

**"WHY NETWORKING FAILS: DOUBLE BINDS
AND THE LIMITATIONS
OF SHADOW NETWORKS"**

by

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ABSTRACT

Changes in the environment of complex organizations in the last 25 years include greater globalization and stronger tendencies towards the processing of information rather than the processing of things. Increasingly, experts tout the emergence of matrix and network organizations as a solution to global needs to be both integrated and responsive. Yet network organizations remain relatively uncommon. Detailed network analyses, qualitative observation and depth interviews with top managers in a high tech global organization with divisions in Asia, the Americas, and Europe suggest that conflicting messages are given about hierarchy, lateral communication, and relations with outsiders. By saying, "Please network, but don't you dare bypass authority," what Gregory Bateson called a "Double Bind" is created. We define, illustrate and analyze four kinds of networks within complex organizations -- official (formal), social, shadow (the "real" way things get done), and career (the venue for so-called "networking") networks. The latter three, usually lumped together as the "informal" system are alive and well, but because of double binds usually remain sufficiently underground, localized or impotent so as to render them incapable of carrying the burdens of modern multiplex global organizations.

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Introduction

A review of thoughtful work on complex organizations shows that most writers feel that the environments of organizations have drastically changed in the past 25 years as post-industrialism, the information society and globalization have had their indelible impacts on organizational structure (eg. Galbraith and Kazanjian, 1988; Hage, 1988; Power, 1988). In many situations, there has been a significant change from "mechanical" to "organic" structures (Burns and Stalker, 1961). Since the late Sixties, an increasing number of analysts have touted the emergence of "matrix" and "network" organizations (Allen, 1978; Lawrence and Davis, 1978; Prahalad and Doz, 1981; Bartlett and Ghosal, 1989). Further, we have found that the characteristics of organizations as they appear to their members have changed even more in the direction of greater fluidity and permeability.

Structural fluidity is a necessary concomitant of the increased emphasis on global strategies, joint ventures and other international alliances by leading complex throughout the world. When asked by a researcher for a group's organizational chart, many informants laugh, and say, "What chart?" or, "Do you mean last month's, this week's or tomorrow's chart?" Sensitive and knowledgeable managers inflict constant scramble and reorganization upon structures which were once relatively stable. These managers feel constrained to create new structures and juggle the individuals within them because from these managers' perspective, whatever exists does not work.

Yet rather than having reduced status concerns on the part of members of organizations, increased fluidity of structures and boundaries, together with some other trends to be shortly described, have led to status anxiety and even greater concerns by members about the nature of authority and the manner of relations with those above and below them in the organization hierarchy. Powell (1987) argues that "hybrid organizations," those which combine formal structures with some sort of networking, either internally or through cooperative arrangements with other firms, are likely to proliferate within high technology industries in response to current elements in industrial society. Though Powell does cite some examples, companies report ever increasing frustrations with "global-matrix organizations" (Laurent, 1983) and the "network organization" as an internal form continues to stumble and sputter as the structure and nature of relationships within organizations become more and more fuzzy.¹ Academic literature reflects this frustration in resorting to normative suggestions for "creating a matrix in managers' minds" (Bartlett and Ghosal, 1989) or using personnel transfers to compensate for structural

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inadequacies. (Pralhad and Doz, 1981). Further, new business structures (e.g. the "inverted pyramid" of the CMB group in Europe are "headed" by a "group managers network") are launched as experiments into the void of structural solutions at hand.

So why if network organizations seem to be such a logical solution to current organizational problems, do they fail to gain wider acceptance? Our contention is that despite or because of widespread changes, most organizations give conflicting messages about hierarchy, lateral communication, and relations with outsiders. By saying, "Please network, but don't you dare bypass authority," organizations create what Gregory Bateson called a "Double Bind" (Bateson, Jackson, Haley and Weakland, 1956; Bateson, 1972). As a result, "shadow networks" -- the informal system which operates side-by-side with the formal organizational structure -- are alive and well, but for the most part remain so far underground or so localized as to render them incapable of carrying the communications and problem-solving burdens of the modern, multiplex global organization.

Shadow networks are not necessarily benign. Many operate to restrict rather than to promote cross-organizational and cross-cultural communication, as in-group versus out-group issues and protective coalition formation become the rule (Bachrach and Lawler, 1981). These networks serve to define new boundaries of organizational functioning, cutting across traditional lines of demarcation which had served to define unit identity. Many organizational participants find themselves astride multiple boundaries of shadow and formal networks with the resulting experience of conflicting demands for loyalty and effort. Traditional prescriptions of academics to find the "win-win" solutions provide little solace to the organizational participant who is strained by the demands of a full time position to which are added multiple task forces and the demands of informal structures which carry importance for career, professional identity and the achievement of business results.

There is a classic litany of recurring dilemmas on how best to structure organizations as the modern global organization developed (Chandler, 1986; Perrow, 1986; Prahalad and Doz, 1987). The multiple demands of function, product and region must be satisfied in now global organizations. An intricate web of centralized and decentralized elements are the necessary fabric of today's complex organizations with high speed information transfer allowing these seemingly polar opposites to coexist. These dilemmas, however, have led, as we have noted, to a realization that network organizations are a possible solution. But there are serious impediments to networks and networking which we discuss in this paper. We will illustrate our points with systematic network data taken from a study of a global, high technology organization.² We conclude with some modest suggestions for organizational improvement.

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Types of Organizational Networks

Formal Networks

There are at least four kinds of internal networks in complex organizations. In addition to the official (or formal) network, there are three others which operate in the "shadows" of organizational functioning: social, informal and career. Each type of network tends to carry somewhat different messages.

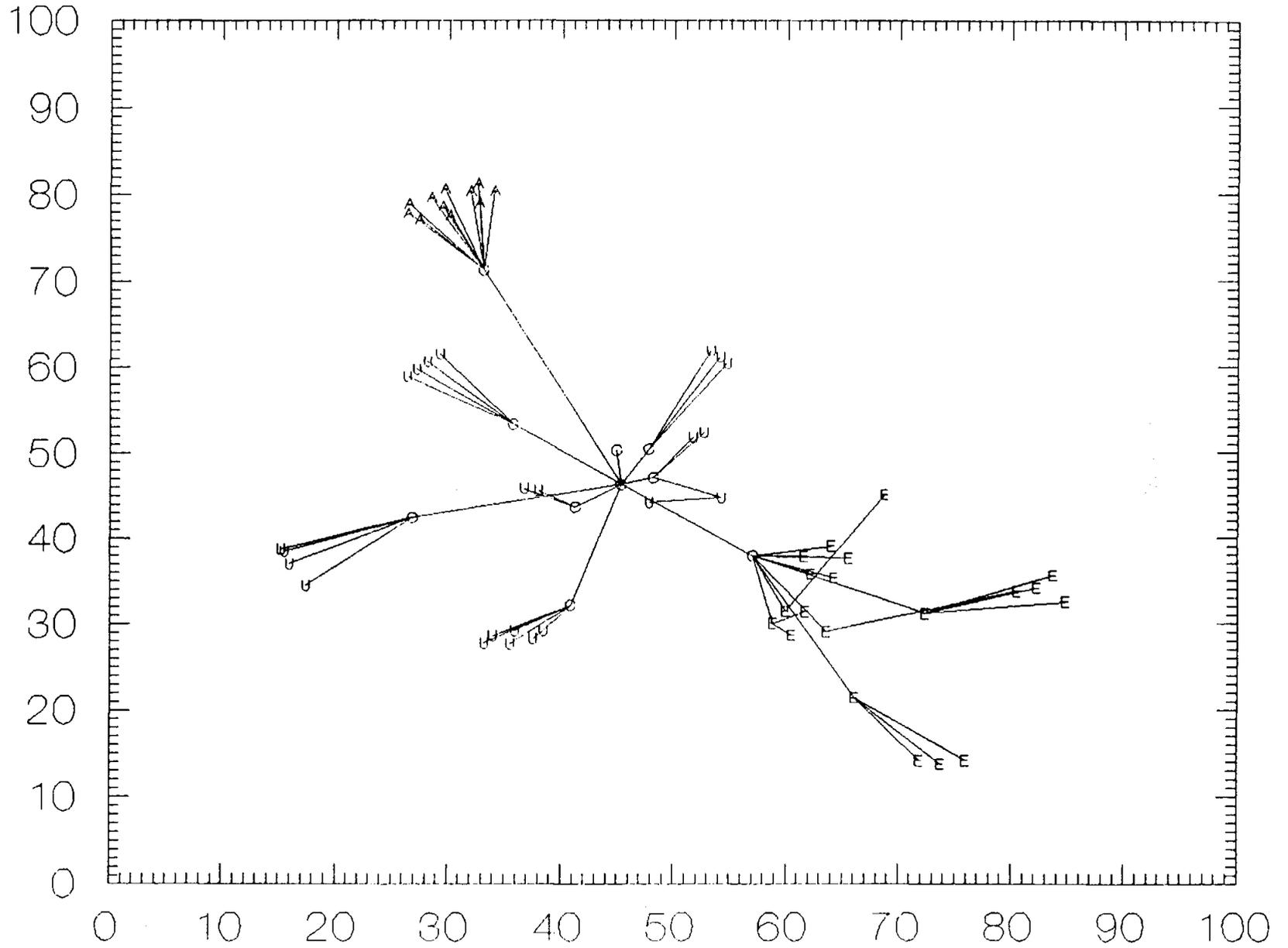
The official network is the familiar organizational chart or the structure of authority (Bachrach and Lawler, 1981). While the formalization of this network leads academics and practitioners to see this as quite rigid, the authority structure in today's organizations is often in flux. To emphasize that the authority structure is merely another network, we show in Figure I below a network image of an organization in a high technology industry as it existed at the beginning of our study.³

Figure I, FORMAL STRUCTURE, about here

Some comments and explanations are in order. These data were collected from the 66 most senior executives of a large international company with sales over two billion dollars per year as part of a process designed to improve the global competitiveness of this organization (referred to as High Tech or HT in this paper).⁴ To preserve the firm's anonymity the following description alters details of their products and industry as well as disguising the name of the company and all participants in the study.

The "A" nodes in the upper left hand quadrant are members of the Asia subsidiary, "U" represents the United States, and "E" is Europe. "C" are are member of HT's executive council. The numbers for the X and Y axes are arbitrary coordinates so that we can locate particular members of the network. For example, the CEO is obviously the "C" at about 45 X and 47 Y. The "C" right above him is the director of HT's legal department, who had no subordinates in the sample grouping. The lines between the nodes represent the relationship depicted in the network, in this case, the formal organizational chart. The "C" connected with the CEO who is also connected with the "A's" in the is the head of the Asia Subsidiary; similarly, the "C" between the CEO and the "E's" in the lower right hand quadrant is the head of the European group. Except for the these two members of the council, the other members are located in the United States, and the American staff reports to them. Because of this arrangement, the Americans who are not members of the council appear to be closer to the Executive Council than either the Europeans or the Japanese.

FORMAL STRUCTURE



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The formal network shows the contradictions, compromises and dilemmas typical of current global organizations. Most Executive Council members carried functional responsibilities (eg. Sales, Manufacturing). However, included as nominally equal to the functional directors were the leaders of two geographically separate units. The European structure reporting to the head of the European division similarly included A MIX OF functional leaders, product managers, and OTHERS who headed geographic regions. The European structure, reflecting corporate belief in emerging European integration in "1992" was undergoing change at the time of our study, with a tendency to eliminate the geographic units. The Asian organization was dominated at the time of this study by the Japanese market and all executives in the sample other than the Asian CEO were Japanese.

While these elements are particular to the organization under study, the conflicting demands of functions, products and regions create equally complex, overlapping networks in the variety of formulas adopted by organizations to manage the complexities of their task.

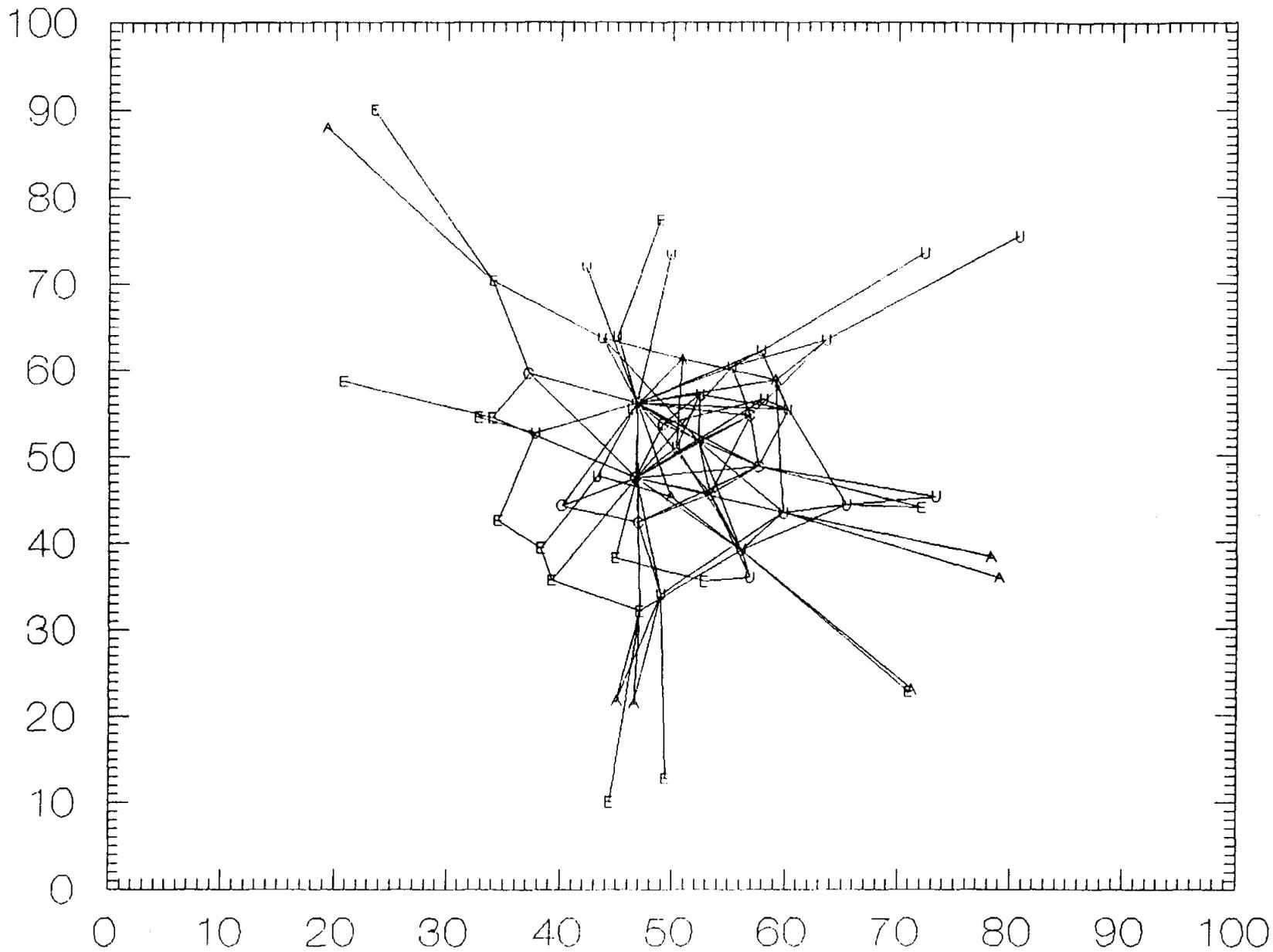
Social Networks

Students of organizations are of course familiar with the so called "informal" network made famous by the Hawthorne studies (Roethlisberger and Dickson, 1939). The network in which work relations are elaborated into social arrangements may appear to be frivolous, but it often carries the burden of the cultural system of the organization. Figure II, below, depicts a network of individuals who had ever visited the home of another member of this sample, (the data were gathered six months after globalization effort had begun). The network is smaller than the full 66, since not everyone had visited the home of another.

Figure II, VISITS TO EACH OTHER'S HOMES, About Here

Though supposedly "non-official" this network is clearly dominated by several members of the Executive Council, and by some Americans who report to them. Part, but by no means all of the reason for this American domination is cultural, since visiting in one another's homes is not similarly a part of the Japanese and European business culture. On the other hand, similar findings are available for another group within this organization in which the tracer for social relations was "socialized after work." The substantial conflict between formal and social networks is suggested by anecdotal data concerning social leaders. One key connecting node was no longer with the company one year later, and another was moved to a leadership position which carried fewer daily organizational responsibilities.

VISITS TO EACH OTHERS' HOMES



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Shadow Networks -- Communications

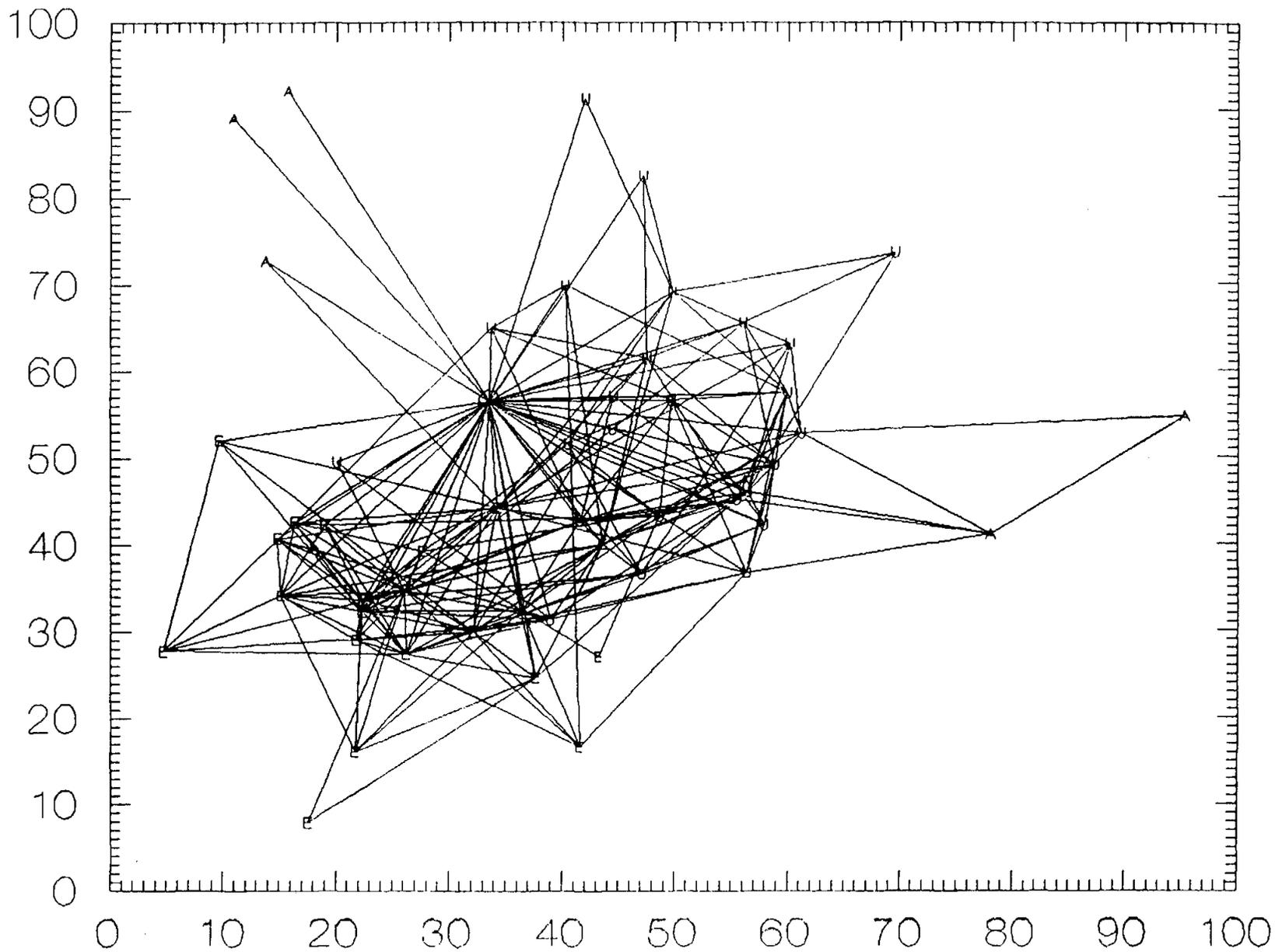
A second type of "non-official network" is the Shadow Network which provides ways of by-passing or ignoring the formal structure so that organization members can get things done. This **corresponds most closely to what organizational participants identify as the "informal network"** but has significantly more impact in the global business organization of the 1980's and 1990's than it did in Roethlisberger and Dickson's workplace in the 1920's. While the official rules of procedure prescribe the official technical and political systems and thus delineate the paths which interactions must follow (Tichy, 1983), any organization member who has been around for more than a few weeks knows that things "really" happen another way. The shadow networks emerge from the requirements of the formal organization and so are often called "emergent" networks (Tichy, 1983). They are always "pegged" to or "draped" around the scaffolding of the formal arrangements of the organization and generally do not have an existence separate from or away from the organization. There are usually two different networks within this shadow system -- the communications network through which information and requests for assistance are passed, and the influence network which augments the official formal authority network (Bachrach and Lawler, 1981).

It is convenient for everyone to keep both the official and the shadow networks in operation. Both may comfortably coexist because there are inherently multiple and often contradictory premises in all organizations. The shadow network serves the purpose of doing several useful and important things at once without the organization's necessarily having officially to recognize that it is doing this. For example, the "gatekeeping" actions of executive secretaries or assistants often turn into substantive decisions. Any good citizen of an organization knows this intuitively. Others learn painfully that to get something done, one first has to enlist the aid of this assistant, even though the formal organizational chart does not allow him or her to have such power. Every organization has a series of "gurus" on special topics who are consulted as needed but whose positions do not appear on any chart. By not formally recognizing these channels, organizations retain greater flexibility in decision-making, though at the cost of creating sets of double messages.

Figure 3, below, depicts the communication Shadow Network of the top members of HT at the beginning of the study. It is limited to telephone and fax and other written communications made in the month prior to the data collection in order to give "equal opportunity" to far flung members of the organization to be included in the network. It is indeed more complex than the formal chart.

Figure III About Here

PHONE OR FAX TIME 1



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While the chiefs of the Asian and European groups were headquartered in their regions the rest of the executive council including the CEO were based in the USA. Nonetheless, all ten were on the telephone to one another in a one month period. Although they may be on the same floor of a building, US executives tend to use the telephone at the very least as a first link in communications. ("Are you free, can I come down to see you?"). So in Figure 3 we collapsed them into one node, located at about 35 horizontal and 55 vertical (shown with a circle about the node). Though there are now only two persons who are directly connected to only one other (two Asians in the upper left hand corner), and there are obviously a fair number of lateral contacts, most communications are hierarchically organized and run through the Executive Council. Geographic boundaries are also respected, though in principle one could send a letter or a fax or make a telephone call anywhere in the world, and HT's communications system and budgeting encourages this. This is what we mean by the Shadow Network's being "pegged" to the formal network.

The "centrality" of different parts of the network can be shown with the aid of Freeman's "betweenness" index (1976, 1979) which is, roughly, the number of connections (technically, geodesic paths) in the network which run through a given node. If there is more than one path between two nodes, then the betweenness score is divided by the number of alternate paths.

Table 1
 Betweenness Scores for Formal Network and
 Phone/FAX Networks at Time 1 and Time 2

Structural Position	Type of Network		
	Formal Network	Phone/Fax T ₁	Phone/Fax T ₂
Executive Council	483	79	46
Asia	0	6	16
Europe	31	30	20
US	5	22	28

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Table 1 clearly confirms the centrality of the Executive Council. In the formal chart, the Council is obviously dominant, by intention. Asia has no Betweenness score at all, since all of its members in the sample report to one member of the Executive Council. In Europe there are a few managers who have subordinates, so they have some "Betweenness" scores. There is only one manager with a subordinate in the United States contingent. The informal communications structure vastly reduces the Betweenness scores of the Council, but this is because each member of the council regularly communicates with each other member, thus affording their subordinates with alternate paths to any single Council member. The Betweenness score, it will be recalled, is reduced in proportion to the existence of these alternate paths. Asia, Europe and the US retain their relatively subordinate status, however. As communications between lesser ranked individuals increase six months later at Time 2 as a result of the efforts toward globalization, the Betweenness score of the Council further drops, though it still dominates the others. The visual chart of communications at Time 2, however, is remarkably similar to that of Time 1.

Shadow Networks -- Influence

The Shadow Network of influence, obtained by asking members of the HT sample to check off individuals who "Gave me lots of ideas," is much more hierarchical than the communications network. It is also inherently asymmetric since by definition communications are symmetric and influence is not. The best way of depicting the degree to which this structure hierarchical is to use an index which not only shows the extent to which members are prominent influentials but also takes into account the extent to which these prominent influentials own up to being influenced by others who are structurally equivalent to them⁵. This is the situation in which "the Captains think I am a Captain" rather than being merely impressive with one's gold braid to the uninitiated. Table 2, below, shows the hierarchy of influence at time 1 and time 2.

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Table 2
Hierarchy Scores for the Influence Network
at Time 1 and Time 2

	Hierarchy Time ₁	Hierarchy Time ₂
Formal Organizational Level		
Executive Council	2.12	1.55
Level 2	1.44	1.26
Level 3	.64	.77

These figures show much the same patterns as the communications Shadow network. The relative "eliteness" of the Executive Council declines in the six-month period, but the general hierarchical character of the organization is maintained (the F statistic in both cases is significant beyond the .0001 level). The major change is in fact caused by the reduced hierarchy scores of members of the Executive council other than the CEO, whose score stays roughly the same (2.5 at T₁ and 2.2 at T₂). The CEO communicates little to levels other than the Executive council. His communications betweenness score at Time 1 is only 41 as compared with the Executive Council average of 79, and at Time 2 it is a mere 5.7 as compared with the Executive Council average of 46. While he may have reduced his communications, his influence remains about the same.

Career Networks

Finally, in addition to the formal organizational chart network, the social network, and the shadow network, there may also be a somewhat different "career" network. This is the one most often noted in popular language as "school-ties", the "old-boy"/"old-girl" or "mentor" network. While formal systems of promotion and performance appraisal are linked to the official structure, many organizational participants report that their career network does not correspond with the organizational chart in which one's formal boss is the one most responsible for advancement. One's sponsor may be several levels above one's boss, laterally placed, or even in another organization. The career network is responsive to an organization's technical, political and cultural systems but operates on another level. The career network ultimately is not concerned with the organization's welfare but

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rather with the needs of its individual members.

This makes the career network not entirely "legitimate" and hence its attraction as a topic for gossip and inside dopesterism. This also precludes systematic data collection via questionnaires on this topic. In an effort to capture this data the authors have "hung around" the HT organization. Therefore, the following observations on the HT organization are based on informal field work, rather than questionnaire data.

Sean, the CEO of HT, is the son of a Chicago Irish truck driver and is a tough, funny, and direct person whose background is in finance. In his previous job as a CEO of a different high technology company, he "turned around" a loss-making organization into a significant profit generator. Sam, the American head of the Asian unit, is an Ivy Leaguer with a strong background in social science and considered a "smooth", sensitive leader. Marcell, the head of the European group, is a French national, with a "first" in history from Cambridge and an MBA from a leading US university. Formerly a management consultant, he enjoys the role of "enfant terrible." Each of the three is considered to be charismatic by subordinates and other organizational participants. Each is capable of managing his own company as attested by continuing streams of offers and calls from "headhunters." Moreover, each has the "ear" of the Chairman of the Board and considers him as a "sponsor." While Sam and Marcell nominally report to Sean, they have an additional career network path to the Chairman of the Board. Their employment options outside HT also contribute to making them "more equal" than the other members of the Council.

Thus, for non-American managers, careers may be enhanced by paying close attention to the geographic leader and somewhat less attention to the CEO and to the other members of the Executive Council although this is counter to the publically stated wisdom and policy of the organization. The situation in Asia is made more complex by the fact that there is a Japanese head of the Japanese group who is not shown on the chart. The Japanese may look more to this individual for their careers since they feel that Sam, as an American, will have limited time in this position while they will remain in Japan.

With the increase in international careers as a step toward globalization, the career networks will undoubtedly assume greater importance and greater divergence from the formal systems. Managers already speak of the necessity for informal links to key individuals to assure "re-entry" after periods abroad when they risk "being forgotten by the people back home." A current joke in the organization is, "what do you call a high potential manager who lets his boss and the human

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resources group manage his career? An ex-manager in HT." While these have always been elements of career management in large organizations, the global careers create particular stresses in these areas and focus critically upon the "unofficial" career networks which operate in the shadows of the organization. Those with international careers have the opportunity to build multiple networks in support of career. Equally, there is the risk that networks left behind become inactive, and transiency or cultural exclusion preclude the development of new or replacement networks.

Changes in HT's Networks over Time

We provisionally summarize what we have learned about HT and its networks and suggest what this means for organizational structure generally. The general sense is that HT, after one year of aspiring to become a more global organization is still America centered. Additionally, each geographic division still looks much more within itself than across regions. Despite a desire for more lateral communication and influence, HT remains quite hierarchical. Much effort has been spent by HT to alter both the geographic ethnocentrism and the hierarchical rigidity.

While there has been significant change in the desired directions, there is also inertia, a sense of drag. We find the cause of the drag, here as elsewhere, in contradictions in organizational networks, and in unspoken double binds.

The four types of networks, official, social, shadow, and career may seamlessly blend. The rules which guide them may be quite different and yet not necessarily contradictory if the occasions on which one network is invoked rather than the other are quite clear. Experience suggests that this happy set of circumstances is quite rare in modern organizations. Rather, "double binds" and "transcontextual confusions," concepts which elaborate the consequences of networks which carry conflicting messages may be more appropriate. Since these theories are not necessarily familiar to readers (though the double bind has entered the popular lexicon of mental health professionals), we offer a brief exposition.

The Theory of the Double Bind

In his original theory of the "Double Bind," Bateson and his colleagues postulated that conflicting messages in critical early childhood interpersonal relations (typically, with a parent) could lead to an experience which might under some circumstances be conducive to the development of schizophrenia (Bateson, Jackson, Haley and Weakland, 1956). Later, he amplified and corrected the theory (Bateson, 1972).

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First, the double bind is not simply a conscious or even unconscious awareness that the boss is sending out conflicting messages or requires contradictory actions. This is not enough to produce the double bind phenomenon. Rather, there must also be "some sort of tangle in the rules for making the transforms" from some prior situation in which the rules were originally learned to the current application. Rules are important because they help us to learn new things, that is, rules form the basis for learning to learn or what Bateson calls "deutero-learning." For "we act as though a whole class of problems could be solved in terms of assumptions and premises fewer in number than the members of the class of problems." If rules sound like a good thing, then remember that rules are also habits and "habits are notoriously rigid... The very economy of trial and error which is achieved by habit formation is only possible because habits are comparatively 'hard programmed,' in the engineers' phrase. The economy consists in not re-examining or rediscovering the premises of habit every time the habit is used."(Italics in original). Thus, the double bind confounds or "tangles" our habits as well as the very premises of these habits (which premises Bateson notes are likely to be high order abstractions).⁶

Organizational structure, the official network, is a set of abstract rules which are to govern ideal patterns of behavior. As a set of rules or habits, organizational structure is subject to "transcontextual confusions." In general, the rules of organizational structure which the official network exemplifies are always tangled, because the abstract premises on which they are based are inevitably a gross oversimplification of the actual behavioral or shadow networks. If the official or formal network is merely oversimplified and the newcomer is caught in "transcontextual confusions" which are merely amusing, then the confusions are benign and socialization eventually overcomes the problem. More often than not, a network carries a message contrary to the official creed. That contrariness, if fully understood and recognized, does not necessarily create a double bind. For example, a newcomer may read that the organization works from 9 to 5 yet the informal system may quickly point out that no top executive leaves before the boss does. This is not a double bind, since the informal rule is well known and understood, though it sometimes may be a nuisance to people who need to get home on time.

While some members of a system may recognize the existence of networks based on contradictory principles, one is generally not allowed to talk about it. And this "denial," as in the case of individual double bind pathology, can be "crazy-making." It is also very difficult to "cure." For in addition to the binding quality of the "transforms or rules" (one of the rule is "don't talk about or recognize the double bind") there is also a quality of "no escape." The traditional responses to a double bind are a. It's impossible; b. Try to resolve the cognitive complexity; and

finally c. Flee. The powerful aspect of the double bind is that these options will not work. In humor, laughter provides distance from the "transcontextual confusion." In the work situation, the contradictory elements are defined as real and unresolvable. The costs of "exit" are made quite high both in the career implications and a residually implicit set of questions about the individual's competence which makes exit a threat to one's self-esteem.

Double Binds in HT's Networks

We have now located the source of the "drag," or inertia in the HT system: there are double binds both about globalization and about informal or shadow networking. The double bind in informal networking comes about in a curious but quite typical fashion: the CEO "orders" his subordinates to be "loose and flexible" and to utilize their own initiative in making connections. From a logical point of view this creates a double bind in which no one can win: if employees follow the orders and become good networkers then they are subservient and are not loose and flexible! For example, Alex, an outspoken Australian engineer, the Council member highly central in the in the home visit sociogram who was subsequently fired, noted this in our interviews about the global network:

This loose and flexible thing of Sean's, he's out on his own. He doesn't have buy-in on this... The world works generally with people that are sheep who follow structures and some of this stuff, loose and flexible, whatever Sean wants to call it, goes against centuries of history... You could talk all you like about horizontal stuff. Europeans still believe in Monarchy.

Alex thinks Sean finds it difficult to abandon his direct American style of management:

You make a decision in Japan, you then seek a consensus, go through all the stuff. You then come back, after you got complete buy-in in Japan you then come back and you say to Sean, we're gonna do this, or we want to do this. Sean says, "No you're not, I don't agree with that." And he says, "Next time why don't you just call me from Japan." But that never worked... you're flying in the face of a lot of traditional structure here which can't go away.

Here the double bind is "Be loose and flexible on a global basis but the moment I don't agree, I will intervene." We cannot determine from the interview text whether Alex in talking about "traditional structure" referred to Japanese needs to make decisions their way, or American needs to control from top down, or both. In either case, those needs, when not overtly recognized, lead to double binds.

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Another, more subtle double bind, is created when members of the Executive Council say global networks are for them (the rest of the company) but not for me because I don't really need to improve. The following comes from an Alabama born marketing manager, Jimmy, the **other central person in the home visit network**. He was not fired, but rather put in charge of "long range planning."

I haven't built any new global network as a result of this [workshop] to any major extent. The Executive Council have been working this thing for a long time. I have been dealing with Japanese marketing management for many, many years, as well as the other management... The networking thing I think is real important for those who didn't have any networks before... It is just in my particular case, I had an awful lot of those built up already -- perhaps more than almost anyone... To me a network is there needs to be someone talking on either end of the line, not just that there is a line there.

Not insignificantly, those most sensitive to the double bind were themselves good networkers but were in various ways "marginal men." The definition of the double bind is that it may not be recognized and certainly not discussed by full participants in a system.

To be sure, not all the drag on the system comes from double binds. Some managers were so conditioned by the company's authority structure that the networking message did not penetrate at all, so one can hardly suggest that there were dual messages. Here is a quote from a manager who, unlike Jimmy, did not recognize the need to become personally involved. Rather, he understood the exercise as merely being another "fix" to the formal organizational chart.

I have almost no interaction with Europe, and on the subjects where there should be interaction, I think that there is a more logical point person, and I let that point person handle that relationship.

While dangerous double binds are by definition almost impossible for integrated members of a social system to observe, more benign transcontextual confusions are much more often seen clearly. In fact, that was the major message of the global workshop. Jimmy repeated a refrain common to our interviews with the other 66 members of the workshop.

It [the workshop] has helped me and my understanding of differences and why perhaps you get into conflict -- we get into some of the conflict that we get into that don't seem to make logical sense and the reason is that the logic works differently...

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"The logic [cross-culturally] works differently" is as good a definition of a transcontextual confusion as one can get. But awareness of this confusion seems much easier than awareness of a double bind. Cultural differences do slow down network communication, are not that **easy to change**, but on the other hand they are held to be legitimate differences. If HT denied the existence of cultural differences, then they too might become double binds. Cultural differences, because they are legitimate, carry the burden of the true double binds in the system and are convenient scapegoats for problems one cannot even speak about. It is our impression that cultural differences between, say between the Japanese and the French, are sometimes "blamed" for problems that are organizational in nature.

Perhaps the most insidious double bind occurs when the career, official, and shadow networks all operate at cross-purposes. If the career network does not support the shadow network and is contrary to the official network and the situation is not a fit one for discussion, then it becomes very difficult to create a shadow network that gets good work done for the official one. Individual needs for security and advancement may take precedence over group priorities.

Discussion

High Tech Company is not unique, though it is probably more global in scope and capability than some other allegedly global companies. It is a world wide leader in its field and is learning to be both locally responsive and globally integrated (Prahalad and Doz, 1987). Moreover, it clearly recognizes the need to change many of its patterns if it is to continue to compete successfully in the 90's. What is more, the data after only six months of effort directed by leading experts on organizational change show that it is beginning to move in the direction of more flexible global networks. Nonetheless, HT falls short of the vision promulgated by the organization literature as necessary for such a company. If HT has such a hard time with creating a flexible, global network structure, then other firms less well endowed must be having an even harder time.

Part of the problem lies in the deep embeddedness of authoritarian structures within organizations in which CEO's believe they have an inescapable fiduciary obligation to stockholders which ultimately necessitates the exercise of absolute power. CEO's are therefore surrounded with the trappings of power, so many of which are taken for granted. When the norms of democratic civil society -- loose, flexible, non-authoritarian, lateral networks -- are introduced into for profit organizations they seems so natural and so reasonable that the unspoken "dirty

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secret" of the authoritarian and more rigid economic structures is ignored. It is not that shadow networks have not existed before -- no organization is ever without them. It is their elevation to legitimacy and to standard operating procedure that seems a contradiction in terms. Let Eastern Europe note that a marriage of democracy and market driven organizations is not as natural or easy as it may seem.

Authoritarian organizational structures are not merely an archaic cultural survival of 19th century robber baron capitalism but in fact are a paradoxical response to contemporary trends in the technical and political environments of organizations. Globalization of markets and production has led to familiar structural dilemmas in which there is an oscillation between functional and product structures, a tendency to downsize, and a desire for both centralized control and decentralized response. At the same time that flexible network structures are encouraged, the pressures created by foreign competition produce a demand for greater central authority in order to extract more and more from fewer employees.

Short of changing the nature of economic structures, and the attempts of the 20th Century to do this have not been notably successful, an important first step is to recognize the incompatibilities between network structures and corporate authority structures and to move this inconsistency from the realm of double bind to the domain of paradox. Not that living within multiple contexts is an easy thing, particularly for linearly trained executives with engineering backgrounds. Flexibility and looseness require breathing space and time -- the very commodities in shortest supply in high pressure organizations in which bureaucratic careers are no longer certain or inevitable. Career networking may be useful to individuals but, as we saw, counter-productive to organizations since career networks may exacerbate the double bind.

Easy solutions are unlikely. It is not easy for CEO's and organizations to accept fuzzy realities, but the increase in global competitiveness seems to call for a more sharp awareness of the inevitability of structures with transcontextual confusions. The first step in solving the double bind is to bring it out into the open.

Notes

* The openness of HT to change and self-awareness is unusual. Our debt to the organization and its members is enormous yet cannot be publicly acknowledged. Noel Tichy, Ram Charan and Hirotaka Takeuchi along with Michael Brimm conducted the workshop upon which our empirical data revolve. The help of the other workshop leaders in assisting us to understand HT better was invaluable as was their input to our thinking about change. Gregory Bovasso assisted in the analyses of the networks and other questionnaire data, and Patricia Przygodski and Melissa Smith conducted the interviews with the 66 members of HT. Suzanne Hazlett commented on an earlier draft. Our interpretations and conclusions are ours alone and do not necessarily reflect HT's views or those of our colleagues.

1. Powell (1990) in a stimulating and thorough review of the literature on organizations and networks argues that network organizational forms are a special type and not part of a continuum between markets and hierarchies. He finds organizational boundaries less and less germane in many industries. Almost all his examples and indeed the foundations of his argument are industry rather than firm based. It may be that since expectations in industry based networks are quite different from those in firm based networks, many of the double bind problems we shall find at the firm level are less of an issue. This is not altogether clear, however, since he notes, "We know very little about the phenomonology of work under different governance structures (p.327)."

2. For an analysis of the structures of informal networks, their relationships to formal networks, methods for organizational network analysis and some prior network studies of organizations see Tichy (1981).

3. This and the other network charts in this paper are produced in the following way. First, a matrix of 1,0 (an adjacency matrix) is obtained. In the case of the organization chart, in the row corresponding to individual I, we place a 1 in the column corresponding to individual J, if I reports to J. If I does not report to J we place a 0 in the row and column. Similarly, if the relationship is "communicate with by telephone in the last month" we place a 1 in another matrix if the communication took place and a 0 if it did not. Note that the authority matrix is asymmetric, that is if I reports to J, J does not report to I, but that the communication matrix, barring forgetfulness, is symmetric -- if I talked with J, then we assume that J talked with I. For purposes of creating our network picture, however, we assume the authority relationship also to be symmetric, since the direction of authority is easily inferred from the form of the network, and the mathematics which now follows works best with symmetric relations. Given the symmetric matrix, then, we ascertain whether the matrix is entirely connected or there are isolates (in a formal organization chart,

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there are of course no isolates, but there might be in a communications matrix). For this and other network matrix manipulations we use a series of programs developed by Borgatti (Borgatti, 1987, 1988a, b). Given a completely connected network, we then compute Hubble's input-output measure of distance between members of the network using UCINET (Hubbell, 1965; MacEvoy and Freeman, 1986). With this measure of closeness between members, we then find a non-metric three dimensional MDS solution (Borgatti, 1988b) and finally rotate and graph the solution as a network in three dimensions then projected onto two dimensions for presentation in a printed medium. The program for the graphic rotation and manipulation was written by Charles Kadushin and uses SYGRAPH (Wilkinson, 1988). to obtain the final output.

4. Actually, 65 nodes are shown in Figure I, since the position of one leader was not clear.

5. This index was developed by Burt (1982 pp 42-54). In his terminology the index is called "Primary Form." Its range is from zero to a theoretical maximum for any given network of 1 -- the sum of all the scores for all the members of the network (Knoke and Burt, 1983). In Table 2, the primary form scores are multiplied by 100 and labeled as "Hierarchy."

6. Bateson's second qualification of his original theory is that not all confounds or tangles are necessarily bad. "We deal not with a single syndrome but with a genus of syndromes, most of which are not conventionally regarded as pathological." Humor, art and poetry, for example, thrive on "transcontextual confusions" for which there is always a "double take." A joke is funny in part because it gives one the experience of zany rules. Both humor and poetry are difficult to translate, because the rules which they play with are embeded within a given language and culture. Not that modern global organizations overflow with humor or poetry. Nonetheless, much misunderstanding occurs in the areas of humor and passion, but this is a subjectd for another paper.

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