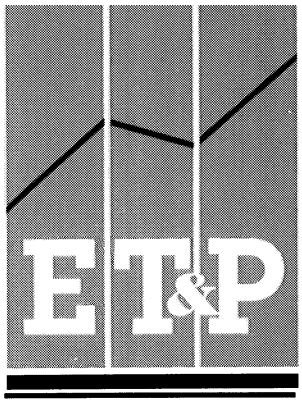

ENTREPRENEURSHIP

THEORY and PRACTICE

Vol. 19, No. 3
Spring, 1995

Published Quarterly by Baylor University

The Official Journal of the

United States Association for Small Business and Entrepreneurship

the U.S. Affiliate for the International Council for Small Business

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***Entrepreneurship Theory and Practice* (ISSN 1042-2587; USPS 760-330; formerly the *American Journal of Small Business,* ISSN 0363-9428) is published quarterly by Baylor University, Hankamer School of Business, The John F. Baugh Center for Entrepreneurship, Speight Avenue at 5th Street, Waco, TX 76798-8011. Institutional subscriptions are $75 per year in North America ($90 elsewhere); personal subscriptions are $45 per year in North America ($60 elsewhere).**

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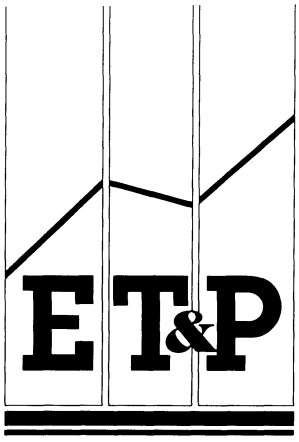

1042-2587-95-193$1.50

Entrepreneurial Opportunities in an Entrepreneurial Firm: A Structural Approach

David Krackhardt

Entrepreneurship has come into its own as an area to study. One only has to look at the legitimizing symbols of status in the field of organizations to see that this is true. Entrepreneurship has its own thriving division within the Academy of Management. It has its own journal. Chaired professorships of entrepreneurship are cropping up at the most prestigious business schools. Yet, despite this legitimacy, one of the recurring debates in the field centers on the definitional question, what exactly *is* entrepreneurship?

INTRODUCTION

Definitions of Entrepreneurship

Research on entrepreneurship has defined entrepreneurship in two fundamentally different ways. The debate has highlighted a dichotomy I would like to explore. On one side, entrepreneurship is a property or quality of the firm itself. For example, entrepreneurial firms are typically thought of as small (Aldrich & Austen, 1986), fast-growing (Drucker, 1985), and organic and network-based rather than mechanistic or bureaucratic (Birley, 1986). These distinctions give the entrepreneurial firm an advantage that is not available to other forms of organization. In particular, entrepreneurial firms are thought to be more innovative (Backman, 1983), flexible, and adaptable (Birch, 1987).

This perspective gives rise to an interesting "growth paradox," which occurs when a firm becomes so successful that it ceases to have those very attributes that led to its success. That is, it ceases to be small, leading to decreased flexibility and adaptability. It ceases to be fast-growing because it reaches a ceiling in market potential (one cannot sustain a 50% growth rate forever). And Michels's iron law of oligarchy eventually creeps in, creating barriers to its ability to operate as an organic, non-bureaucratic entity (Krackhardt, 1994). Thus, one often observes that the entrepreneurial firm eventually loses the competitive advantages that allowed it to succeed in the first place.

Others have defined entrepreneurship as a behavioral characteristic of employees and managers in the firm, not a characteristic of the firm itself. *People* who are entrepreneurial take advantage of opportunities to acquire added value (for themselves or for the firm). These writers have championed the idea of "corporate entrepreneurship" (Burgelman, 1983) or "intrapreneurship" (Pinchot, 1985) as an embodiment of entrepreneurial advantage in a large corporate environment. McClelland (1961) argued that

entrepreneurial behavior was embedded in an individual's personality, stemming from his or her upbringing. Stewart (1989) carefully documents the fire in the belly of the employees who are always "running hot" within the firm. From this perspective, it is argued one can observe entrepreneurial behavior in what would otherwise be characterized as a large bureaucratic (and decidedly not entrepreneurial) firm. For example, in Stewart's example, the employees in the "running hot" division were a small subsidiary of a larger, more traditional automobile manufacturing firm.

Locating entrepreneurship in the employee helps resolve the growth paradox of the first model: a firm can presumably maintain its entrepreneurial advantage as it grows by instilling a culture that fosters entrepreneurial behavior among its employees/managers (Kanter, 1983, 1989). From this perspective, there is nothing inherently entrepreneurial about the firm, per se. What counts is the entrepreneurial spirit of its members.

Stevenson and Jarillo (1990) allow for this possibility in the development of their model of entrepreneurship. They propose a definition of entrepreneurship that focuses on what entrepreneurs *do*. Moreover, their behavioral definition explicitly endorses a view that entrepreneurship can exist in any firm, large or small:

> Entrepreneurship is a process by which individuals—either on their own or inside organizations—pursue *opportunities without regard to the resources they currently control*. (Stevenson & Jarillo, 1990, p. 23, emphasis mine.)

Thus, Stevenson and Jarillo clearly side with the behavioralist view of entrepreneurship. While they also hypothesize that some firm characteristics will foster more entrepreneurial behavior in the employees, their definition and focus is on the individual. I will draw heavily on Stevenson and Jarillo's definition to suggest that the focus on individual and organizational characteristics may be enhanced with a more structural perspective.

There are three main components to the Stevenson and Jarillo definition. First, as I have said, *individuals* are the unit of analysis. This provides flexibility in seeking out entrepreneurial examples embedded within large firms and avoids the growth paradox.

Second, the behavior in which they claim to be interested is the pursuit of *opportunities*. They define the term *opportunity* as a "future situation which is deemed desirable and feasible" (p. 23). They suggest that they mean to be general in this definition and that the state of being "desirable" and "feasible" is a subjective one. Thus, *opportunity* might be thought of as a kind of subjective utility mapping, wherein one assesses how valued a future state might be and how reasonable it is for one to expect to be able to attain that state.

The third component of their definition modifies the kinds of opportunities they consider to be truly entrepreneurial. These opportunities are those pursued "without regard to the resources they [the entrepreneurs] currently control." On the surface, this seems to be the most ambiguous part of their definition. But upon reading further, it is clear that they mean to exclude from the domain of entrepreneurship the pursuit of opportunities for which one has sufficient formal authority to assign resources without having to bargain for them. If a vice president deems that it is feasible to attain a desired future state for an amount of money over which she has complete discretion, then this is not an entrepreneurial act. This is simply a budgeting allocation. On the other hand, if the vice president sees an opportunity that requires an amount in excess of her authority, then she must garner these additional resources through bargaining, influence, persuasion, or some other means. That is entrepreneurship. And that is what distinguishes entrepreneurship from mere rational economic behavior or mundane managerial skill.

But how is it possible to obtain the necessary resources when they are not under one's control? Building on the work of several other scholars (Birley, 1986; Jarillo-Mossi & Richart, 1987), Stevenson and Jarillo (1990) suggest that entrepreneurs successfully negotiate and acquire these resources through a broad set of informal network ties to others who have such resources. They formalize this prediction in the following proposition:

> Organizations which facilitate the emergence of informal internal and external networks, and allow the gradual allocation and sharing of resources, will exhibit a higher degree of entrepreneurial behavior. (Stevenson & Jarillo, 1990, p. 25.)

This theme is echoed in other writings about entrepreneurial activity. For example, Stewart points out:

> Networks as assets offer the benefits of flexibility, low 'overhead,' and low initial costs. . . . These advantages make it easier to seize opportunities. (Stewart, 1989, p. 146.)

Thus, this line of work suggests that maximizing network ties is the way to break down barriers to entrepreneurial activity within an organization. The normative recommendation is, your organization will become more entrepreneurial (and consequently more successful) if everyone is networked with everyone else. But, as Krackhardt (1994) points out, this is impossible at the extreme, and it is not clear that an organization would be better off even if one could accomplish this feat.

Entrepreneurship as a Structural Concept

An alternative model is proposed by Burt (1992a, 1992b). He draws on the principles in the area of social networks to build a theory of entrepreneurial opportunity, one that differs in important ways from the view proposed by Stevenson and Jarillo and others.

Burt (1992b, p. 274) starts with the etymology of the word *entrepreneur,* noting that it "'. . . comes from the French verb *entreprendre,* meaning literally 'to take, grasp, or snatch' (*prendre*) from 'between' (*entre*)." The argument in full is complex, but it is built on some simple premises, which can be summarized as follows. Take as a starting point one person, call her *A,* and assume she has a working relationship with two other parties, *B* and *C*. The critical issue to Burt is whether *B* and *C* are linked together in any way (directly or indirectly). Burt argues that *A* is better off if *B* and *C* are not connected than if *B* and *C* are connected. In Burt's terms, a structural hole between *B* and *C* enhances *A*'s positional power.

This structural advantage has several bases. First, more information is available to the one in the middle. That is, *A* obtains information from both *B* and *C,* and information is often valuable, even powerful. But, if *B* and *C* are connected to each other, then it is likely that *B* and *C* will be providing redundant information to *A*. Thus, a structural hole between *B* and *C* (a lack of connection between them) will increase the amount of non-redundant information provided by them, all to *A*'s advantage. This logic parallel's Granovetter's (1973) strength of weak ties theory. Granovetter argued that weak ties allow *A* to reach further across the network to receive distinctive (non-redundant) news, because strong ties in contrast were more likely to be tied to each other and provide redundant news.

Second, there is a control opportunity. For this basis, Burt draws on Simmel's notion of the *tertius gaudens,* the third who benefits (see also his earlier work on this topic in Burt, 1982, 1983). Negotiating with two people who are not connected can provide a stronger position for the person in the middle. The middle person can play one party off the other, putting them in competition with each other for the central person's attention, business, or other resources. Or, the central person can also play one off the other by resolving conflicting demands in favor of the position that most accords with the central person's interests.

To be specific, Burt portrays *A* as being able to play *B* and *C* off against each other, setting up *B* to be in competition with *C*. This competitive relationship between *B* and *C* allows *A* to benefit by extracting more concessions from *B* by threatening to negotiate a better option with *C* if *B* does not cooperate. *A* can do the same with *C*. In effect, *A* has transformed a simple tie with *B* and *C* into a powerful controlling relationship over *B* and *C*. But this is only true if *B* and *C,* again, have a structural hole between them (are not connected to each other). For, if they were connected, they could cooperate and orchestrate a response to *A*'s game plan.

A third way in which *A* potentially benefits combines both the informational and control advantages. In this case, commonly referred to as arbitrage, *B* has a resource that *A* has no interest in, but *C* is very interested in (perhaps even willing to pay a high price for it). Because *A* is in touch with *B* and *C, A* is in a position to know that *B* has something that *C* wants. *A* can negotiate with *C* and *B,* extracting higher rents from *C* to provide the resource, which she gets easily from *B*. As Burt points out, *A* can either benefit from providing the resource as a middle person for a profit, or can put *B* and *C* in touch with each other, engendering good will with both of them and thereby accruing a kind of social capital that can be drawn on later.

For all these reasons, *A* is at an advantage if *B* and *C* are surrounded by structural holes. The exact mechanism by which *A* benefits is less crucial than the fact that *A* can benefit many different ways from being in touch with people who are themselves relatively isolated from one another. These structural holes create the opportunities from which entrepreneurs profit.

Conversely, investing in many relationships with others around you may be a waste of time and effort if those others to whom you are connected are *not* surrounded by structural holes. In Burt's language, the *lack* of structural holes places *constraints* around the relationships one has. Such *constraints* inhibit the payoff one might get from developing or maintaining the relationship. The stronger a relationship *A* has with another, the more potential entrepreneurial opportunity *A* has with that particular other. But, the more the other players are connected to each other, directly or indirectly, the greater are the constraints *A* faces in negotiating, influencing, or getting new information from each of those others. Thus, the entrepreneurial opportunities abound for the individual who has *unconstrained* connections, connections surrounded by structural holes.

This also leads us to an important insight that Burt's model provides. Entrepreneurship is not a characteristic of an organization *or* an individual. *Entrepreneurship is a characteristic of a dyad.* One can have entrepreneurial opportunities with some particular players and yet be constrained from any entrepreneurial action with other particular players. If *A* is connected to *B, C,* and *D,* but *C* and *D* are connected to each other, while *B* is connected to no one, then *A* has more entrepreneurial opportunity in her relationship with *B* than she does with *C* or *D*.

To summarize, Stevenson and Jarillo acknowledge the importance of access outside the formal lines of authority to social, political, and economic resources necessary to take advantage of an entrepreneurial opportunity. Burt goes one step further to suggest

that simple access is not enough. To be able to take advantage of a potential access point, that point should be unconstrained, disorganized, shrouded in structural holes. Thus, *entrepreneurship is inherently a dyadic concept.* The task the entrepreneur faces is to discover *which* of his relationships are unconstrained and will lead to the greatest entrepreneurial opportunities.

Formalizing Entrepreneurial Opportunity and Constraint

Another advantage of Burt's approach is that he provides a mechanism for formalizing his argument with specific measures of entrepreneurial opportunity and constraint. The purpose of this article is not to develop a new measure of entrepreneurial opportunity, but rather to show how Burt's concept of entrepreneurial opportunity might be used to better understand a complex ethnographic finding. Since a modification of Burt's measure was used to uncover such opportunities, it is important to be clear what underlies the measure.

First, there is the prospect of entrepreneurship—the relationship to someone. One does not have the ability to negotiate with or otherwise influence someone without an established relationship with the party. And, *ceteris paribus,* the stronger the relationship with someone, the more power there is to negotiate with. For simplicity, I will consider the relationship between employees as either existing or not, represented respectively by 1 and 0.

But to truly take advantage of a structural situation, the targets of the relationships must be relatively disconnected from one another. If these targets do have established relations with each other, then it is more difficult to pit them against each other, to take advantage of the uncertainty in information flow as it travels from one to the other, to be the middle person, the entrepreneur. As any target becomes more closely connected to other targets, then the entrepreneurial opportunity becomes more and more constrained.

There are two sources of constraint. First, there is direct constraint, that which results from the various parties being actively and strongly tied to each other. Here we consider the degree of activity that the targets bring to each other. For example, if two targets are sole partners to each other, then they are more easily and likely to be organized with each other against any entrepreneurial interloper. On the other hand, if both targets are themselves busy with other partners, then the constraint on the entrepreneur is reduced.

Second, there is indirect constraint. As Burt points out, one can be indirectly organized by being "structurally equivalent" (having the same relationships to a common set of other actors). For example, it may be that two targets are not tied to each other, but rather are both tied to a common set of coworkers who provide common information, common resources, and even common values (Krackhardt & Kilduff, 1990) on how to deal with the entrepreneur. Such indirect constraints are not as strong as direct ones, but they can reduce the opportunity facing the entrepreneur.

I assume all relationships start with an equal opportunity, so that variance in the degree of entrepreneurial opportunity is governed by the degree to which any particular relationship is constrained, directly or indirectly. By assuming that each relationship presents itself with an opportunity and then subtracting from that the amount of constraint ($C_{i,j}$), we are left with the actual entrepreneurial opportunity, (E_{ij}), actor i has in taking advantage of the opportunity with j:

$$E_{ij} = 1 - C_{ij}$$

What is left is for us to more specifically define constraint.[1] Recall that the strongest entrepreneurial opportunity comes from the targets to whom one is connected but who are in turn disconnected from one another and also disconnected from common third others. The more the targets accumulate these direct and indirect ties to any given other target, the fewer the structural holes and the more constrained any connection to the target will be. Constraint from direct ties, CD_{ij}, is defined as:

$$CD_{ij} = \sum_k p_{ik}p_{kj}, \text{ for } k \neq i \neq j \tag{1}$$

and Constraint from indirect ties, CI_{ij}, is defined as:

$$CI_{ij} = \sum_k p_{ik}p_{kq}p_{jq}, \text{ for } k \neq q \neq i \neq j \tag{2}$$

where

$$p_{ij} = \frac{F_{ij} + F_{ji}}{\Sigma_k F_{jk} + F_{kj}} \tag{3}$$

and F_{ij} is defined as a "locally aggregated" (Krackhardt, 1987) friendship relation wherein both i and j agree that i considers j a friend.

Overall entrepreneurial opportunity, then, is given as a dyadic construct, E_{ij}, indicating the degree of entreprneurial opportunity that i has in his/her relationship with j. It is defined as:

$$E_{ij} = \begin{cases} 1 - \dfrac{CD_{ij} + CI_{ij}}{Max\{CD_{ij} + CI_{ij}\}} & \text{if } 1 > p_{ij} > 0 \\ 0 & \text{otherwise} \end{cases} \tag{4}$$

where $Max\{CD_{ij} + CI_{ij}\}$ is the maximum value of the sum of the constraints over all ij pairs.[2] Thus, the measure E_{ij} is normalized to range from 0 to 1 and is useful primarily as a comparative measure within the organization to identify those with relatively more entrepreneurial opportunity.

What follows is a case study of a small firm that underwent a union certification campaign. In Stevenson and Jarillo's terms, some of the employees saw the union shop as an opportunity, a desired future state that they could not ensure with the resources at their disposal, but one that was clearly feasible. To other employees, the union shop was clearly an undesirable future possibility, but one which they could not prevent through sheer formal control. Thus, two groups emerged from this series of events, and each used informal mechanisms to try to obtain its own desired outcome. I will use the differences in their structural entrepreneurial opportunities to shed light on why the group favoring the union failed and the group against the union succeeded.

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1. The operationalization used here differs from that used by Burt in some important ways. His is more complicated and requires more elaboration to justify than is necessary for my purposes here. It was not my intent to replicate Burt's method as much as to capture his theory in these measures, if simplified, to reveal how his theory sheds light on the behavior I observed in this case.

2. Note that the constraint that p_{ij} must be strictly between 0 and 1 ensures that i is connected to at least two people. That is, $p_{ij} = \Leftrightarrow i$ has one and only one tie, and $p_{ij} = 1 \Leftrightarrow i$ has no ties to anyone. While this operationalizational detail differs from Burt's measure of constraint, it is consistent with Burt's theory that one derives entrepreneurial opportunity by being between at least two others.

METHOD

Just prior to the certification campaign, network data were collected in this firm (see Krackhardt, 1990, 1992, for a description of the network study). Following the campaign, interviews were conducted with six key informants who provided information about the events that led to the initiation of the union attempt and also to the eventual failure of the campaign itself. I will provide an account of the critical events that occurred and relate these events to the friendship network. These events illustrate how the system of entrepreneurial ties can facilitate or debilitate any given individual's ability to leverage the system to one's own entrepreneurial advantage.

The Site

A small firm, called here Silicon Systems, was located on the west coast of the U.S. in an area known for its many small, start-up firms as well as some more established ones. Silicon Systems is a classic example of an entrepreneurial firm. It was small (36 employees), and its main competitive advantage rested in its ability to tailor the product quickly to customer demands (cf. Aldrich & Austen, 1986). It was financed largely through the capital investments of its three owners (Vesper, 1985). And it acquired customers and contract opportunities without knowing for certain whether it would have the necessary resources to immediately meet the demand (Stephenson & Jarillo, 1990).

Silicon Systems' business involved the sale, installation, and maintenance of state-of-the-art information systems in client organizations. Its clients ranged from local banks to schools to medium-sized manufacturing firms to R&D labs. Until recently, its largest competitors, such as IBM and AT&T, had focused their marketing efforts on the neighboring metropolitan areas. Of late, however, these competitors were beginning to pay more attention to Silicon Systems' market because of the growth potential of that market. According to the top managers of Silicon Systems, the small firm's competitive edge rested in its ability to respond more efficiently to idiosyncratic customer demands. They also tended to underbid every other potential contractor. Nonetheless, they were finding the competition had been cutting their bid prices more aggressively recently in order to take more business away from Silicon Systems.

Silicon Systems was wholly owned by the three top managers, each of whom owned an equal share. All employees worked in the single-floored building owned by the company. They saw each other regularly, although the installers spent many days at sites rather than in the office. Thus, they were familiar with each other to varying degrees, and each employee had an opinion about every other employee, with the occasional exception of new hires. The firm had grown from three to 36 people in fifteen years. Much of this growth occurred in the five years preceding the study. Most of these 15 years had been profitable, and the owners anticipated no downward trend in their business.

The Friendship Network

With the exception of a few employees who had just joined the firm, all of the 36 employees knew each other to some degree and spoke with each other occasionally. The network information obtained in this case study was based on the actors' own perceptions about who was related to whom in the firm. Each person provided his or her own estimate of the entire structure (Krackhardt, 1987) of the friendship network. These maps are represented as "cognitive cubes," or more formally, F_{ijk}, where i is the sender

of the friendship relation, j is the receiver of the friendship, and k is the perceiver of the friendship (see formula (3)).

The directions for the network questionnaire were as follows:

> In this section, you will find a set of similar questions with a list of people after each question. The question is: "Who would this person consider to be a personal friend?" Please place a check next to all the names of those people who that person would consider to be a friend of theirs.

These directions were followed by 36 questions (e.g., "Who would Cindy Light consider to be a personal friend?"). Each of these 36 questions was followed by a list of 35 names, any number of which the respondent could check off in response to the question. It is the responses to these items that form the basis for the calculations in formula (3).

THE UNIONIZATION ATTEMPT: A CASE STUDY

Four months after the network data were fed back to the firm, Silicon Systems was confronted with an unexpected dilemma. The National Labor Relations Board (NLRB) called the president of the firm (Steve) to inform him that the NLRB was granting a petition by a large national union to hold a certification election in Silicon Systems. This news came as a total surprise to top management. They felt nervous about the outcome and extremely sensitive about what this meant about the future of the firm. Further, they asked me to refrain from talking to anyone at the firm about the union or the union drive.

After the union drive was completed, I approached the top management of the firm for permission to interview some key people about what had happened. At that time, I talked to three people who were involved in the process on the condition that no one's identity be divulged. Subsequently, top management gave me permission to interview three more employees to verify the information obtained in the first set of interviews. The six informants were interviewed at length about their view of the union and the events surrounding the certification drive. The interviews were primarily unstructured, but specific questions were always included: "What were the key events in the certification campaign?" "Who were the main players (both for and against the union)?" "Why do you think the union failed to gain certification?" The six people represented a spectrum of employees with regard to their own support for the union and their longevity with the firm (one person had been there for almost the entire 15 years of the existence of the firm; one had been there for less than a year).

Because of the sensitivity of this issue, none of the information below is attributed to any individual in the firm. All accounts reported here represent a consensus of the informants.

By the time top management found out about the employees' union interests, enough employees had signed union authorization cards that the NLRB granted the union's request to have a certification election in two months' time. The three owners were highly concerned, since they believed that they would lose a distinct advantage they had over their larger competitors if the firm became unionized. They consulted labor lawyers to find out what options they had. Their lawyers informed them that there were legal constraints on what they could do to actively discourage certification without risking an unfair labor practices judgment. They decided that they would work within these constraints to provide what information they could to support management's position. However, the fate of the certification campaign largely depended on the dynamic forces

between the union officials and the non-management employees, especially those in the bargaining unit itself.

Neither representatives of the union nor the NLRB were willing to divulge what percentage of the bargaining unit had signed authorization cards. But an official of the union did confirm that, as a matter of policy, they do not request an election unless they have at least 55% of the bargaining unit signed up. Moreover, according to this official, the union prided itself on not losing certification elections. The union does not ask the NLRB to conduct an election unless it feels certain it will win. Election campaigns are costly, and the union did not like to lose face.

During the two-month campaign period, the national union held several organizing meetings. Gripes were aired about the firm. As is typical in such cases, debates ensued around the pros and cons of unionization. Feelings strengthened as the vote grew closer.

To understand the dynamics involved, it will be useful to refer to individual employees in the context of their positions in both the formal organization and the friendship network. The pseudonyms for these employees and their respective formal positions in the organizational chart are given in Figure 1. The friendship network is displayed in Figure 2.[3]

The Key Actors

The key players in management: Steve and Ev. Steve was the founder and president of this company. He knew all of its operations. An interesting contrast to Steve's managerial style is provided by Ev, the technical expert in the firm. Ev supervised the installation of much of the most sophisticated equipment in the field. His ability to solve problems in the field made him indispensable to a wide variety of people within the firm. His approach was more that of the engineer, the problem solver, than the manager. People came to him with problems, and he solved them or told others how to solve them.

While no one questioned Ev's technical skills, some of the installers who worked for Ev indicated discontent with his managerial style. In fact, unbeknownst to top management at this time, the dissatisfaction with Ev was part of the reason that several of the installers became interested in a union. As a result, contact was made secretly with a national union to organize the firm.

Key members of the potential bargaining unit: Chris, Hal, Ovid and Jack. The most central person in the friendship network was Chris (see Figure 1). He was tied to 16 people, more than anyone else in the organization. Chris had been with the firm for a number of years, and, as a veteran installer, his experience was appreciated. But his technical skills were not as strong as Ev's. In the field, however, Chris was often informally put in charge of a group of people to install some computer equipment, and his coworkers preferred working with him to working with Ev.

Before the union was contacted, Chris was supportive of the union's goals. He, too, did not appreciate Ev's supervisory style. Moreover, he was concerned about issues of pay and job security for himself and his fellow installers. While he was not the one who contacted the union, he had discussed with his colleagues the possibility of joining a union and favored bringing in the union to run a certification campaign.

After the union was contacted, Chris took a surprisingly low profile during the campaign. He did not lead the organizing meetings, and he said very little publicly.

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3. With the exception of isolates, the placement of the actors in these figures is determined by a multidimensional scaling (MDS) of the graph-theoretic path distances between actors in the network. The MDS solution tends to put the central actors in the middle of the figure and more peripheral actors scattered around the sides.

Figure 1
Formal Organizational Chart

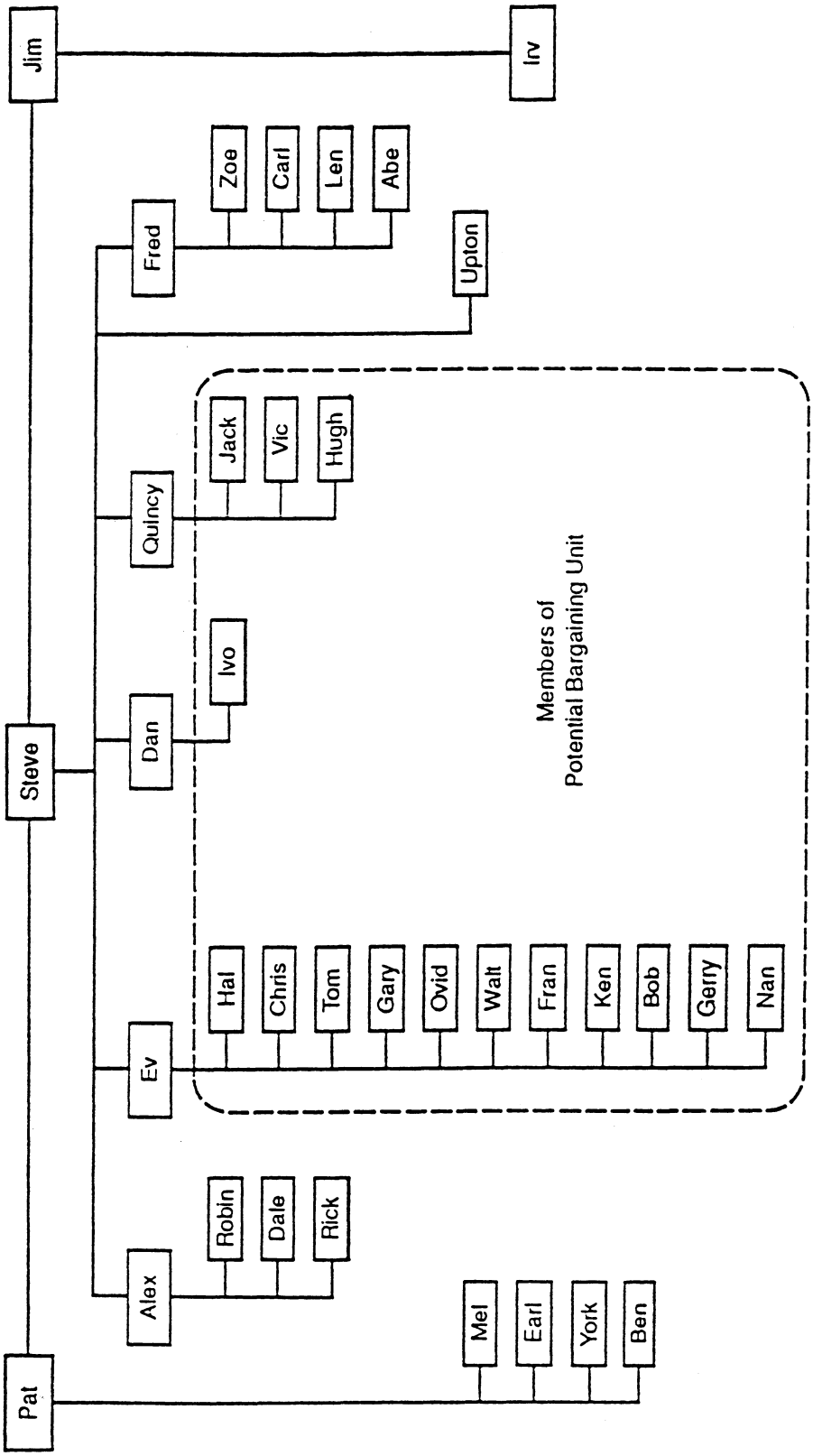
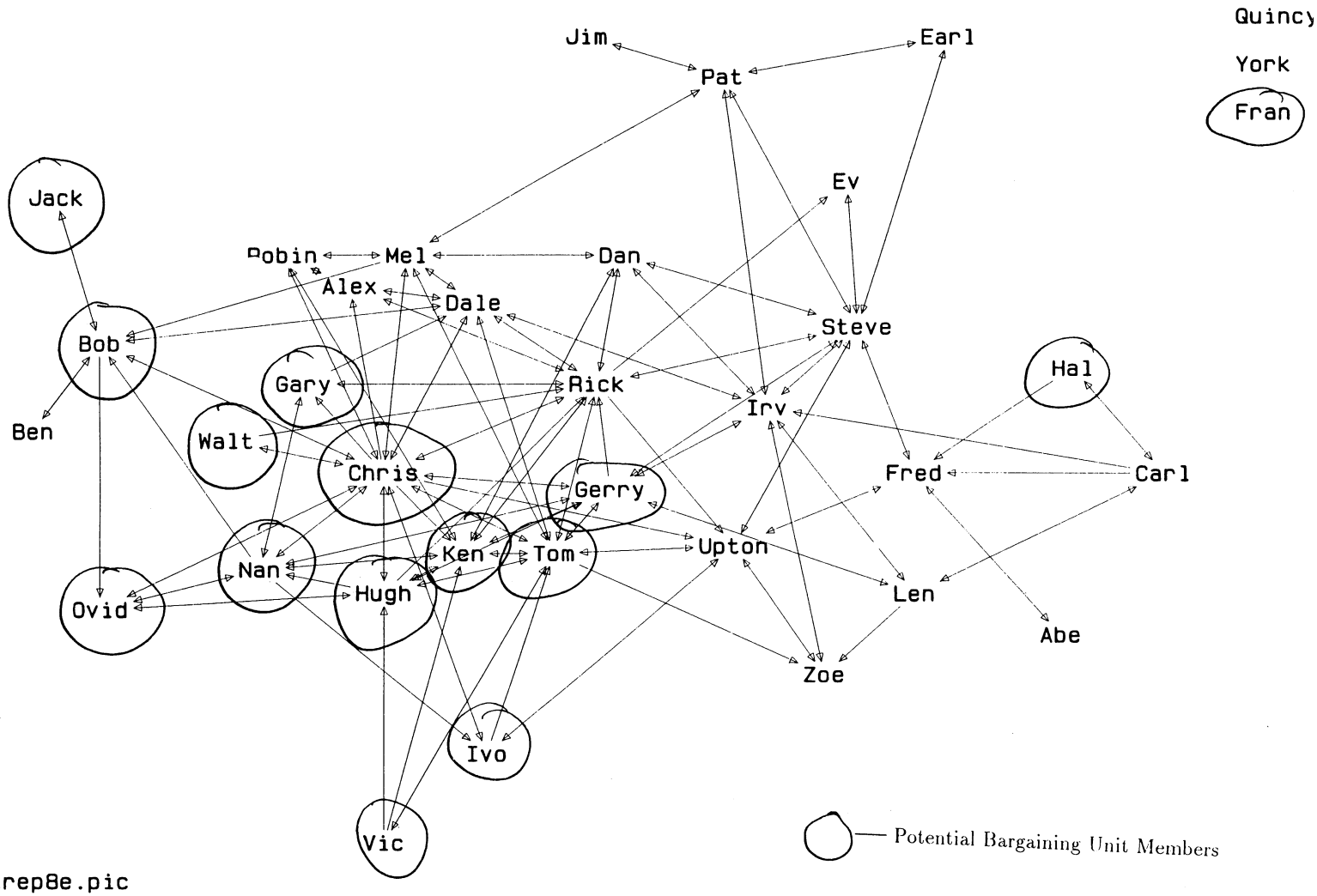


Figure 2
Friendship Network



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Several fellow employees turned to him for guidance on this issue, but he resisted taking a leadership role, despite the fact his position in the friendship network (Figure 2) made him the obvious choice to take on such a role. While the union officials spent time with employees at the local bars and other locations, they never approached Chris with plans about his own role in the process. Chris's lack of active leadership was considered by many one of the primary reasons that the union failed. Ten days before the certification vote, he resigned from Silicon Systems rather than face the pressures of publicly committing on the union issue. He rejoined the company two days after the certification vote was taken.

Strong pro-union positions were held by three other key members of the potential bargaining unit: Ovid, Jack, and Hal. While Ovid strongly favored the union, he was very quiet about it, to the point that few people knew where he actually stood on the issue. Nonetheless, as with Chris, he had the potential to influence several people in the core group of fellow employees on the union issue, as indicated by his friendship links to Nan, Hugh, Chris, and one link from Bob.

Jack was vocal about his dissatisfaction with how the company treated him. But his position on the periphery of the friendship network (see Figure 2, on the very left) aptly describes his lack of informal influence with most of his colleagues. He was considered someone who had a grudge and who was motivated by his own personal agenda to be pro-union.

The most vocal actor in the union's attempt at organizing everyone was Hal. He was the union's original contact with the firm and he was the instigator for the drive. He was the union's key spokesman at the organizing meetings, many of which he ran personally. He told the union representatives that he could get enough of his coworkers to vote for the union to assure a victory for the union. For the union's part, it obviously and publicly chose Hal to lead the employees in the organization attempt.

As one can see in Figure 2 (on the right side), Hal was not a central actor in the friendship network. It was true that Hal was the most enthusiastic supporter of the union, which is largely why the union officials selected him. However, he was not the person who wielded the most informal influence among his colleagues. In fact, he was seen by several members of the potential bargaining unit as a "loose cannon," and not "one of the guys."

At the start of the two-month campaign, the union had the interest and at least lukewarm support of a majority of the people in the bargaining unit. In the opinion of several people who were interviewed for this study, the company would have lost the election had it been held on the first day of the campaign. While it is not known exactly how many people were pro-union at the start, according to a union spokesperson interviewed, at least eight of the 15 members of the potential bargaining unit had signed authorization cards.

Over the two months, the two potentially influential people who also supported the union, Ovid and Chris, were both relatively quiet in their support. They wielded considerable potential influence, being well-connected to the core of the bargaining unit. In contrast, the two most vocal proponents of the union, Hal and Jack, wielded considerably less influence—they were estranged from their comrades in the friendship network. In the end, the union was defeated in the certification election by a vote of 12 to 3.

Entrepreneurial Opportunity in the Friendship Network

On the surface, it appears the reason for the failure of the union campaign is that its main supporters were ineffective either because they were isolated in the friendship network or because they were too quiet in their support. But this conclusion does not

explain why the two most outspoken members of the unit were so peripheral to the network as to render them ineffective, and why the two people with the most potential clout took a back seat in the process.

To address this question, I will draw on Burt's idea of entrepreneurship. Recall that entrepreneurial opportunity is derived by being between other actors who are themselves not densely connected, either directly or indirectly. Not all one's friendship ties are equally useful; some are constrained to the point that they have little entrepreneurial value at all.

Using formula (4), we can identify for each player in the organization where his or her fruitful opportunities lay. For purposes of exposition, we will draw attention to the most entrepreneurial (least constrained) of the friendship relations depicted in Figure 2 by identifying only those relations with an entrepreneurial score of .7 (on a scale from 0 to 1.0).[4]

Burt (1992b) uses the concept of "hole signature" to plot the entrepreneurial opportunity for any given player in a system. The hole signature is a connected histogram of the values of E_{ij} for each of the player's ties. For any given individual, then, his hole signature provides visual display that immediately informs the reader how much opportunity there is and with what players.

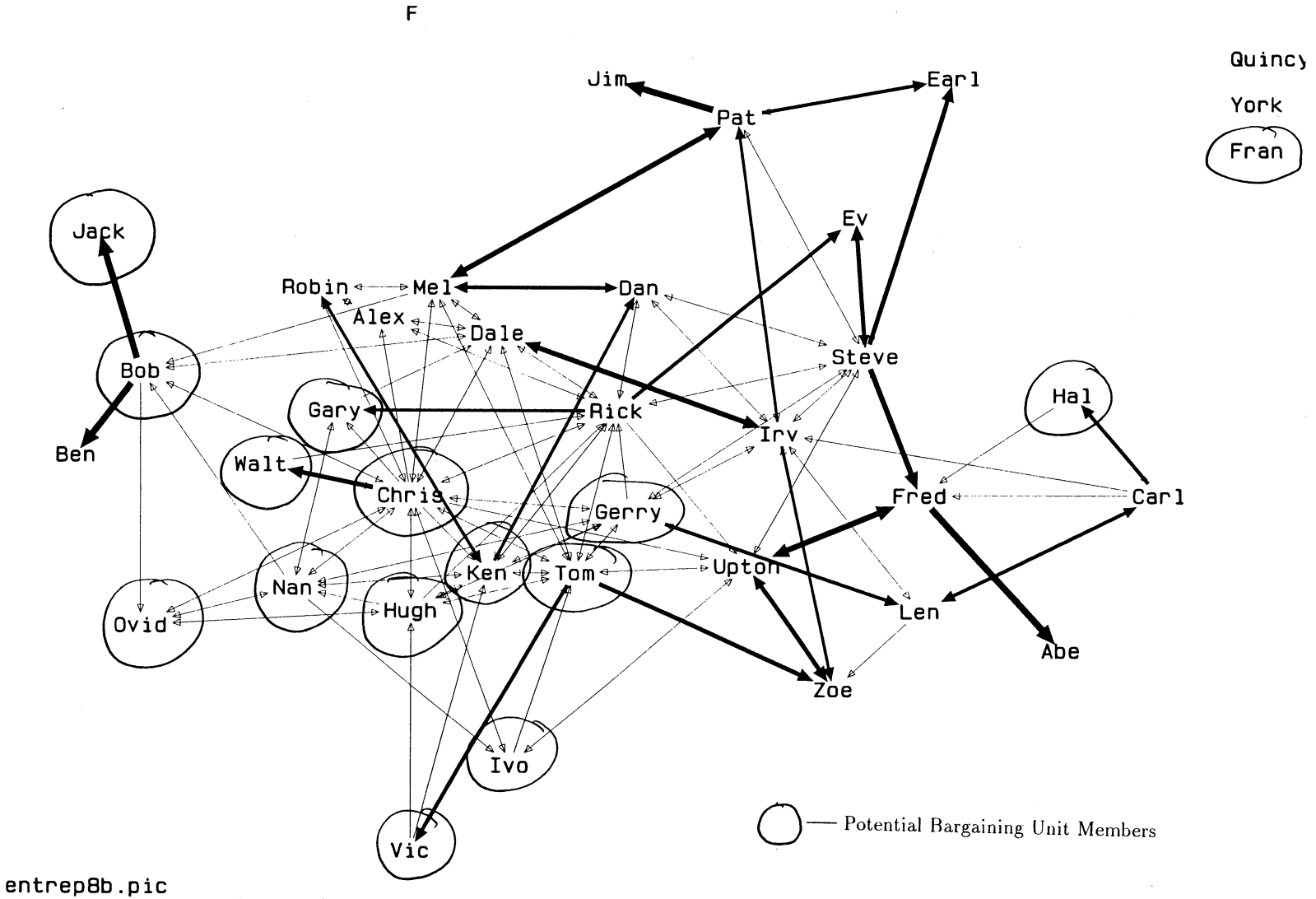
While the visual aspect of Burt's hole signatures is appealing, it works best if you are only interested in one or a few players' profiles. To capture the entire set of entrepreneurial opportunities in a network, I superimposed those strong entrepreneurial ties on the original friendship network depicted in Figure 2. The result is provided in Figure 3. Each of the original friendship relations is represented by a thin line. Each of those relations that exceed the .7 cutoff level of entrepreneurial opportunity is indicated with a bold line and arrow. The thickness of the bold line is in proportion to the extent that the entrepreneurial score exceeds the .7 cutoff, with the thickest lines indicating a maximum score of 1.0 (such as the bold line from Bob to Jack on the left side of the graph). The bold arrow indicates the direction of entrepreneurial opportunity. For example, the one-way bold arrow from Fred to Abe (in the lower right portion of the graph) indicates that Fred has an entrepreneurial opportunity in dealing with Abe, but Abe does not enjoy the same opportunity while dealing with Fred.

This graph summarizes the structural entrepreneurial opportunities, as suggested by Burt's theory, between all pairs of actors in Silicon Systems. Before discussing the specifics of what this graph reveals, it is worth noting the general observation that most of the entrepreneurial opportunities occur on the right side of the graph, while most of the potential bargaining unit members are on the left side of the graph. Further, the left side of the graph is far denser in overall friendship ties than the right side of the graph. This is consistent with Burt's theory and is a result of the operationalization of his measures: It is far more difficult to find entrepreneurial opportunities in a dense network of ties than in a sparse network.

This general finding takes on particular significance if we look at Chris. Recall that he, by far, had the highest number of friends of anyone in the organization. Further, we can see that these friends are frequently tied to each other both directly and indirectly. As a result, almost all of his relationships are heavily constrained. He has but one entrepreneurial tie, to Walt. The remaining ties are embedded in a dense mesh of friendships that, in Burt's words, leave him no room to maneuver, negotiate, or entre-

4. This seemingly arbitrary cutoff does not affect the argument proposed here. The issue is not how much absolute opportunity any person has, since such measures do not lend themselves to absolute interpretation. My intent here is to use these measures to underscore the relative differences among the players in their entrepreneurial opportunity.

Figure 3
Hole Signature Graph



preneurially influence others. Similarly, none of Ovid's relations are entrepreneurial. Both Ovid and Chris, who have significant and potentially powerful friendship contacts, are structurally constrained in these contacts as to render them almost useless.

But, does being entrepreneurially constrained mean that the players are relegated to silence, as apparently happened to Ovid and Chris? The answer is no, not necessarily. But being so constrained does suggest that taking a controversial position will be more difficult, will invite a stronger normative reaction, than if the entrepreneur is unconstrained. Chris and Ovid knew their support for the union would be welcome by some and not welcome by others. It was easier for them to keep their opinions to themselves than it was to lead the charge against some of the organized opposition.

Jack and Hal had one thing in common with Ovid and Chris: they all lacked entrepreneurial opportunities to others around them. The difference was that Jack and Hal lacked opportunities because of a lack of primary ties to the relevant set of others. Jack had one tie, to Bob, but the entrepreneurial opportunity was from Bob to Jack and not vice versa, suggesting that Bob had more room to negotiate with Jack than Jack did with Bob. From this perspective, Jack's opportunity for influence was weak. In addition, Hal's ties with Fred and Carl were of no entrepreneurial value because neither was a member of the potential bargaining unit.

One advantage that Jack and Hal had, though, is that they were relatively free from the number of constraining relationships that plagued Ovid and Chris. This freedom did not guarantee that they would be vocal in their pro-union opinions. But this freedom did make it an easier choice for them. Their opinions did not cost them the organized response that Chris and Ovid faced.

To summarize, the hole signature graph in Figure 3 shows the lack of entrepreneurial opportunities that four major players, Chris, Ovid, Jack, and Hal, had in their dealings with their colleagues. Hal and Jack lacked opportunity because of a lack of primary contacts to the group of relevance. Chris and Ovid had a number of such contacts, but these contacts were stripped of their entrepreneurial potential because of the constraining mesh of relations surrounding their friends. The result in part was that Hal and Jack's support for the union fell on deaf ears, while Chris and Ovid's support was muted at the source.

DISCUSSION

It is impossible to know all the reasons for the union's failure to organize Silicon Systems. But, according to the informants, a significant part of the failure was due to the fact that the union selected ineffective, non-powerful people to represent it in the process. While Hal and Jack were enthusiastic and articulate supporters of the union and its cause, they were not considered influential among their peers. With Chris's lack of visible support for the union, the "sure win" that the union had expected eroded away to a lopsided defeat.

It was not a mere coincidence that the vocal supporters of the union were ineffective in their attempts to bring about a "desired future state" nor that those central to the social group were effectively quieted. The actors' structural positions heavily influenced what opportunities the participants could take, or at least how much the opportunity would cost them. It is much easier to take a countervailing position when one is on the periphery of a social system, where one can escape the pressures toward conformity. Thus, Hal and Jack's social position had the advantage of freeing them from local social constraints, although their position also reduced their effective influence.

At the same time, Chris's position gave him the highest degree of contact with

others, but the position also embedded him in a network that prevented him from proactively supporting the union. This conclusion is in direct contrast to the prediction of Stevenson and Jarillo. According to their hypothesis, Chris should be in the best position to be entrepreneurial and effect a desired future state. Instead, Chris's rich net of ties became an entangled mesh of constraints.

One can imagine that friendship relationships in organizations offer a frequent opportunity for change by providing people in central positions greater amounts of potential influence. But at the same time, these powerful positions can be seriously constraining, if the networks are dense. And the mighty potential forces for change, for adaptation, for rethinking and questioning the status quo become ensnared in the status quo. They can become forces for stability and inertia rather than change.

CONCLUSION

I started this paper by noting that the term "entrepreneurship" has evolved over time. The traditional lay meaning of the word is restricted to small firms financed through venture capital (Vesper, 1985). More recent work has suggested that putting such artificial boundaries around the idea of entrepreneurship misses the point: entrepreneurship is a behavior that moves the organization (or some subset of individuals) to a new state of being. Stevenson and Jarillo (1990) have consolidated this new line of thinking by focusing attention on the opportunities of entrepreneurs and suggesting that the kinds of "future states" that entrepreneurs bring about often require human capital more than financial capital resources. By building on Burt's (1992b) formal model of entrepreneurship as it emerges from informal networks, I have taken Stevenson and Jarillo's model one step further. More importantly, I have suggested that their prediction about networking is conditional on the larger structure in which those network ties are embedded.

This work amounts to an admittedly marked departure from the traditional view of entrepreneurship. But, perhaps, the further we push the boundaries, the more insight we can gain into this important phenomenon. Extending Stevenson and Jarillo's work and incorporating Burt's ideas opens up new horizons for better understanding how traditional entrepreneurial firms obtain their advantage.

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