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FORMS OF ORGANIZING: WHAT IS NEW AND WHY?

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Abstract

The paper aims to further our understanding of new forms of organizing by asking and answering two related questions: what is new in forms of organizing, and why is it so. It starts by examining the main forces that lead to the emergence and diffusion of new organizational arrangements, distinguishing between objective and subjective factors, and pointing out the interplay between them. Elaborating on these two groups of factors, the paper introduces two dimensions —flexibility and openness— on which a contingency analysis of new forms of organizing and a classification are built. Flexibility is associated with the question "How fast does the organization as a whole have to learn?", while openness is intended to measure the need for knowledge integration and the location of relevant knowledge. Having outlined the main trends in the development of organizational arrangements, the paper looks at some of the implications. The use of information and communication technologies, knowledge management, changes in human resource practices and social contract, and changes in management roles and careers are all seen as consequences of a new quest for openness and flexibility. All these considerations lead to the conclusion that, nowadays, changes in organizational patterns are radical, calling for a paradigm change that will facilitate, in a holistic manner, the adjustments that are needed in order to build and manage these organizations. Like any paradigm change, this requires a change in the mindset of the agents involved, especially the decision-makers.

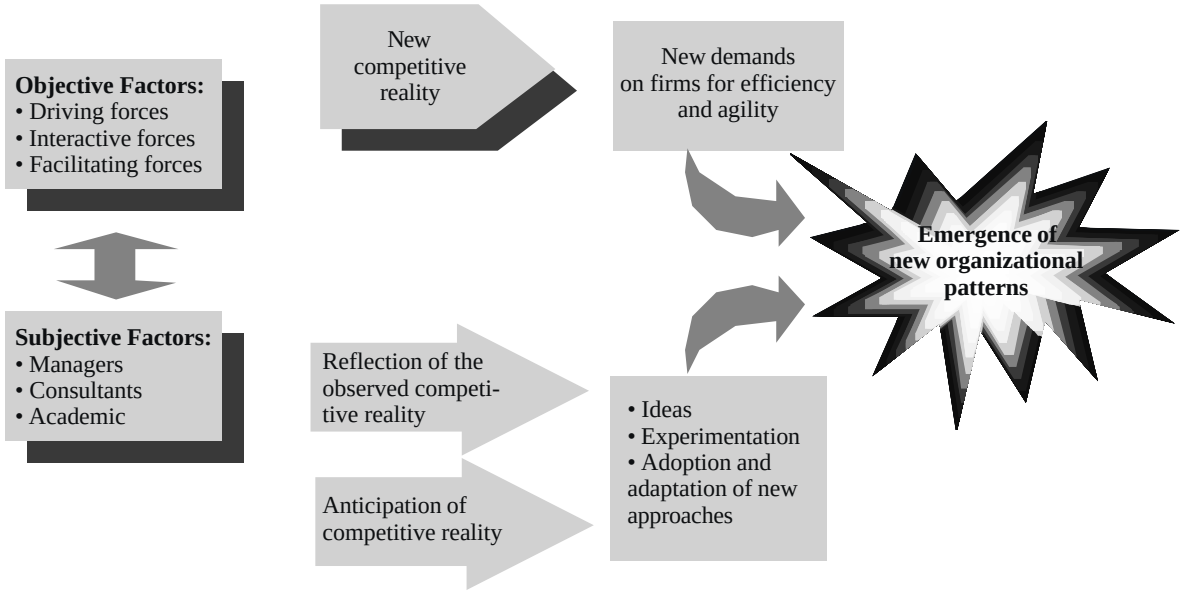
FORMS OF ORGANIZING: WHAT IS NEW AND WHY?

Over the past 15 years, there has been a significant development towards new forms of organizing. Both the business press and academia have turned their attention to describing new organizational forms and analyzing the underlying causes and drivers of this development, as well as the main consequences for management. Typically, the focus has been on very specific forms of organizing. Miles and Snow (1986) describe network organizations, Handy (1992) centers his attention on the federation, Davidow and Malone (1992) on the virtual corporation, and more recently, Pasternack and Viscio (1998) present distinctive issues concerning the centerless corporation. Labels are now proliferating, and some work has been done to categorize these newly appearing forms. Miles and Snow (1986) differentiate, within the network literature, between “internal”, “stable” and “dynamic” networks. From a more general point of view, Overholt (1997) distinguishes a set of archetypes in terms of creativity, level of autonomy and centralization, thus focusing on internal drivers that lead to these archetypes. Winfrey, Michalisin and Keifer (1995) adopt a more externally driven view, considering competitiveness in a hyper-competitive world as the underlying dimension that drives organizational configuration. In this paper we shall present a classification that takes into account both internal and external dimensions underlying the appearance of new organizational forms. First, therefore, we shall review the main forces that influence or drive the emergence and proliferation of new design patterns. We are interested not only in what is new about these forms, but also in why they are becoming so successful in the competitive landscape of the end of the millennium. The factors we identify will help us to define two fundamental dimensions around which to build a contingency analysis of new forms of organizing and a classification of these forms. To keep the level of analysis clear, we shall demarcate two separate typologies —on a business level and on a corporate level. These constructions will help us to discuss some of the main implications for management systems. In conclusion, we shall outline some research questions that will need to be addressed in the future to improve our understanding and deployment of new forms of organizing.

Why do new organizational forms appear?

Organizations are subject to the influence of a great variety of variables. And these variables are entangled in miscellaneous relationships. This complexity indicates the difficulty, if not impossibility, of isolating the causes that generate and facilitate the diffusion of new forms of organizing. Despite the difficulty of the task, certain major factors are identifiable on account of their visibility and scope of impact. Figure 1 attempts to capture the main forces that drive organizations towards structural change, and the interrelations among them.

Figure 1. Summary of the main forces leading to new forms of organizing



Following Volberda (1998), we have to differentiate between forces that affect the acceleration of competitive change, and those that bring about changes in dominant management thinking. Within the first group, we can further distinguish between "driving", "interactive", and "facilitating" forces, as used by Snow, Miles, and Coleman (1992) to describe the emergence of network organizations. Taking as driving forces those that (to borrow the jargon of mechanics) "transmit power" to organizations, making them de-layer and outsource some of their activities, we can identify a number of different issues. First, *increased globalization* can be seen to evoke a response in organizations in terms of changes to the organizational design to reduce costs and make the organization more agile. This implies a move away from traditional structural patterns towards new ones (Bahrami, 1992; Nohria and Ghoshal, 1997; Miles, Snow, Mathews, Miles, and Coleman, 1997). Similarly, Overholt (1997) sees highly competitive global markets as increasing the need for flexibility, which can be achieved by reconfiguring the organization. Finally, Tetenbaum (1998) considers that globalization requires both "interconnectivity" and "interdependency", thus making traditional forms a futile basis for value creation and appropriation and giving rise to new organizational arrangements.

Apart from the global dimension of competition, there are other features of the way companies compete that impel them to change their structure. According to Mitra, Winfrey, and Michalisin (1998), *time-based competition and continuous short-cycle innovation* can explain the need for reconfiguration. The coexistence of competition and cooperation (the "co-opetition" proclaimed by Brandenburger and Nalebuff (1995)) imposes structural adjustments. So does competition in its hyper-state (Volberda, 1996; D'Aveni, Ilinitch and Lewin, 1996), which is based on the Schumpeterian view of firms as continuously disruptive, thus promoting the obsolescence of traditional forms and the emergence of new categories of organization design.

Finally, *technological change* has also been seen as tightly coupled with the emergence of new organizational forms (McKenney, 1995). If we consider technology as a driver, however, it is not so much the rapid pace of technological change that forces

organizations to structure differently, as the ease with which new technologies are diffused across geographical and industry boundaries. Under these conditions, it is difficult to build entry and mobility barriers, and new design solutions are called for.

Moving on to consider *interactive forces* —i.e. those that allow a continuous multiple-way influence between themselves, the drivers and the organizational design patterns— Snow et al. (1992) identify deregulation and changes in workforce demographics as interactive forces. In these authors' words (1992:8), *deregulation* is both "a corollary of more sophisticated global competition" and an indirect cause of it, as it unleashes entrepreneurial behavior. On the other hand, *changes in workforce demographics* require companies to organize in new ways. At the same time, new internal developments in terms of technological possibilities, incentive and control systems, etc. influence certain features of the workforce. For example, a mature workforce that includes a growing proportion of women calls for new patterns of work organization (part-time and/or flexible working, working from home, etc.). Severe competition and the rapid diffusion of technology mean that the organization can retain only a small number of permanent employees while using a larger pool of temporary workers. The final configuration of the workforce is thus a result of the interplay of different pressures.

Turning now to the ***facilitating forces*** that ease the difficulties and make it possible to operate the new forms of organizing quickly and accurately, we have to consider *advances in manufacturing, information technologies* that speed up communication and lower its costs, as well as the *greater political and social freedom*. Information processing capacity and geographic distance are no longer obstacles to organizational design. Lucas (1996) points out that, due to the potential of technology, the very nature of companies' operations change and, as a consequence, new design variables appear. Hence, virtual components, electronic communication or production automation may become relevant factors for a firm's success.

As we said at the beginning of this section, both objective and subjective factors cause the emergence of new design patterns. Having looked at the objective factors, we shall now proceed to briefly discuss the subjective factors, which consist basically of changes in dominant management thinking (Volberda, 1998). We see these changes as a result of the co-evolution of analysis, experimentation, and learning. As is pointed out by Overholt (1997) and Whittington, Pettigrew, Peck, Fenton, and Conyon (1998), organizational changes must go hand in hand with changes in outlook and attitude, as only then will there be the congruency among organizational components that is necessary for improved organizational performance over time. Like the objective forces, the subjective forces can be seen to play driving, interactive, or facilitating roles. Managers, consultants and academics can be seen as generators of new forms of organizing, thus acting as driving forces. Through experimentation (i.e. interacting with the environment), managers adopt and then adapt new approaches (which may be of their own devising, or backed up by the intervention of consultants and academics) for co-ordinating resources (Miles and Snow, 1992). This can be seen as an example of an interactive role. In a similar vein, Handy (1993) and Overholt (1997) state that the creativity of entrepreneurs and executives can force and enhance the appearance of new design patterns. Finally, through effective implementation of new forms of organizing, managers can be considered as facilitators.

To conclude this section, we must point out that objective and subjective factors are interrelated. Changes in environmental complexity and shifts in dominant thinking have both proven to have a profound impact on the viability of traditional forms of organizing. Under turbulent conditions the functional, divisional and matrix forms seem to be no longer an adequate answer to the organizational sense-making process, given the increasing complexity

of managing integration and co-ordination. Information flows seem to be too slow and too costly in traditional forms of organizing, which do not make sufficient use of computer-aided communication to co-ordinate and supervise the members of the organization. It is in these conditions that new forms of organizing emerge.

Emerging forms of organizing are not dominant in the competitive landscape of the 1990s. Yet there are signs that they have a promising future, as many of today's organizations are currently evolving towards new design patterns which, while not yet new organizational forms, are nevertheless intermediate structures or new forms of organizing that firms experiment with as a response to the competitive trends implicit in the drivers we have described (Whittington, et. al., 1998; Wind and Main, 1998). Academic evidence, the large amount of managerial literature on the topic, as well as the dominant logic of the forces studied in this section make us confident that these new forms of organizing represent the trend for organizations in the 21st century.

A typology of new organizational forms

As we said in our introduction, many different new forms of organizing have been identified during the last 20 years. The network form, popularized by Miles and Snow in the 1980s, initiated a rush to "discover" other emerging forms. Establishing a complete list of names is almost impossible and would be a never-ending task. The organizations we describe in this section are therefore a selection of the ones we consider representative of the main emerging forms of organizing. These forms are emerging in contexts characterized by the drivers described in the previous section. However, for classification purposes, we can identify two main dimensions that characterize these new organizational forms: Flexibility and Openness.

Before giving a definition of these dimensions, some commonalties between the two are worth mentioning. *First*, both concepts are polymorphous in meaning and make sense both on an organizational level and on an individual level. The wealth of meanings is nevertheless useful, bearing in mind the circumstances in which these forms emerge. *Second*, the two dimensions around which we have organized our classification are not necessarily orthogonal. Of course, this statement is speculative and needs to be backed up with data. But it shows our acknowledgment of the interdependence of flexibility and openness. *Lastly*, while presenting emerging forms of organizing along these two dimensions, we use the dimensions as a continuum, without strictly fixed "distances" or "degrees" of either flexibility or openness. Rather than measuring exact differences between design patterns along these two directions, we aim to draw the trend.

We shall separate the trends on a business level from the trends on the corporate level, as the scope of activities and the information and co-ordination problems are positioned differently on these two levels.

Flexibility

Flexibility, as a reality in which managers operate and as a requirement they face in the new structural set-ups, is present in the work of Peters (1987), Kanter (1989), Handy (1990), Pascale (1990), Bahrami (1992), Nicholson (1996), and Volberda (1996), among

others. The concept of flexibility, in Overholt's (1997) words, avoids “the current bias that one organizational design is better than the other” (p.23).

Bahrami (1992) sustains that flexibility is used loosely to describe both capabilities and attributes related to change. Relying on previous studies, he agrees about the variegated nature of the concept and its dependence on situational context. It can imply: 1) agility, i.e. the ability to move fast, to change course in order to seize an opportunity; 2) versatility (doing different things and using different capabilities as circumstances change); and 3) resilience (meaning robustness, capacity to absorb shocks).

We use the dimension of increasing flexibility to mean a gradual move from static efficiency towards dynamic efficiency (Ghemawat and Ricart, 1993). The trend towards flexibility in organizational patterns is sustained by the objective driving forces discussed in the previous section: widespread globalization, hyper-state or time-based competition, increased environmental turbulence, and disruptive technologies all call for organizations that are more dynamically efficient, showing greater organizational flexibility.

Flexibility, in this sense, is associated with the question “How fast does the organization as a whole have to learn?” The more uncertain and volatile the environment, and the greater the need for quick adaptation and consequent co-ordination, the faster the learning process will have to be. And the faster the learning process, the more we will need to locate our organization at the dynamic efficiency end of organizational flexibility. Flexibility is obviously also closely related to the temporariness of organizations. Moving towards increasing flexibility means moving towards more temporary forms of organizing.

Finally, while we can fix the origin of the flexibility axis in static efficiency, we do not have a limit value for dynamic efficiency. Thus, we can only draw an axis moving towards increasing flexibility.

Openness

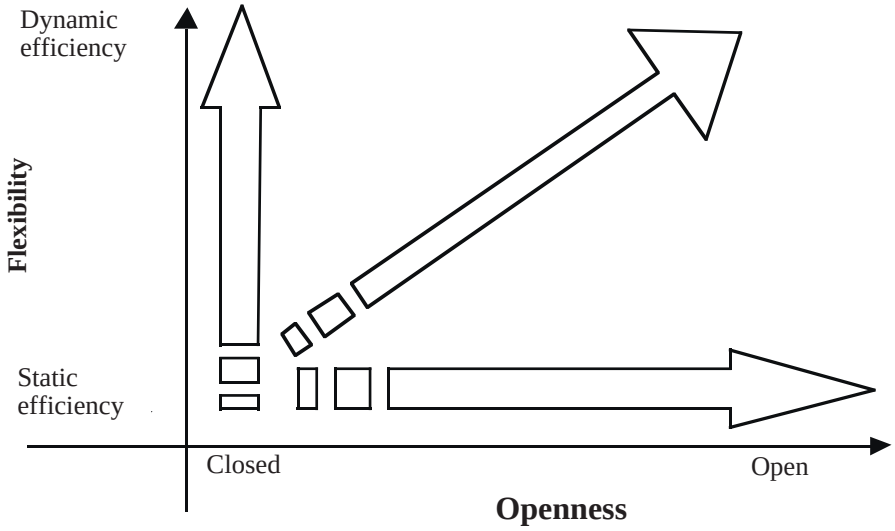
While flexibility measures speed of change and of learning, openness is intended to measure the need for knowledge integration and the location of the relevant knowledge. It can be associated with the questions, “Where does the relevant specialized knowledge lie?” and “How can we integrate it?” Openness is expressed in various different forms of interorganizational co-operation. As the complexity of the environment requires integrating ever more diverse and specialized knowledge, organizations need to be more open and to find ways to cooperate, internally and externally, and integrate knowledge. An organization’s openness to look for and approach other organizations that possess relevant specialized knowledge is therefore another useful dimension for a typology of emerging design patterns.

Openness as a dimension extends from “closed” (that is, internally oriented organizations, relying largely on their own resources) to “open” (organizations that retain only core assets “in-house” and enter into interwoven interorganizational design patterns for the alignment of complementary resources and capabilities). Obviously, while “closed” is a well-defined point, “open” is a continuous state where the limit is undefined.

Openness is not unrelated to flexibility. As more flexibility is required, organizations are forced to keep only their core knowledge and capabilities, and search outside for complementary resources. In other words, they have to become more open. Obviously, one

can also imagine a situation where knowledge is developed inside a very large organization that operates in smaller units, and "integrating knowledge" refers to knowledge-sharing among the group of "independent units" rather than among separate organizations. We will deal with this issue later on.

Figure 2. Dimensions and directions of the emergence and diffusion of new forms of organizing



The two dimensions we have introduced and the expected direction of the emergence and diffusion of novel patterns of organizing are represented in Figure 2.

Organizational forms at business level: emerging patterns and trends

In traditional organizational structures, Strategic Business Units (SBUs) were usually considered a fixed part of the picture of the corporation as a whole. Shaped in a *functional form*, for example, where each function was supposed to specialize in a particular area (production, marketing, sales, etc.) which did not change over time, these SBUs were quite inflexible and closed. The functional pattern, positioned almost at the initial point of the flexibility axis on the business level, reveals its inadequacies in circumstances that demand fast learning and adaptation, tight coordination and avoidance of duplication of resources. Cross-functional teams, project organizations and horizontal organizations are attempts to overcome the coordination and knowledge flow deficiencies of the functional organization.

While the functional form marks the bottom corner of the two-dimensional space, *the project organization* is positioned in the upper part, indicating high flexibility. This type of organization is obviously not new, as historically it has played a significant role in several businesses, although now it is proliferating in a great number of industries. Typically organized by tasks rather than functions, it seeks to combine the advantages of a hierarchy that maintains for a given project the control and performance associated with autonomous management, with those of the functional expertise of a technical group that can achieve better continuity,

flexibility, and use of scarce talents. Drucker (1989) sustains that, in the future, there will be a proliferation of organizations whose structure is nothing more than a loose federation of task forces. Each task force will have all the expertise it needs to carry out its mission. Using new information and communication technologies (ICTs), the new project organizations will be better able to avoid duplication of effort, and will be better linked to the rest of the organization, thus avoiding the "projectitis syndrome" of having a life of their own and losing corporate identity. A special form that has appeared recently is the "virtual project organization" (Hill, 1998), which, to be implemented correctly, faces even greater challenges in the use of ICTs and overall management. We shall come back to this point in the next section.

This evolution is a sign that firms are beginning to adapt their organization to specific businesses processes. This is a trend that has been popularized by the BPR literature, and now continues with the "team-boom". Both these research streams have focused on specific new organizational forms. BPR deals with the reorganization of organizational structures based on the product process or work flow, from the initial demand of the customer, on through the different functions, up to delivery of the finished product. The resulting structure is known as the *horizontal organization* (Smith and Ostroff, 1992; Galbraith, 1995). It is suggested that people in each function should be integrated, and that they should have overall responsibility for the process. This type of organization appears in situations in which coordination of the functions is extremely important, and in which the functions have to be carefully synchronized in order to avoid errors, discover shortages, and implement solutions more easily (Page, 1997).

Teams have traditionally been associated with project management. Recently, however, rapid response to change is becoming a competitive imperative, and more and more organizations are having to coordinate across functions, and are doing so by creating teams. Teams are therefore beginning to proliferate in many different organizational contexts, and the study of teams is one of the booming research areas in organizational studies. Mohrmann, Cohen, and Mohrmann (1995) describe a "team-based organization", an organization in which teams are the performing units, as a "dynamic, laterally oriented system in which teams and business units, in shifting configuration, enact an organizational strategy for succeeding in an increasingly demanding environment". Other forms of teams are those organized around products or services, often used in the horizontal organization. Finally, cross-national teams have been proposed for the effective implementation of a globalization strategy (Snow , Davidson, Snell, and Hambrick, 1996).

A more extreme form, in terms of flexibility, is the one modeled on the way the independent movie industry functions. This form, often called the "Hollywood organization", is not new. In filmmaking it dates back to the 1920s and strongly resembles the project organization. It is not the only form Hollywood adopts when producing its "content" product (the others being better situated on the corporate and inter-organizational level). Still, focusing on the film unit (a temporary creative system organized around a single output —the film itself), it belongs among the highly flexible and rather open forms at the business level. As in other project organizations, each phase of the movie-making process constitutes a temporary system that is limited in duration and membership, in which people come together, interact, create something, and disband (Morley and Silver, 1977). What is unique is the selection and motivation of professionals. When gathering above-the-line professionals (director, writer, and key actors), both independent producers and movie studios draw from a shared elite pool. The creation of competitive advantage is therefore dependent on resources embodied in highly mobile participants (DeFillippi and Arthur, 1998), the assembly of human capital, and its identification, evaluation, selection and creativity motivation. Another interesting feature of this type of organization is the fact that a large number of professionals

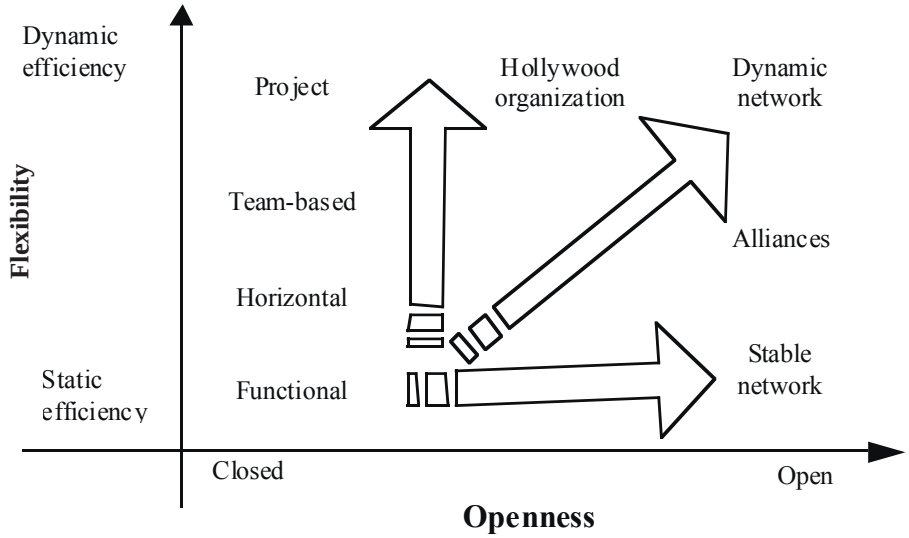
are required to work together closely, adjusting to and communicating with one another, while still having formal contracts that do not specify anything about these essential relationships (Jones, Hesterly and Borgatti, 1997).

Having introduced and positioned the organizational forms on the business level, further effort is needed to mark the direction of design innovation. As stated earlier, our claim is that environmental conditions that demand speedy learning make organizations downscope and focus on core assets. Less important activities or those in which in-house expertise is insufficient are outsourced, obtained through partnerships, or aligned through stable and dynamic networks. Therefore, the expected direction of movement will be towards the upper right-hand corner of Figure 2, where both flexibility and openness are high.

A relevant example could be the movie industry. In general, the so-called Hollywood organization, in the case of independent production, cannot be classified as “closed” (many different professionals and professional organizations are involved in it). But this openness acquires greater scope when the movie-making becomes a dynamic network. Recently, various SBUs of different Movie Majors have joined forces in film projects to take advantage of each one’s core competencies, image and clientele. A recent example of this combination of high openness and flexibility is the "Titanic" project, which brought together “20th Century Fox” (News Corp.) and “Paramount” (Viacom) as producers. “Sony Classical” (Sony) secured the sound track, HBO (Warner) was a broadcaster, and “Harper Collins” (News Corporation) did the book publishing (Rose, 1998). Integrating such high quality specialized knowledge in a project of limited duration allows for exceptional returns and efficiency in an industry as volatile as movie-making.

The main forms for organizing business units are shown in Figure 3, positioned in the two-dimensional framework we introduced in the previous section. The block arrows mark the expected direction of appearance of novel design solutions. Using this framework, we have located the organizational forms discussed above.

Figure 3. Organizational forms and trends on the business level



In all industries, business units seek partnerships and go for inter-organizational patterns through alliances, joint ventures, etc. These forms that relate different organizations will be dealt with after we have presented the corporate level framework. This is because a similar movement towards inter-firm collaboration is observable at the level of the corporation.

Organizational forms at corporate level: emerging patterns and trends

New organizational arrangements have also appeared at the corporate level. While traditional divisional and matrix organizations are perceived as being quite inflexible and unsuitable for quick learning and adaptation, the move towards more temporary and flexible designs has given rise to several new organizational arrangements. These innovations have been made possible mainly by the appearance of new information and communication technologies (ICTs), which permit modes of interaction that were not possible before. This, in turn, has enabled the creation of flatter structures, increased knowledge and information flows, and therefore new rules for the centralization and decentralization of decision rights. In this sense, the traditional notion of a fixed organizational structure is being blurred, and organizational structure has now to be considered as a variable of choice, which may be changed more or less frequently.

Although completely new forms of organizing may be introduced drastically by top management, the adoption of new organizational forms is normally an incremental process, in which small changes to the existing structure are introduced gradually, so as to assure viability and the adaptation of employees to the new conditions, and to facilitate an understanding of the new rules of the game.

The *internal corporate joint venture* (ICJV) is an example of a non-radical change with respect to traditional forms of organizing. The ICJV has features of both traditional joint ventures and internal corporate venturing. Like internal corporate venturing, it involves creating an internally staffed, semiautonomous venture unit, with the sponsoring organization maintaining ultimate authority. Like most joint ventures, this newly formed entity is legally distinct from the sponsor, involves equity sharing by both parties, and operates outside the formal boundaries of the sponsor while maintaining some direct ties (Zajac, Golden, and Shortell, 1991).

In the same direction, in the *distributed organization* (Galbraith, 1995) some changes with respect to traditional modes of organizing can be appreciated. Corporate activities are reassigned to units that over a given period of time demonstrate excellence in executing those activities. In this mode, operating units begin to carry out staff functions, thus acquiring a double responsibility. The assignation of staff functions is independent of the region in which the unit is located. This form —which is gaining in popularity among large multinational corporations and firms with extensive “staffs”— can be seen as an intermediate step in the process of network evolution, leading a firm either to establish an internal network or to outsource the activities to other firms.

In the distributed organization, different units carry out different staff functions, in which each of them is excellent. New interdependencies arise, and coordination begins to play a crucial role. New communication technologies and lateral processes make this new structure possible. As an intended side effect, potential knowledge transfer is enhanced.

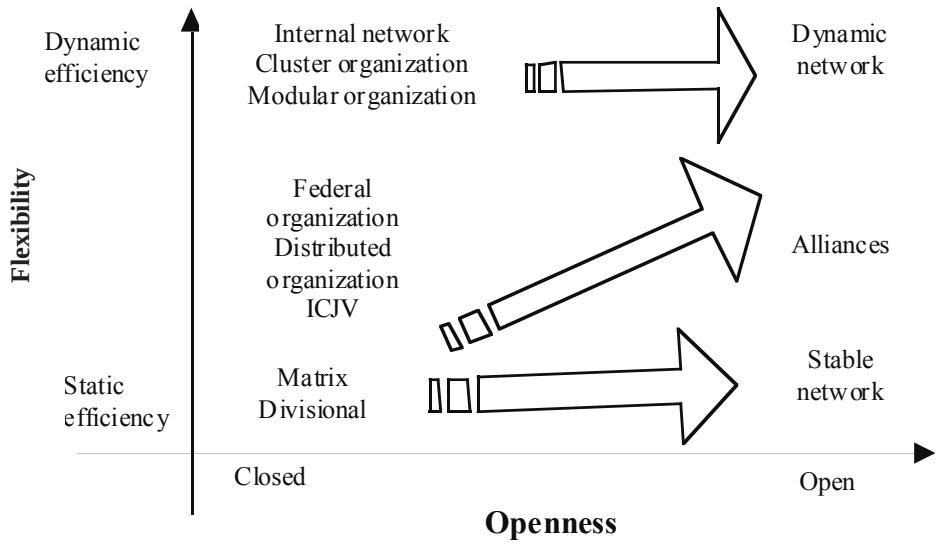
One structure that has been made popular by ABB's Percy Barnevik in particular is *the federal organization* (Handy, 1992; Vilà and Syversten, 1998), the *hybrid or "front-end/back-end" structure* (Galbraith, 1995; Mohrmann, Galbraith, Lawler III, and Associates, 1998). More flexible than traditional forms but still stable enough to ensure organizational identity, this type of organization arises as a combination of both product and market structure. It is constituted by: 1) front-end units that focus on the different market segments; and 2) back-end units that specialize in products and technologies. The front-end units remain flexible and relatively unstable, evolving with market requirements and so giving the firm the flexibility it needs in order to react fast if new customer demands appear or the market changes. On the production side, the organization remains stable, retaining a sufficient production scale and the necessary size for optimal R&D activities. The firm has the advantages of being both flexible and stable, small and big. Nevertheless, the right balance between the front-end and the back-end is not always easy to achieve. A clear definition of roles and responsibilities has to be established in order to avoid constant conflict between the two ends. Lateral communication processes are vital to avoid rigidities of functions. Learning processes about both the market/client and the associated products/services have to be enhanced. Finally, a sort of "bridge" process between the front-end and the back-end has to be created in order to prevent the appearance of two separate organizations within the corporation. Coordination, not control, is the underlying logic of this integration process.

The *internal network* has often been seen as the end point of the evolution towards a dynamic structure. Internal networks are characterized by autonomous units linked in some manner to a central unit. Each unit constitutes a center of excellence within the organization, and establishes temporary agreements with other units if current activities call for collaboration. The competitive capacity of each unit is ensured by a constant feedback to the market, because services are also offered to firms outside the organization. In this way, the internal network avoids resource redundancy and shortens the firm's response time to market opportunities. Units may take decisions independently, but must have access to vital information from the other participating units. Coordination is very important in order to avoid internal cannibalization, but as we said before, the use of information technologies drastically reduces coordination and information costs.

One particular case of the internal network is the cluster organization (Mills, 1991). It is characterized by a relatively flat structure of loosely coupled project teams. Each team is usually made up of multi-skilled workers, who are supposed to find creative solutions to customers' needs. Changes in strategic focus therefore lead to a reorganization of the existing clusters, giving the organization flexibility, creativity and responsiveness.

The modular organization (Tully, 1993) is another form of intraorganizational network. The word modular suggests an ability to assemble and disassemble, repair and service with ease, through the use of interchangeable parts and components. Different modules focus on activities in which they have core competence. Thus, the modular corporation becomes a broker-hub of activities that create offerings for customers. All these forms, as well as their more open counterpart, are represented in Figure 4. The following section elaborates on these open forms of organizing.

Figure 4. Organizational forms and trends at corporate level



Organizational forms at the inter-organizational level: a "meeting point" for corporate and business level organizational innovations

As organizational environments begin to get more turbulent, skill and resource requirements push firms to form inter-organizational agreements, adopting forms of *networks* or establishing *strategic alliances*.

Miles and Snow (1992) state that the network appears in order to combine: 1) the specialized efficiency of the functional structure; 2) the effectiveness of autonomous operations which give sufficient flexibility to the divisional structure; and 3) the capacity of the matrix structure for knowledge transfer across the whole organization, allowing better adaptation to complex external conditions and making better use of the communication and coordination opportunities offered by new technologies.

Networks are characterized by blurred boundaries and explicit or implicit collaborations with firms operating at earlier or later stages of the value chain. Each firm concentrates on a partial process, in which it has competitive excellence, and forms networks with firms that are excellent in other activities. As effective coordination and an adequate information flow are essential to the long-term success of a stable network, the use of new information technologies is seen to be crucial.

Network organizations have variable size, as they are able to adjust their size to suit the effective requirements of their markets at any given moment. This enables them to react swiftly to changing conditions, offering the variety that fits the market situation. In this sense, a network is big and small at the same time. It is easier to adapt to changes in technologies or in resource requirements, as there are no specific investments that create a path dependency and commit the firm to any one particular direction.

Snow, et al. (1992) have identified two different types of inter-organizational networks, which can be distinguished in terms of their temporal stability. First, *stable networks*, in which one central firm creates market-based connections with other firms, which in principle should remain stable over time. This allows firms to reduce their risk and make full use of their resources, without having to develop them inside the organization. By seeking long-term relationships they aim to improve their capacity to react to change and ensure a more efficient use of their resources, although the lack of real-market conditions obviously limits each partner's flexibility and creativity.

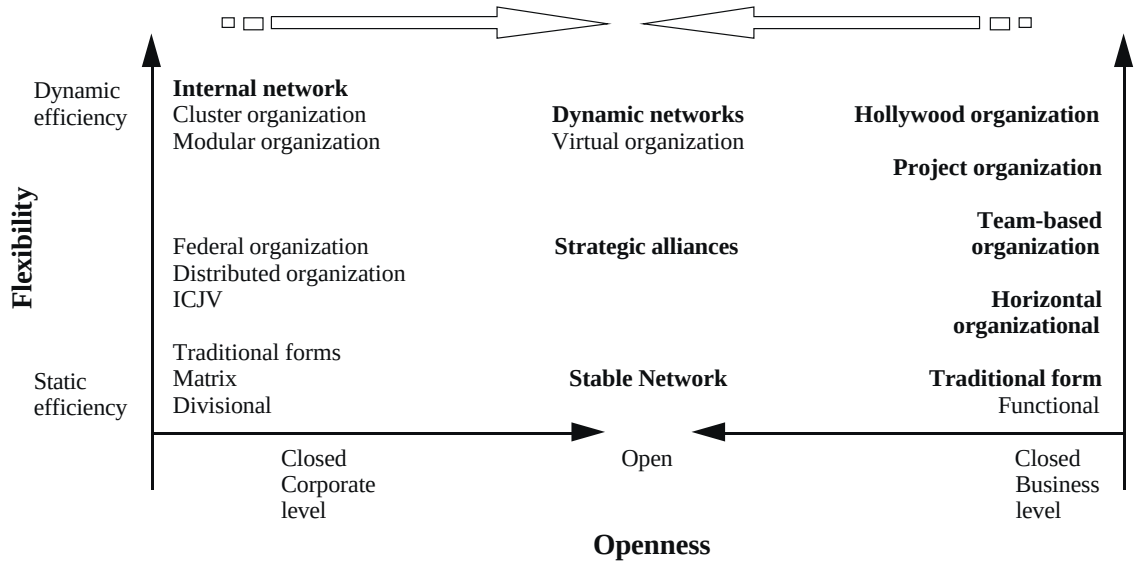
A second type of inter-organizational network is the *dynamic form*. This form explicitly envisages frequent changes of partners, rather than relying on an established and known number of firms, as the stable network does. In a dynamic network, independent firms establish a one-off agreement to produce a given product or service jointly. As the relationships are market-like, certain conditions have to hold for a dynamic network to be successful. First, to avoid problems of opportunism, each partner must have an excellent competency in the different stages of the value chain. Second, effective protection of each firm's core competency is crucial, as this is the only guarantee that will allow firms to survive in a rapidly changing market. In the absence of this protection, some kind of contractual agreement, such as a stable network or a strategic alliance, might be preferable.

The *virtual corporation* (Davidow and Malone, 1992; Byrne, 1993) can be seen as a dynamic network, as it is a resource network in which suppliers, customers, and even competitors join forces through strategic alliances and outsourcing agreements. The specific composition of the group depends exclusively on the resource and skill requirements of the planned venture, thus allowing the virtual corporation to effectively buffer frequent environmental changes. It is called "virtual" because of its transparent boundaries and unclear lines of authority and reporting.

Finally, a last type of inter-organizational form is the *strategic alliance*. Strategic alliances typically are forged during industry transitions when competitive positions are shifting and the very basis for building and sustaining competitive advantage is being defined. The focus is normally on creating new products and technologies, and the knowledge exchange and mutual learning between the participating firms is often very intensive. To cope with these objectives, strategic alliances are normally designed taking collaboration over time into account, whether the alliance is of limited or unlimited duration. Experience has shown that implementation problems leading to premature break-ups are common.

The paths for the convergence of both corporate and business forms towards more open forms of organizing, such as the ones described in this section, are illustrated in Figure 5.

Figure 5. Combined business-corporate forms frame and convergence at inter-firm level



As organizations become more open and interact with other organizations, the boundary between corporate and business level organization starts to blur. The reason is quite straightforward. As organizational units get involved in networking and alliances, the difference between being a unit of a corporation and being an independent organization starts to become irrelevant from the point of view of organizational forms. Obviously, it is still relevant from the point of view of corporate governance, but that is not an issue we are dealing with here.

Implications

Given this eventual convergence of business and corporate forms toward network-like organizations, a key point is to try to anticipate the way organizations will develop in the future. Given all the factors described in our first section, the development of organizations towards greater flexibility should be clear. Depending on the industry and the competition, some organizations will move faster than others that face less pressure from that direction. This evolution is already under way.

The outlook regarding openness is less clear. If we look at businesses today, we can see two contrasting trends. On the one hand, we find companies outsourcing, focusing, forming alliances and increasing their use of network forms of organizing. However, we also find mega-mergers, with a new even bigger merger being announced in the press almost every month. As Malone and Laubacher (1997) and the work of the “Organizing for the XXI Century” group at MIT seem to indicate, we have two possible scenarios, and maybe we will see both at the same time: small, flexible and very open organizations evolving towards dynamic networks, alongside huge multinational corporations, organized as internal networks or similar forms, where all the relevant knowledge is shared.

As the above-mentioned authors point out, these two scenarios have very different implications in many important areas, such as the nature of jobs, the social implications, governance and ownership structures, etc. However, all these new forms of organizing converge in certain important aspects that we shall highlight in the next section.

Communication and coordination requirements

The new organizational forms have different communication and coordination requirements from traditional organizational arrangements. As we have seen, organizations are shifting away from hierarchies towards more flexible structural arrangements in which horizontal coordination and communication take precedence over vertical lines of authority. New information and communication technologies (ICTs) are seen as an integral part of this shift in organization design. ICTs open up new architectural possibilities, often providing vital support for new organizational arrangements (Malone, 1996; Rockart and Short, 1989; Baskerville and Smithson, 1995). In this sense, flattened structures and enlarged spans of control are often only feasible through intensive use of information technology. Lucas (1996) points out that new design variables, such as virtual components, electronic linking, electronic communication or production automation (1), are becoming increasingly important factors for firm success. In Scott Morton (1990) it is argued that information technology has revolutionized our ways of communicating, of doing business and of living, collapsing time and distance and becoming indispensable in the world economy. Information technology management will therefore have to be integrated in the design and implementation of new structural patterns, and carefully coordinated across diverse areas of the enterprise (Fulk and DeSanctis, 1995).

Knowledge and learning

In organizations that have to compete in turbulent environments, knowledge and learning acquire a new importance. Quinn (1992) argues that a possible explanation for the appearance of new organizational forms is a shift in the importance of knowledge in organizations. He sustains that in the “age of knowledge” both knowledge and abilities are essential elements for firm success, as firms begin to see themselves as a bundle of services supporting customer needs. Organizations try to build competencies in primary and secondary functions that are not outsourced. They value human intelligence over physical resources, in the belief that in times of changing technologies knowledge systems are more suitable than physical resources as a means of nurturing sustainable competitive advantage. Optimal utilization of human resources is achieved in flattened structures which enhance free interaction, thereby leveraging both human capital and information flow within the organization. Information, training and motivational systems are used to empower workers, who constitute core competency areas that generate customer value. In the same direction, Boland and Tenkasi (1995) relate the existence of communities of knowers to the emergence of new organizational forms.

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(1) Zuboff (1988) studies the impact of computerization in the working place, drawing together not only the details of diffusion of information and databases on management structures, but also the philosophical significance of changing patterns of work.

Consistent with this view, Connor and Prahalad (1996) develop a new theory of the firm, based on the modes of creation and diffusion of knowledge in organizations. All these considerations drive us to focus more on individual initiative and front-line entrepreneurship, as several leading researchers have suggested (see Kanter, 1983; Collins and Porras, 1994; De Geus, 1997; Morgan, 1986; Stopford and Baden-Fuller, 1992; and Pfeffer, 1994).

Individual initiative, continuous learning and knowledge management make the commitment of individuals more important. In turbulent environments, however, firms are often not in a position to guarantee a particular individual a particular job over time. Reengineering is applied mostly in precisely those firms that require most adaptation by individuals to changing conditions (Kanter, 1997), effectively eliminating the means for building commitment. Human resource management thus faces new challenges in motivating people who do not have the incentive of long-term employment contracts.

Human resource management

Companies with unclear boundaries impose unclear demands on people (Victor and Stephens, 1994). Roles defined by the task of the moment and the location of the worker are taking the place of the traditional notion of roles defined by the organization and specified in job descriptions. To fulfill the requirement for constant innovation and adaptation, employees need to have certain new characteristics. First, they have to be self-motivated continuous learners. Traditionally, workers are seen as alienated from the means of production. Recently, recognition of the importance of complex and tacit knowledge, resident in people, as a means for performing organizational activities has increased employees' mobility and employability (Drucker, 1997). Second, the centrality of teams calls for collaboration skills —both traditional skills and skills related to the use of new information and communication technologies. Third, mobility between projects and organizations calls for quick and efficient adaptation to different working conditions and requirements. Last but not least, employees must develop their social capital to improve their own employability.

Consequently, employees' career paths cross various organizations rather than staying within a single organization. Temporary and self-employed workers proliferate in the labor force, further increasing individual as opposed to organizational responsibility for a person's career. Firms are more willing to differentiate between core and peripheral workers. This places additional pressure on HRM practices (Sanchez-Runde, Washington and Quintanilla, 1998) because not everyone will feel at ease with the free-floating demands of the hyperflexible workplace (Victor and Stephens, 1994).

That is why several questions have to be asked and answered by both practitioners and researchers: how to treat stress caused by the ambiguity deriving from agile forms of organizing; how to develop job opportunities for superfluous downsized workers; how to support surviving workers during the transition.

The shifts in roles, capabilities, and responsibilities determine an evolution towards a new "moral contract" (Ghoshal and Bartlett, 1997) that will be feasible in an *"individualized corporation"* where human creativity and individual initiative are the main source of competitive advantage. Organizations have to be able to benefit from the "idiosyncratic knowledge and unique skills of each individual employee" (Ghoshal and Bartlett, 1997: 8). Employees substitute competitiveness for the traditionally required loyalty and obedience. Job security, once predominant, gives way to the drive to acquire portable and

marketable skills (Nicholson, 1996). People are responsible for their own development and for the company's future. To gain commitment, companies promise to add labor market value to their employees and work to achieve this (Nicholson, 1996). The traditional pyramid is inverted, giving managers the role of providing support to employees' entrepreneurial initiatives, rather than that of exercising supervision and control (Ghoshal and Bartlett, 1997).

Managerial roles and careers

Environmental turbulence and the structural and mental agility it requires lead to ***changes in managers' roles***. These changes have been captured by a variety of authors who concentrate on particular aspects of the observed multidimensionality. Following the dimensions of emergence and diffusion of structural arrangements in our model, we will mark only four elements of the managerial role. Two of them -flexibility and brokerage- are "novelties" in the role set. The other two -identity building and leaders' development- are traditional, but becoming increasingly important.

Flexibility is not only a structural feature or personality trait. It is also a task that managers have to perform in organizations. And while Volberda (1996) does not use the term "role", he gives enough cues to infer its meaning through the flexibility tasks he defines: managerial and organizational design tasks (both implying strong management intervention). The managerial task is associated with the already mentioned responsibility for capability development. The organization design task relates flexibility to the creation of adequate conditions. The repertoire of managerial capabilities can be successfully activated only under adequate design conditions. Thus, managers have to achieve a fit between their capabilities and the firm's architecture.

In line with our view of the trend at both business and corporate level towards network-like arrangements, we agree with Snow, et al. (1992) that the *"broker"* is becoming a commonly played role. In performing this role, certain key managers operate across rather than within hierarchies, creating and assembling resources controlled by outside parties.

Identity building is a managerial role that was popularized in the 1980s. Recently, increased organizational agility has had to be counterbalanced by continuity. Industries subject to frequent cultural and structural changes need managers to act as "sense makers", organizing the bits and pieces left over from constantly "broken cosmologies" in a meaningful way, so as to provide the necessary continuity.

To act as identity builders, managers must rely on their successors. This need is present in the "federalist formula for successful leadership" (O'Toole and Bennis, 1992), consisting of an inspiring vision and identification, and of the nurture and development of future leaders. However, if we look at any other new form of organizing in turbulent environments, it also has to rely on a broad base of leaders to guarantee agility. O'Toole and Bennis talk about *"leaders of leaders"*, who are expected to increase the employees' ability to make decisions and initiate change.

"Fashion" in forms of organizing also drives managerial careers. The on-going move towards flexibility and flatter structures determines the following essential features of the paths for managerial advancement. First, there is the substitution of a sequence of experiences that need not be linked to a single organization for the traditional "ladder climbing". Career paths are cut through projects and organizations rather than through

ascending layers. Second, the managerial career becomes a “do-it-yourself” project (Allred, Snow, and Miles, 1996). It becomes a life-course matter that is influenced by personal and social variables (friendship networks, acquaintances, etc.), bringing research on social capital into vogue (Alvarez, 1997). Alvarez concludes that environmental turbulence and differentiated managerial tasks give careers an element of plurality and unpredictability.

Conclusions

In this paper we started by studying the powerful objective and subjective forces whose interplay drives firms to experiment with new design solutions. We then worked out two fundamental dimensions of change, which we defined as flexibility and openness. We used these two dimensions to classify currently emerging forms and to anticipate some trends for new forms of organizing in the future, centering our attention on the use of ICTs, knowledge management, changes in human resource practices and social contract, and changes in managerial roles, competencies, and careers.

From all of the above, it should be clear by now that the emergence and diffusion of new organizational arrangements is not without its difficulties. As we pointed out in previous sections, the changes are closely interrelated and tremendously wide-ranging. We therefore argue that the organization of the 21st century is facing not an incremental change in ways of organizing, but a *change of paradigm*. The changes needed in order to build and manage these organizations will therefore have to be formulated and implemented *in a holistic way*. Furthermore, like any paradigm change, this will also involve a *change in the mindset* of the agents who effect the change and those affected by it, fundamentally those with decision-making capacity. If we are not able to advance enough in the *subjective factors* associated with the mindset of academics, consultants and managers, we will end up carrying out modifications of old organizations instead of facing the reality of these new forms of organizing. Both these underlying aspects are important: paradigm change and a holistic approach.

We saw in the first section that advances come from the interaction of objective and subjective factors. The new mindset is difficult to embrace, and the changeover from the organizations of today to the organizations needed for tomorrow will be difficult. However, it is a fundamental agenda for the next century. □

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