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Interpersonal dynamics in network organizations

ABSTRACT: Network organization is an organizational form that holds a big promise of reaching organizational flexibility. It is often argued that by means of tearing down the walls of bureaucratic authority organizations can promote organization-wide cooperation and integration, essential features of competitive organizations in a changing marketplace. In this paper we look at a simpler version of network organization i.e. matrix organization in order to study interpersonal dynamics in an organization. Specifically, we look at social networks and show that the patterns of relationships predicted by the expectaions of theory of network organization does not emerge. Contrary to expectations, we find the lack of lateral networks and strong vertical communication with direct supervisors. The paper concludes by proposing a theory of status uncertainty as an explanation for the failure of network organizations to eschew bureaucracy and generate company wide integration and cooperation. The tearing down of bureaucracy creates status uncertainty within organizations which leads actors to build protective neworks recreating hierarchies in the process. The paper concludes with suggestion that bureaucracy could be altered in many ways to accommodate flexibility. But flexibility can not be achieved by tearing down bureaucracy.

KEY WORDS: network organization, matrix organization, social networks, interpersonal dynamics

In the world where networks - social, organizational, computer - occupy preeminent place in a number of disciplines and popular discourses it is difficult to imagine that anyone would care about 'old fashioned' concepts such as matrix organization. After all since the early 1980, with the appearance of Peters - Wasermann bestseller 'In search of excellence', which criticized matrix organization as an overly structural approach to integration an flexibility, the attention started to shift from structural to cultural dimensions of organizations. Yet, the current discussions of network organization as an emerging prototype for the organization of the future indicates that the same concerns are being raised all over again (Powell 1990, Kanter 1991, Nohria and Eccless 1992a 1992b, Podolny 1998, Symon 2000). The key objectives that were once being solved by a matrix organization Ð integration, flexibility, intrapreneurship, talent retention - are now subsumed under the structural efforts to build a network organization. Integration of functions and diverse expertise scattered throughout organizational hierarchy remains a key objective of network organization. So is organizational flexibility measured as organizational capacity to respond to the changes in organizational environment. Lifting the constraints on employees imposed by rigid hierarchy remains an issue with all organizations that strive to retain talent. The key issues of network organizations are almost identical to those that were addressed by matrix organization. What is new, however, is technological environment. Matrix organization was proposed before the advances in computing power and integration. But current solutions such as virtual organization (Davidov and Malone 1992), network organization (Baker 1992), boundaryless organization (Ashkenas 1995), horizontal organization (Ostroff 1999) and a widespread and extensive use of project organization all contain close structural similarities once typical for matrix organization.

In this paper we study interpersonal dynamics in a matrix organization in order to gain a better understanding of what distinctive caharateristics of a network organization. Making infrerence from matrix to network organization is justified on two grounds. First, network organization is an overused but seriously underspecified concept that gives little guidance to organizational analysis, let alone practice. Second, matrix organization remains the most systematic and best thought through attempt to create a rudimentary network organization and as such it lends itself to the systematic inquiry. This paper aims to explain the dynamics of interpersonal relationships in a matrix organization in order to offer clues for understanding the roadblocks in building a modern network organization.

1. The structure of matrix organization

The nature of the organizational environment has changed drastically in the last thirty years. These changes have produced new challenges to the firms which now face the new rules of competition (Hage, 1988). Swift technological development alone makes all market opportunities short-lived which blurs the distinction between strategic and short-term decision making. Environmental pressures give emphasis on flexibility and adaptability and favor those who are organized for quick response and innovative capability (Bahrami & Evans, 1987).

While organizational theory recognized the increasing importance of organizational environments[1] it simultaneously sought structural solutions to the problem of adaptation and flexibility. The early 60's saw the proliferation of dichotomous typologies which sought to contrast the outlived "old" structures with the promising "new" ones. Barnes (1960) distinguished between closed and open systems. McGregor (1960) introduced theory X and theory Y. Litwak (1961) referred to the same distinction as bureaucratic vs. human relations organization. Burns and Stalker (1961) based their research on the distinction between mechanic and organic systems of management. Common to all these typologies was the perception that bureaucratic type of organization was too rigid to meet the new challenges of rapidly changing environment. A new, organic organization would have to allow for lateral rather than hierarchical flow of information and authority, should replace supervision with coordination and power sharing, and should base its integration on multi-group membership, network interdependence, trust and confidence.

Since the early 60's organizations were experimenting with organizational structures which allowed greater fluidity and permeability. These administrative innovations were created initially to solve the complex problems of co-ordination and scheduling of large defense projects. Implemented at first by NASA, Lockheed, and Boeing their combination of formal bureaucratic authority with project teams became known as matrix organization. The literature began to emerge discussing these new developments (Argyris 1967, Davis, Lawrence, 1977, Cleland 1984, Galbraith, Kazanjian 1988).

The basic problem that these organizations faced was to integrate their activities without reducing their high degree of differentiation (Galbraith, 1973). They needed to maintain high levels of specialization due to the technical complexity of their tasks while trying to solve the problem of integration of specialized functions. Lawrence and Lorch (1967) noted that growing structural differentiation creates the need for closer integration which can be solved by adding lateral integrating devices to the hierarchical channels of control and coordination. Galbratih (1973:110) compiled a list of lateral mechanisms ranging from the simplest informal direct contacts to more complex integrating roles or departments and to the most complex and the costliest matrix design.

Organizations using the matrix design are characterized by the existence of two or more separate hierarchies which intersect with one another. One is normally functional hierarchy in which an organization is departmentalized along the lines of different functions. The other is usually project oriented hierarchy with authority lines cutting across different functional departments and linking all the personnel working on a single project. Matrix organization is a result of the simultaneous overlay of the two hierarchies producing a function-by-project grid.

From this structural arrangement there arise two important consequences which give matrix organizations a characteristic stamp: dual authority relationships and power sharing. Matrix programs develop dual authority relationships in which lower-level managers report to multiple supervisors representing different hierarchies. In a function-by-project matrix a lower-level manager ("two-boss manager") is supervised by two officials one representing the functional and the other the program hierarchy (Galbraith, 1973, Lawrence, Davis, 1977, Burns 1989). Dual report system creates a situation in which a manager may have two supervisors (matrix managers) who in turn have to share the same subordinates. Dual authority system was devised in order to make cross-function, cross-group contact inevitable thus fostering coordination on the lower levels of organization. More importantly, it was instrumental in redistribution of power in which the new hierarchy had to gain a significant degree of influence from previously exclusive domain of functional hierarchy in order to be able to coordinate activities across different functions (Galbraith, 1973, Burns, 1989). When two matrix managers are in command there has to be a measure of sharing of power between them. The two hierarchies need to be balanced in their power in order to maintain the dynamic established by the duality of matrix relationships.

In sum, matrix organization can be defined as an effort to supplement existing functional departmentalization by additional hierarchy to create dual authority structure with task oriented teams drawing members from various functional departments. It is an attempt to maintain functional bureaucratic organization but to develop it in a more organic direction by changing the division of labor, type of control, and culture (Burns, Stalker 1961). Matrix design is built on the assumption that if the pyramid is crisscrossed by lateral and vertical channels of authority in addition to those of classical hierarchy an organization will a) loosen otherwise stiff division of labor, b) substitute bureaucratic command based on supervision with network control based on knowledge and consultation, and c) create a culture of competence and commitment to broader organizational goals instead of a culture of loyalty, obedience, and parochial, local know-how.

Matrix organization is therefore an attempt to gain flexibility not by reducing but rather by multiplying control mechanisms. This paradoxical effect echoes Simmel's argument of intersecting social circles in which he argues that multiple group membership increases one's choices and thereby one's freedom to act (Simmel, 1964). Similarly, intersecting lines of authority multiply obligations and dependencies but at the same time create a broad range of structural opportunities for action and initiative. Middle level managers who find themselves in such a situation are encouraged to participate actively in the decision making and to develop entrepreneurial attitude toward their work. Both academic and popular business press cheered the advent of matrix organization for its assumed capability of reforming the organization culture favorable to team entreprenurialism (Smith 1988), innovation (Kanter,1983) and consensus based cooperation (Davis, Lawrence, 1977) thus bringing it closer to the ideal of an "organic" system of management (Burns, Stalker, 1961).

2. From matrix to network organization

There are striking similarities between matrix organization with what is today known as a network organization. The common theme is *flexibility through integration*. Organizations seek flexibility without giving up traditional levers of control. They are willing to experiment with various structural arrangements that hold a promise to overcome the problem of segmetalism (Kanter 1983) and integrate thousands of employees into an innovative, autonomous, problem solving team. While they both put a strong emphasis on the self-organizing potential of interpersonal dynamics among the people within an organization they differ strongly in their attitude toward formal structures.

The key difference between matrix and network organization is in the way organizational integration is engineered. While matrix organization is conceived in terms of multiple hierarchies that create the space for bureaucratic entrepreneurship within the system, the network organization is trying to eschew structure all together and sees organization as a network of interactions rather than as a system of ordered positions. The core intuition in network organization is that informal ties in a dense communication network generate enough normative control so that they can substitute the formal structures. This intuition builds on the experience of small professional organizations that indeed often decouple formal from informal structures (Baker 1992). However, when it comes to larger organizations, the question of wholesale replication of informal system leads organizations to seek structural solutions for integration. Organizations do not attempt to turn themselves into network organizations. Instead, they aspire to create a structural space for informal networks and create systems to exploit the creative dynamics they tend to generate. The network organization is therefore just an added dimension of resource allocation which is nested within the formal structure. Investment banking is a good example of where network organizations have arrived to-day. They are characterized by strong hierarchy with clear lines of responsibility and a clear bonus structures. However, when deals are put together, the allocation of talent on a specific project is driven by social networks (Eccles and Crane 1987).

Network organization and matrix organization share a common purpose but differ in the way they approach the implementation. Since network organizations leave implementation to informal dynamics of incumbent social networks it is hard to study them beyond limited case studies. In this sense, matrix organizations offer a much better research setting because they attempt to engineer integration with standard tools of organizational design, that can be observed, analyzed and evaluated. In this paper we look at matrix organizations in order to gain an understanding of structural problems encountered by large organizations seeking to find flexibility through social integration of people embedded in intraorganizational social networks.

3. Managerial networks in a matrix organization

While most of the literature deals extensively with the formal and technical aspect of matrix design there is a surprising lack of attention paid to the ways in which patterns of relationships are or should be affected by it. Although such implications are constantly being made literature offers only occasional remarks regarding the ways in which personal networks are affected by the matrix design. It is nevertheless possible to discern several recurring themes regarding the patterns, composition, and quality of the relationships of the personal networks in matrix organizations.

Davis and Lawrence (1977) distinguished three levels at which matrix structures have differential effects on their participants. The first one is the level of top managers, the second one is the level of a matrix manager, and the third one is the level of a manager at the bottom of matrix structure. Top managers who oversee the matrix are least interesting for our concerns here. Their position reflects several new operational concerns, notably the responsibility of balancing different arms of the matrix, but they themselves do not enter directly in the matrix relationships.

The matrix managers represent the layer of managers who are fully involved in the matrix relationships. Their networks are affected by the fact that they have to report to two or more supervisors depending on the complexity of the matrix arrangement. In addition, their common characteristics is that they have to share their subordinates with other matrix managers. In a matrix where functional hierarchy is overlaid with a project-business hierarchy the functional manager and the business manager need to share their subordinates. This is a key characteristics of their position.

The third level is the layer of two-boss managers. As they find themselves at the bottom of the matrix structure, they need to report to two or more supervisors but they do not share subordinates with their peers. The most interesting layers of managers are therefore two-boss and matrix managers. They are the target of the matrix organization and their networks should be therefore most affected by the matrix arrangement.

According to Davis and Lawrence (1977) matrix managers who are operating under dual authority structure face very different situation than their colleagues in an ordinary hierarchical organization which upholds the principle of unity of command. In contrast to typical functional hierarchy where responsibility and decision making are solely the purview of the functional manager matrix managers must share almost all decisions with one another. Typically, functional manager will have to share many of his or her decisions with business manager or other functional managers at his or her level. They are faced with the unique job of influencing with limited formal authority. There are two implications of this structural arrangement. The first is that the managers who have to share the power cease to be the only source of authority. This affects their status and relative importance of their position. The second is that the sharing of power creates interdependencies which make it virtually impossible for a manager to do the work without lateral coordination. The matrix managers are put in a situation where they have to negotiate constantly with other managers about amount of workload, sequence and scheduling of tasks, availability of resources and assignment of manpower.

Two boss managers are yet in another position. Having two bosses can be much more demanding than being responsible to a single boss. Different bosses may and do have different, often conflicting demands. By giving favor to one or another would mean making a political statement since obedience to one would mean withdrawal of obedience to another. In situation like this a two-boss manager is supposed to rise the issue of incompatibility of demands and convene his or her two bosses in order to reconcile the conflicting demands. This gives him/her a position of a broker especially in a conflicting situation where parties in conflict try to influence each other through a third party (Gargiulo, 1993). But even when the situation is not conflicting two-boss managers retain a degree of influence which derives from the structural positioning in a formal network of a matrix. It is this manager who is an interface, through which the two distinct hierarchies meet. He or she is the focus of two separate concerns and it is the burden of sharing the same subordinates which makes managers of functions and projects cooperate with one another (Galbraith 1972, Davis, Lawrence 1977). The implication of this structural position is further redistribution of power in favor of the subordinate middle managers who can exert a significant influence on their superiors and negotiate their obedience. Business literature likes to label this as "empowerment" of the lower levels which allegedly creates conditions for internal entrepreneurship and active participation (e.g. Kanter 1983, Smith 1988).

The hypotheses below summarize the ways in which personal networks of middle level managers should reflect the basic characteristics of matrix organization. Since the matrix supposedly changes the power structures and the **patterns of relationships** it is less useful to try to find significant differences on isolated dimensions between matrix and non matrix organizations. Instead we should pay full attention to the patterns of relationships and to the way in which they form into a system. The following hypotheses try to spell out the basic features of matrix relationships in terms of prominence of the core organizational ties. Since prominence reflects the power relationships it offers a convenient way of conceptualizing the organizational relationships.

3.1 Hypothesis 1

The prominence of immediate supervisors in a matrix is comparable to the importance of other hierarchical ties in an organization.

The ideal typical depiction of bureaucratic organization usually emphasizes that the only legitimate channels of communication are the hierarchical channels of command. The commands, rewards, and opportunities are flowing from the top down making the hierarchical relationships of the utmost importance for any member of organization. Given the fact that jurisdictional areas are strictly delimited, a direct supervisor is ordinarily the only source of authority and hence, from the standpoint of a middle manager, the most important contact in an organization.

Power sharing principle of matrix structure should affect the importance of supervisors in a manager's network. Since the power is defined in terms of the extent to which others can be forced to follow one's command the amount of power is measured as the extent to which those to whom the command is directed are willing to comply and follow the orders. In a situation where there are multiple centers of power competing among themselves for deference, hegemony of a single source of power over the others is rendered obsolete. Instead, relative rather than absolute levels of power become important. Thus, the power can be viewed as a degree of dominance in the relational patterns and not simply as an attribute of a person or a position. Following this argument, the patterns of relationships in the networks of middle managers should be affected by the power sharing to the effect that the tie to their direct supervisor should loose its exclusive centrality and become comparable to the importance of ties with other contacts in the organization. A direct boss who in a functional hierarchy could be expected to be the most important contact in the networks of his/her subordinate managers should in the matrix context enjoy only a part of attention comparable to what is received by others in the network. In particular his or her importance in the networks of middle managers should approach the importance of the second boss as well as the importance of the peer managers in the matrix.

3.2 Hypothesis 2

The pressure for lateral coordination and cooperation makes the ties with peer managers and other lateral contacts as important as those with the contacts in the hierarchical chain.

A defining feature of a matrix organization is the presence of other matrix managers in a managerial network with whom a manager has to share subordinates, resources, information and plans. According to the matrix theory lateral ties in general and the ties with other matrix managers in particular should be as important as the direct supervisory ties. Since the presence of lateral ties doesn't convey much information about the extent and dynamics of lateral interaction we need to focus on the extent to which these ties are employed and utilized. If the matrix theory is right than the pressures for lateral cooperation and coordination should make lateral contacts important in the personal networks of a middle manager.

3.3 Hypothesis 3

The strategic positioning of the subordinates as brokers between two bosses should earn them a place in the networks of their immediate bosses as the contacts with a significant (non-zero) importance.

Similar to the argument described above, the influence of a subordinate should be reflected in the network of his or her supervisors. Since the supervisors depend to a significant degree on the capacity of their subordinates to integrate various demands originating from different hierarchies their critical role should earn them a degree of influence over their supervisors. Again, since the subordinates constitute a part of the formal network of their supervisors it is not the presence but the degree of utilization of a tie with a subordinate which is of our concern. Therefore, we look at the relative importance of subordinates in the networks of their bosses in comparison with supervisory and lateral ties. The importance of subordinates will of course not equal the importance of other ties in a managerial network but should be considered important enough to constitute an integral part of a managerial network.

3.4 Hypothesis 4

In matrix organizations conflicts tend to be integrative, i.e. they tend to occur most often between the manager and the most prominent contacts in his/her networks.

Numerous authors have noted that the principle of power sharing in a matrix firm induces a degree of competition and conflict among middle managers (Burns, Stalker, 1961, Argyris, 1967, Davis, Lawrence, 1977). However, conflicts do not always have detrimental effect on integration. Blau (1977, 1984) actually argued that the frequency of conflicts increases with the frequency of contacts, but as long as these conflicts are dispersed rather than consolidated they do not inhibit integration. Multiple command structure of matrix organization is designed to increase mutual interdependencies among middle managers forcing them to coordinate their activities among themselves. As the amount of interaction increases the conflicts become more frequent. But at the same time conflicts have to be resolved as they occur since the work in a matrix can not be done in isolation which is what should prevent avoidance of conflicting relationships and their segregation in an organization. We therefore expect that the managers should be in conflict with those with whom they are in the most intensive relationships, i.e. with their most central contacts. The reverse would indicate that they tend to avoid conflicting relationships and try to isolate their networks from them what may eventually lead to segregation of ties and inhibit integration.

3.5 Hypothesis 5

The middle managers maintain short-term relationships in their networks and are weakly committed to them.

Matrix organization represents an attempt at making an organization more flexible by opening up possibilities for the managers to create their own support structures in addition to their formal relationships. It is argued that active networking should help the managers to fulfill their tasks more effectively by better utilization of organizational resources. These pressures for utilization of lateral ties create incentives for commitment to the organizational goals rather than local concerns and encourage middle managers to persist in their relationships within the firm only as long as they have a direct bearing on their work. As the tasks, problems, and opportunities change over time they can switch from old to the new relationships whenever they find it useful to do so. Avoidance of any firm, long-term commitments in their relationships should be reflected in a tendency of their relationships to be predominantly short-term.

3.6 Hypothesis 6

Opportunities for contacts cut across the formal positions in an organization and are dispersed equally among them.

This hypothesis summarizes one of the basic advantages that a matrix form is expected to have over bureaucratic structure, namely it should overcome the problem of segmentation of bureaucratic functions in the self contained entities (Kanter, 1983) and provide a basis for organization-wide integration. Lateral ties are those which are supposed to evolve into a prime coordinating mechanism and the matrix structure is expected to facilitate this process (Galbraith 1973, Mintzberg 1979). It is expected that the matrix structure lifts the barriers to organization-wide communication and improves the opportunities for contacts with any position in an organization. Unlike the bureaucratic structure which channels the interaction and communication in the vertical lines, matrix is expected to direct them in both hierarchical and lateral channels thereby improving opportunities for contacts with all positions in an organization. In particular, the opportunities for lateral engagement should become equal to the opportunities of vertical exchange.

The first three hypotheses are not independent among themselves. Together they describe a pattern of relationships that a matrix organization is expected to configure in a personal network of a middle manager. An overwhelming characteristics of the expected pattern of relationships is a general leveling of power and influence in the matrix structure. The power pertaining to a formal position is expected to be leveled off by the leverage that the matrix managers can apply themselves or expect from others in a matrix organization. The general leveling of power should have the effect described by the last three hypotheses. The opportunities of contacts should extend beyond functional hierarchy. This increase should induce more conflicts which should not turn into long term feuds and disintegrative warfare since the high levels of interdependence and the short term commitments does not encourage it.

4. The Data

The data come from a research project which had a different purpose from the one we pursue in this paper - that of assessing the effect of the network efficiency of middle managers on the pace of their promotion (Burt 1992). The research focused on the middle managers in one of the largest American high technology manufacturers (which can not be named). In the fall of 1989 the firm employed more than 100,000 people with 3,303 middle managers defined as those who were occupying four managerial ranks below the rank of the vice-president. A stratified sample included 547 managers out of which more than one half returned the questionnaires that were mailed to them. The response rate was high compared to other sociometric research and in addition there were no non-response biases. High quality of the data however does not preclude the conceptual problems that usually face any secondary data analysis problem.

The company took pride in staying innovative not only in their products but also in their organizational structure. The matrix management has been introduced more than fifteen years ago which means that the organizational routines have been well established by the time the research was conducted. The company was frequently described and hailed as a successful implementation of this complex organizational design. The matrix arrangement was evident from the formal positions/roles of alters in a typical managerial network. In addition to the classical hierarchical relationships with direct supervisors and subordinates the networks included also the ties to matrix bosses representing the second dimension of a matrix hierarchy and the ties with other matrix managers with whom the managers have to coordinate his/her work. The contacts which lacked any formal role within the organization are referred to as informal relationships. Table 1 summarizes the distribution of the 3015 ties named by 284 managers, generated by nine name generator items according to the formal position of alters. An average managerial network included one supervisor, one matrix boss, one subordinate[2] , three matrix managers and five informal contacts.

Table 1: Distribution of ties by formal position of alters

Position of alter	count	%
Hierarchical dimension		
Direct Boss	279	9.3
Matrix Boss	318	10.5
Subordinate	201	6.7
Lateral Dimension		
Matrix manager	870	28.9
Informal contact	1347	44.7
Total n of ties	3015	100
N of managers = 285		

The organizational position of the alters to which an ego had ties is the key independent variable. The dependent variable is built around the concept of importance i.e. prominence of ties. We operationalize the prominence of ties in terms of its multiplexity or multistrandedness: the higher the number of different contexts in which a tie is activated the more prominent the tie (Minor, 1983 for brief discussion of the concept and its use).

Network analysts have given the multiplexity different interpretations depending on their research agenda. Those who studied the networks in new urban communities were concerned with personal networks as the sources of social support. They interpreted multiplexity as a sign of an intimate relationships with high stability and durability. They argued that a multiplex tie is hard to break since the failure in one context of exchange would not break the tie. Empirical results corroborated this theory. Multiplexity was found to be positively associated with closeness and intimacy of relationships which was considered to have a positive contribution to viability of personal communities and support networks in the fragile modern environments (Fisher,1982, Wellman, Carrington, Hall 1988). By focusing on social support this research limited itself on intimate personal communities based on symmetrical relationships, mutuality, and high levels of trust.

Organizational realities are a distant departure from the world of personal communities. They are systems of power and control marked by inequality of status and rewards. The approach which derives from the theory of power based on exchange theory seems much more appropriate for organizational analysis (Blau, 1964). For the exchange theory the key feature of a relationship is the direction of the exchange which determines who has power over whom. According to Emerson (1976) power is a function of dependence. Cook (1982) argues that exchange networks should be viewed as structures of resource dependencies among sets of actors. According to this theory, a manager who is activating the same tie in multiple exchange contexts is seen as lacking alternatives and being dependent on a single tie for multiple resources. Thus, multiplexity relates directly to the dependence of a manager on a particular tie. From a point of view of a dependent manager a multiplex tie signals the dependence on a certain exchange partner. The higher the degree of resource dependence on a particular tie the more often a dependent manager would cite a given contact and the higher the degree of multiplexity of such a relationship.

The prominence of tie is calculated as a sum of the citations of a particular alter across four different contexts. The four contexts were invoked by four questions asking about 1) with whom one confides, 2) who is a source of valuable advice, 3) who is the buy-in person, and 4) who could be consulted about the change of the job. If a person was cited on all of the four questions he/or she got the score 4, if a person has not been cited on any of these four the score was 0.

5. Results

To establish relative importance of ties to different positions we look first at the table 2. It presents the distribution of the answers to the question: “Of all the people you know in the firm, who do you see as your single most important contact for your continued success within the firm?”. The results clearly show that the most important contacts are chosen predominately among direct supervisors and, to a lesser degree, among matrix bosses. All other positions seem to be less important to the managers. This result refers only to a single most important contact. While the result is telling, the question itself is limiting. However it sets a comparison for our next table and serves as a check of external validity of the concept of prominence.

Table 2: The most important contact by position

The position of alter	The most important contact	
	Yes	No
Direct Boss	106 (17.1)	173
Matrix Boss	62 (6.5)	256
Subordinate	1 (-4.5)	200
Matrix manager	54 (-3.9)	816
Informal contact	62 (-8.2)	1285
n of managers	285	

Note: The distribution of answers to the question: Of all the people you know in the firm who do you see as your single most important contact for your continued success within the firm? The figures in brackets are adjusted standardized residuals obtained from a table of the positions by the question (Y/N). The high positive value indicates that the frequency highly exceeds the expected while a large negative one indicates that the frequency is much less than the expected one. Standardization of the residuals make them comparable among themselves. Since residuals are symmetric they are reported only for 'yes' column. The residuals in 'no' column are the same with the opposite sign.

To derive a more comprehensive measure of importance we calculated a measure of prominence based on multiplexity as described above. The table 3 presents joint distribution of ties according to their position and multiplexity. First, we look at the relative prominence of direct supervisors. The results seem to be congruent with those from the table 2. The ties with direct bosses tend to be disproportionally more complex than the ties with any other position within the firm. This similarity provides justification for our decision to use complexity as a measure of importance of the ties with a particular position.

On the substantive grounds the result contradicts the hypothesis that the prominence of a direct supervisor should be comparable to that of other positions in the matrix. The result does not show only a minor discrepancy between the data and theory. The importance of supervisors is incomparably higher than of any other position strongly disproving the hypothesis. According to matrix theory the power of the direct supervisors should be shared with the matrix bosses resulting in equal importance of both positions. The results are far off from what the theory would expect. The matrix bosses are not nearly as important as the direct supervisors.

Table 3: The prominence of ties by position of the tie

Prominence	Direct Boss	Matrix Boss	Subordinate	Matrix manager	Informal contact
0	35	57	112	78	236
	(-2.1)	(.4)	(15.0)	(-7.6)	(.4)
1	68	175	59	465	783
	(-9.5)	(1.3)	(-6.5)	(1.5)	(6.6)
2	70	55	19	202	213
	(3.0)	(-.6)	(-3.4)	(4.2)	(-3.5)
3	61	21	10	95	104
	(7.3)	(-2.0)	(-2.3)	(1.5)	(-3.2)
4	44	10	1	28	9
	(13.0)	(.1)	(-2.2)	(.3)	(-6.8)
Total	278	318	201	868	1345
Mean prominence	2.04	1.22	.65	1.46	1.16
N=3010;					

(For figures in brackets see Notes bellow the Table 2).

Significant differences in mean prominence between positions:[a]

		1	2	3	4	5
1	Direct boss					
2	Matrix boss	*				
3	Subordinate	*	*			
4	Matrix manager	*	*	*		
5	Informal contact	*		*	*	

[a] significance level at p<.05

Similarly, the lateral ties seem to be under utilized and hence, less important than the ties with direct supervisors. In fact, the matrix bosses have a slight tendency of being consulted in one or two different contexts. But relatively speaking they are not nearly as important as the direct bosses. They are consulted primarily in two contexts i.e. as general confidant ties or/and as a source of buy-in support. The contacts that are named as essential sources of buy-in for initiatives that a manager can propose are those who can significantly affect the success of an initiative. They are usually the members of different groups who would need to commit their resources to a proposed project and who can therefore block an initiative. In short, they are those who need to be consulted in order to minimize the chance that they will apply their negative power and block a proposed project. Low complexity of matrix bosses seems to indicate that the contacts are far from cooperative. They seem to be maintained primarily as a result of functional exigencies that a matrix imposes on managers but they do not have the importance comparable to that of the direct supervisors. But apart from this, they tend not to be utilized for any other purpose. Their prominence is therefore much more limited than expected by the theory. The lateral ties which should evolve in a cooperative and integrative system seem to be used only selectively for limited purposes only. We suspect that even this has to do more with the elimination of the threat than with any serious attempt at building cooperative ties. Had the managers pursued laterlal ties with the aim to establish organization wide cooperation, the prominence of lateral ties would have been equal or greater to the prominence of direct supervisors.

Informal contacts are noninstitutional part of lateral networks. They are the contacts that are not identified as occupants of any formal role but who are explicitly named as active contacts. Their prominence or rather their lack of prominence is evident from the table 3. They tend to enter the network as either extremely valuable contacts in the past or as the most frustrating ties. Matrix theory expected lateral ties to carry similar or even greater importance than the supervisory relationships. In particular, it is argued that the matrix form should enable networking to go beyond formal positions in order to exploit the potential scattered around an organization. But no such evidence is found here. On the contrary, we find that the prominence of direct supervisors is unparalleled and that the prominence of the lateral ties does not even approach it. If formal lateral contacts (i.e. matrix bosses) bear a small degree of prominence the informal ones are even less prominent.

The results regarding the prominence of subordinates also contradict the expectations of the theory. Namely, the prominence of the subordinates tend to be nil compared to all other ties. This result is surprising for two reasons. First, the question asked to name only the most promising and successful subordinate. This made the managers name only their favorite subordinate whom they respect and one would expect that they would have at least some importance for their supervisor. Second, the structural position of interface in dual authority system should give them some leverage and resulting prominence. Instead the subordinates entered the managerial network by virtue of the way in which the questionnaire was structured and not by virtue of their at least marginal importance. If we try to speculate about these results we are tempted to portray managers as distinguishing among the subordinate managers who are threatening to his/her position and those who are not. Those whose ability might compete and eventually jeopardize their bosses authority may be perceived as able but not as the most favorite subordinates. It should not come as a surprise if the managers would tend to name only the non-threatening subordinates as their favorite contacts who would understandably, have no importance in their networks. But we have no empirical evidence that this may indeed be so.

Overall pattern of networks of middle managers reveals the following picture: managers are heavily involved with their direct supervisors while they pay little attention to their matrix bosses. They utilize their lateral ties only for special occasions related to their immediate task and they seem to avoid the opportunities to expanding them in the direction of extensive cooperation. Their prominence seems to be deriving from the formal position i.e. from the fact that they need to be consulted. When this formal constraint is not present the prominence is even lower, as the comparison between the formal and informal lateral ties amply demonstrates. Adding to the picture is a complete absence of any importance of the subordinate managers.

Overall pattern of relationships is therefore quite different from the predictions of the theory. The last line in the table 3 reports the mean complexity of each position.

While the measure of prominence is admittedly crude, the results nevertheless add to the description of the general network pattern. By far the most important are direct bosses with the mean complexity 2.04 followed distantly by laterally located matrix managers (1.46). Matrix bosses and informal contacts have the same mean complexity (1.22 and 1.16 respectively) while the importance of subordinates lags well behind (.65). All the groups differ significantly among themselves with the exception of matrix bosses and informal ties. Again, the line of direct supervision is the one which carries the most of the importance in the networks of middle managers.

According to theory, management of conflict and its integration in the everyday organizational routines should be facilitated by the matrix organization. We located the conflict by asking the managers: "who has made it the most difficult for you to carry out your job responsibilities?". The distribution of answers across formal positions in the table 4a reveals only that the conflict is dispersed with regards to organizational roles. There is a slight tendency for a conflict to occur with informal ties more often than with others but it is not enough to base firm conclusions. More telling is the relationship between the importance of a tie and a conflict. Table 4b shows that this relationship is negative; the conflict is predominantly limited to those with whom one has no relationship. This contradicts the expectations of the matrix theory which assumed that the conflict would occur as a result of extensive exchange. Successful resolution of conflict would imply that the conflict would not terminate or limit utilization of a tie. Instead they should both occur together; the more prominent the tie the higher the probability of conflict. The results show just the opposite. The conflicting ties are excluded from the exchange and segregated by the avoidance. Thus, the conflict seems to be poorly integrated into the organizational routines.

Table 4a: Obstructive contacts by position

The position of alter	The most obstructive contact	
	Yes	No
Direct Boss	30	249 (1.3)
Matrix Boss	32	286 (.9)
Subordinate	0	201 (-4.5)
Matrix manager	61	809 (-2.1)
Informal contact	140	1207 (2.9)
n of managers	285	
Total n of ties	3015	

Note: Crosstabulation of answers to the question: Who among the people in the firm has made it the most difficult for you to carry out your job responsibilities? (For figures in brackets see Note bellow the Table 2).

Table 4b: Obstructive contact by prominence

Prominence	The most obstructive contact	
	Yes	No
0	189 (24.7)	329
1	54 (-10.5)	1496
2	11 (-6.3)	548
3	6 (-4.2)	285
4	2 (-2.3)	90
n of managers	285	
Total n of ties	3010	

Note: Crosstabulation of answers to the question: Who among the people in the firm has made it the most difficult for you to carry out your job responsibilities? (For figures in brackets see Note bellow the Table 2).

Table 5 presents the evidence about the duration of ties in a matrix. Short term relationships and weak commitments are considered to be almost definitional characteristics of matrix: "we are dealing with temporary, cross-functional task groups operating within a framework of permanent functional departments and intersecting lines of project authority" (Baber, Bartlett, Dennis, 1990: 248). Shifting task groups make numerous ties transient. The results show a general tendency of duration of tie to be negatively associated to the frequency of contact: the longer one knows his/her contact the less frequent they see each other. While the difference between the ties which are maintained either on the daily or on the weekly basis do not differ significantly the ties which are enacted monthly or less than monthly have significantly longer duration than the more frequent ties.

Table 5: Duration of ties[a] by frequency of contact

		Mean	1	2	3	4
1	Daily	5.76				
2	Weekly	5.70				
3	Monthly	6.80	*	*		
4	Less often	8.09	*	*	*	

[a] *Duration of ties is measured by how long a respondent has known the alter.*

The way in which opportunities for contacts are distributed among the positions in the organization is evident from the table 6. The closest indicator of contact opportunity in the data is the frequency of contacts. Although an unconventional measure for the concept of our concern, frequency of contacts do reflect opportunities for contacts. Frequency of contacts are the result of choice which is structured by organizational rules and norms and can thus be regarded as indicating contact opportunities within an organization. The most frequent contacts occur along the narrow lines of bureaucratic hierarchy. The most frequent contacts are maintained with subordinates. Majority of them are maintained on a daily basis. This is not a surprising finding by itself since the supervision of the subordinates is one of the basic tasks of the managerial position. But combined with the fact that the subordinates are also the least important contacts gives the findings at first sight a paradoxical character. But the inconsistency is an important indication of the fact that the measures of importance and frequency are independent from one another describing different phenomena. On more substantive grounds, it means that dependency relations do not evolve around the most frequently used ties but rather around those formal positions that are vested with significant organizational resources.

Table 6: Frequencies of ties by different positions

Frequency of a tie	Direct Boss	Matrix Boss	Subordinate	Matrix manager	Informal contact
daily	106	111	131	199	126
	(6.5)	(5.8)	(15.4)	(.4)	(-15.4)
weekly	116	71	48	270	251
	(6.6)	(-1.2)	(-.3)	(4.8)	(-7.3)
monthly	36	53	7	238	334
	(-4.0)	(-2.5)	(-6.6)	(4.4)	(3.3)
less often	7	63	1	111	547
	(-9.1)	(-1.9)	(-8.2)	(-9.5)	(19.2)
Total	265	298	187	818	1285
N=2826					

Note: missing 189 cases; (For figures in brackets see Notes bellow the Table 2).

The other two hierarchical ties, the ones with direct supervisors and matrix bosses are maintained daily or weekly although to a lesser degree than those with the subordinates. As we move to the lateral dimension the ties become less frequent. The ties with matrix managers are either weekly or monthly while those with informal contacts tend to occur less often than on a monthly basis. This table fails to provide the support for the hypothesis that the opportunities for contacts should be dispersed among all organizational roles and positions. On the contrary the data indicate that the contact opportunities are structured around hierarchical rather than lateral positions thus defying one of the most important expectations about the integrative capacities of the matrix form.

To summarize, only one of the six hypotheses has been substantiated by the data. The expected redistribution of power and corresponding equalization of the importance of organizational positions/roles was not documented. Neither we found evidence of the integration of conflict into organizational routines or a dispersed pattern of the opportunities for contacts. The only finding which seems to be in congruence with the predictions of the matrix theory is the indication of a tendency of contacts to be of short rather than long duration. The results clearly refute the theory and demand another explanation which is attempted in the next section.

6. Discussion: Dependency without Patronage

Recent research has put the merits of matrix organization in question. Burns (1989) who investigated various structural features of matrix organizations in 315 hospitals could not find any structural determinants of matrix complexity, stability of form, and its survival. Barber, Bartlett, and Dennis (1990) compared staff and matrix members of four federal agencies finding no evidence that the matrix type outperforms bureaucracy with respect to utilization of resources, external support, effectiveness of communication, independence and autonomy, and morale. Brimm and Kadushin (1990) described managerial networks in a multinational company emphasizing damaging 'neurotic effects' of "shadow networks". The fact that the matrix form was not related to the firm's environment, that it consistently failed to produce the outcomes it was supposed to produce while at the same time remaining stable and enjoying remarkable survival led the researchers to conclude that matrix management is a political project, a structural myth rather than a technical, managerial concept (Mayer Rowan 1977). The persistence of matrix form was associated more with institutional and political support than with any technical reason.

This research provided evidence to the effect that matrix organization tends to generate more promises than it can actually deliver. But it did not provide any theoretical explanation as to why the observed patterns emerge instead of the expected ones. Brimm and Kadushin (1990) suggested that it may be the faulty implementation or inadequate organizational culture. Burns (1989) and Barber, Bartlett, Dennis (1990) went further and questioned the capacity of matrix structures to produce the desirable effects but were limited by their data.

Our data let us view an organization as an open natural system by allowing us to observe actual patterns of relationships within the matrix organization (Scott, 1987). Based on our findings we would like to develop the following theoretical argument. We argue that organizations by adopting matrix structures switch from hierarchical to market governance while maintaining hierarchical structures of authority. This creates a situation in which status is decoupled from position. The result is an incongruity between responsibility and formal authority that creates high positional uncertainty and competition without backing of the informal social structures. This can explain the observed network patterns that indicate that resource dependence strategies of participants favor strengthening the ties with direct bosses to developing lateral contacts.

What organization theorists usually emphasize is the fact that the source of organizational rigidity is in rigid rules and structures which constrain actions of its members. They have to adhere closely to predefined patterns of behavior and the more rigidly defined the roles the lower the freedom to act according to the demands of the situation. This limits the capacities of individuals at their role performance and decreases the adaptability of an organization. Thus Davis and Lawrence (1977) concluded that flexibility of an organization comes from flexibility in the roles of its members. It seemed to follow that the loosening of the rules and prescriptions for role behavior an organization can better utilize the capacity of individuals to adapt themselves to the situation and act according to their best judgment of what is the most appropriate response to the arising problem or opportunity. This idea guided the reformers to suggest various ways of loosening up the hierarchical managerial structures and a matrix management takes a prominent place among such attempts.

It is often overlooked that the loosening of the formal structure is not simply a matter of degree of formal prescription. The rules which define the roles can be more or less narrow and prescriptive. But there is a basic discontinuity underlying these changes. As organization move toward more flexible structural arrangements they shift from one type of governance to another. This discontinuity is conceptualized in Williamson's (1975, 1985) distinction between markets and hierarchies as the two polar types of governance structures. Unified governance refers to the bureaucratic hierarchy in which the exchange relations are incorporated into the hierarchical structure and determined by the rules and the flow of authority. Market governance in turn refers to the absence of any vertical authority and the exchange relationships are determined by the partners to the exchange. The attempts to loosen the formal structure are therefore driven by the implicit assumption that the governance structure in an organization should move from a hierarchical to the market basis. A degree of such internal marketization, it is believed, could make an organization more dynamic by introducing competition, uncertainty and opportunity in the roles of its members.

Bureaucracy is organized around the iron rule of correspondence between position and status. This correspondence is so strong that they seem to be interchangeable within the bureaucratic domain. Position is defined in terms of the functional role the incumbent is expected to play. Status reflects the relative standing in the social system as contrasted to the functional one. Power, prestige, and income are its notorious dimensions. But in hierarchical structures all three status dimensions increase monotonously with positions. Thus the functional order is projected in the social one. Social system is stratified along the lines of the technical-functional one which guarantees the correspondence between status and position.

In matrix organization status is decoupled from position. Dual authority system with the sharing of subordinates and multiple supervisors creates a situation in which the formal position has no definite sanction of status leaving it open for the individuals to bargain for power, compete for prestige, and lobby for their income and promotion. This duality of position and status looks as if one would try to combine the characteristics of Stinchcombe's (1959) contrasting bureaucratic and craft organization into one: bureaucratic permanent appointment is combined with craft's temporal assignment to the project; payment in the form of salary by position typical of bureaucracy is adjusted for performance in competitive comparisons with others; career is structured by administrative regulation but both the status and promotion are left to be determined by a form of structured competitive internal labor market. When bureaucratic rules are replaced by a degree of market competition the status of the individual occupying a particular position is determined through competition rather than through position. These loosely defined positions infuse additional uncertainty into the role of a manager who is left wandering what is expected of him, what he should be doing, and who is apprehensive about what others are doing (Burns, Stalker 1961).

It is rarely noted that the redistribution of power in matrix is only informal. By decoupling position from status, matrix organizations do not redistribute power within organization but rather open new possibilities of access to power sources. By saying that a given position has no definite amount of authority organizations introduce a market on which the power needs to be traded and gained. Since the positions entail clear responsibilities but is vested with little formal authority over people and resources occupants need to rely on informal processes. Kanter (1983) gives a rich description of the ways in which the power and resources are solicited by middle level managers in order to complete their projects and do their work. The prevailing impression from various descriptions is that decoupling results in the shifting of the emphasis from formal authority to informal leverage. Since power is not vested in position it needs to be gained through the interpersonal processes.

The emphasis of matrix organization on interpersonal processes which become a core medium of organizational processes has a profound effect on informal organizational structure. Literature defines informal structure as the one which develops in addition to the formal one. Blau (1955) has described how informal structures like cohesion and status differentiation develop among formally equal peers. This social system evolved as a result of cooperation and actually stabilized the flow of help advice and consultation among colleagues. It is important to note that it was the abstract framework of formal equality of positions which facilitated the formation of informal structure in which cooperative exchange was embedded. Bureaucratic rules and rigid structures have merit in stabilizing the patterns of relationships. They increase repeated opportunities for contacts and enhance the chances of development of a social system by limiting these interactions in time and space (Blau, 1977). When organizations move from bureaucratic rules based structures to more flexible, matrix ones, market structures do not replace formal structures but rather the informal ones. They are devised to replace social control with the market governance. Marketization helps reduce all the perils of bureaucracy. The patterns of relationships are made unstable thus preventing the formation of particularistic solidarities and local alliances. Through this process the informal structure and the solidarity based on it is weakened and gradually driven out. But with the informal organization wiped out and substituted with market structure the grounds for traditional cooperation are eliminated. Bureaucratic opportunism is traded for opportunism of market behavior with the hope that flexibility will offset the increase in transaction costs.

In sum, the matrix organization is designed to loosen formal authority structure in order to inject a measure of market behavior such as competition and entrepreneurship into the organizational culture. It does that by multiple command structures and consequent decoupling of positions and status. The patterns of relationship cease to rest on the formally defined positions around which the culture of cooperation and the stratified system of informal ties would develop. The social system and the controls built in it are replaced by market controls whose volatility does not provide any basis for solidarity and cooperation. Thus the matrix organization gains high flexibility of patterns of relationships, high volatility of political ties and coalitions which prevent them to turn an organization into a field of entrenched interests. But at the same time it has to sacrifice its traditional sources of solidarity and cooperation. This indeed makes an organization more flexible. The lack of departmental entrenchment and social organization which too often serves for defensive purposes of a particular group or department makes any kind of ties equally possible. With the highly mobile and ever changing patterns of relationships the accessibility of the individuals from different groups is highly increased and facilitated. This freedom which derives from the lack of social structuring allows participants to enter into relationships with others from anywhere within the firm and at the same time it allows them to terminate them as soon as their utility diminishes.

With this view of matrix organization we can better understand the earlier research on the effects of matrix management and try to explain our findings. Earlier research based on case studies focused primarily on psychological effects of matrix management and consistently found that the system induced high levels of status anxiety among affected managers (Burns, Stalker, 1961, Argyris 1967, Galbraith 1973, Davis and Lawrence 1977, Brim and Kadushin 1990). However, it was believed that the psychological strains resulted from poor adaptation to the new, more dynamic system: status anxiety was supposedly experienced by those who were not able to cope with the increased level of uncertainty. Thus these findings never received appropriate attention and were considered to represent "matrix pathologies".

Our data do not speak of any psychological experiences but they clearly indicate that so called "pathologies" are so wide spread that they need to be taken as "normal". We found that middle managers defied the theory by forming the networks dominated by their immediate supervisor instead of exploiting dual authority system and relying extensively on their lateral ties. Their fixation on their bosses was met by complete ignorance from the other side. Their bosses did not maintain any consulting relationship with them. Instead they too, were occupied by nurturing complex relationships with their own direct supervisors. In short, we found that it was the direct boss who tended to dominate in a typical network of a middle manager. Lateral and matrix relationships bore much lower importance.

These network patterns clearly showed that they were not the result of an isolated desperate attempt of an incapable manager but rather a general tendency of middle managers to cope with the uncertainty of their positions about which we spoke above. They seemed to be using a resource dependence strategy in an effort to offset the highly uncertain nature of their position. Resource dependency theory suggests that the dependent actor will seek to mitigate the power of the dominant party by coopting the tie rather than resisting it. It will try to embed its dependency relationship in a larger context of exchange and thus create some limits to the legitimate use of power (Pfeffer, Salancik, 1978). Managers in the matrix structure face slightly different problem. Their environment is not structured enough to allow them to identify dependency relationships easily. Instead they are placed in a highly unstructured world in which they are pressured to perform but which lacks any clear signs of constraint, dependency, and orderliness. They are presented with two different possibilities for action. They can either entreprenurially embrace the uncertainty, take risks, and exploit the opportunities that the unstructured space has to offer. Or, they can run for cover, so to speak, and intensively try to build protective networks. The theory assumes that the entrepreneurial response is natural. Our analysis suggests the opposite, i.e. that the managers adopt the defensive strategy. And there seem to be good reasons for that. Since the matrix firm bases its solidarity and integration on market-like principles of free involvement and exchange the informal structure lacks the traditional grounds to develop in a strong support network. The flexibility of the organization depends on the flexibility of relationships among the members in the firm resulting in feeble networks involving short term ties with weak commitments. Moreover, the same principle which encourages the managers not to commit too much to a particular tie makes them avoid those with whom they have conflicting relationships causing the conflicts to remain unresolved and segregated in remote places in an organization. In addition, the general reluctance to get involved in any kind of lateral relationships results in a peculiar pattern of association where the most frequent are only the unavoidable ties with the subordinates and the bosses while other contacts are kept at a distance. The general impression that we get from the data is quite consistent: the managers abhor the possibility of getting stuck with a particular relationships in order to keep their options open and remain competitive. But this very strategy of avoidance leaves them resourceless (Garguilo, 1993), so they rush for cover and support in the arms of their immediate supervisors. They invest heavily in the cooptation of their direct bosses. In particular, they tend to expand the contents of their exchange making the tie highly multiplex. However, the attempt to embed the relationship in a general pattern of patronage is doomed to fail, since their would be patrons, i.e. their direct bosses are not interested. They themselves face a similar situation to which they respond by building the dependency relationship with their own bosses. The result is a system in which everyone is obsessed by nurturing complex relationship with his/ her supervisor in a hope to trade dependency for patronage. But those who are targeted by this strategy tend to refuse to play the role since they themselves need to protect their positions against their lateral competitors by trying to coopt their own bosses. In this hopeless endeavor the matrix management proves its only strength: unreciprocated dependency and the lack of patronage keep managers on alert, keenly aware that they need to network even harder in order to survive. This is what probably creates an impression among casual visitors of matrix organizations that these organizations are more dynamic and active than any others. It makes them to cheer the entrepreneurial spirit and creative confusion they think they see while they are in fact witnessing a futile search of middle managers for save haven in the arms of their direct supervisors.

7. Conclusion: the future of network organization

What lessons can be drawn from the performance of matrix organizations for network organizations? We argue that matrix and network organizations lead to similar consequences because they both seek to increase organizational flexibility by means of loosening the rules in the formal structure, by creating positional uncertainty and by relying on informal relations for allocation of resources. This leads to structural similarities between matrix and network organizations in two points. First, network organizations are subject to the same logic of interpersonal dynamics in spite of the fact that they attempt to achieve integration by means of informal social processes. If anything, the lack of emphasis on formal structures enhances rather than moderates the problems of positional uncertainty in a network organization. Second, like matrix organizations, network organizations attempt to gain flexibility by inserting uncertainty through marketization of internal relations which erodes social solidarity. The result is the loss of commitment on the side of its members and their reluctance to maintain ties and develop them into powerful means of problem solving and cooperation.

It seems that the central promise of network organization namely, that organization-wide integration can be achieved by means of loosening of the formal structures, remains largely unfulfilled. The substitution of hierarchy with market governance erodes the traditional basis for the formation of stable social ties and resulting social structures. Since network organizations are de-emphasizing the role of formal structures in search of greater flexibility they expose themselves to the same problems that have been noted in matrix organizations. While the search for flexible organization remains a worthwhile objective there are no simple answers to the problem. Simply doing away with the elements of hierarchy embedded in the organizational structure creates severe problems for the functioning of organizations. The solution should be sought in a balancing act between rigidity of bureaucracy and spontaneity of social networks. Neglecting one can lead to either suffocating rigidity or intolerable flexibility.

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Notes

1. The development of organizational theory has mirrored these changes giving increasingly more emphasis to the role of environmental forces in shaping and determining organizational structure and success. Thompson's (1967) conception of the environment as an object which can be successfully mastered by boundary spanning activities while the technical core can be left intact has been superseded by the notion of external control of organizations (Pfeffer, Salancik, 1978). While the institutional theory theorized that organizations have to give in to the assailing environment which makes them accept various organizational forms (DiMaggio, Powell,1983) it saw decoupling as a strategy by means of which an organization can still outwit its environment (Mayer, Rowan, 1977). With the population ecology's argument on structural inertia (Hannan, Freeman, 1984) the last pieces of adaptive strength of organizations were lost to the overpowering environmental selection (Hannan, Freeman, 1989).
2. The fact that there is only one subordinate in a typical network is a result of the way the question was asked. In order to keep the size of the networks under control the managers were asked to name only one, the most promising and successful subordinate.

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