

**STRATEGY FORMATION PROCESSES IN VIRTUAL ORGANIZATIONS
FROM AN INTERNATIONAL APPROACH: A NEW THEORETICAL INTEGRATION**

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ABSTRACT

Nowadays international organizations face a highly dynamic, uncertain environment, which demands the development of flexible organizational structures responding effectively to changing market conditions. Agility, which has become an essential element for the global competitiveness, can be achieved through the formation of networks, such as virtual organizations. Therefore, virtual structures appear as an organizational concept that enables the firm to meet new market needs and overcome its limitations.

Given the importance of virtual organizations in today's business world and their rapid development in different contexts and markets, it is necessary to examine such organizations beyond a mere description. Accordingly, this conceptual paper is aimed at contributing to provide a new theoretical explanation of virtual organizing as a strategy-driven process, based on the network perspective of the internationalization of firms. This objective challenges us not only to review, but also to integrate, two previously unrelated disciplines and/or streams of research, the strategy process and the virtual organization literatures, to obtain a more holistic understanding of virtualness as a challenging phenomenon.

Keywords: virtual organization, international networks, strategy process.

1. INTRODUCTION

As the international market demands a quicker response to changes in the environment and greater adaptation to customer needs, there is growing recognition of the need for new forms of flexible cooperation (Sánchez Peinado and Plá Barber, 2007). Although cooperation between firms requires a suitable organizational structure to operate in a context like today's, it would be appropriate to add dynamism as a basic structural requirement to react to the changing environment. This phenomenon leads firms to decide to outsource the non-key processes, which may lead to the organization fragmentation. Therefore, virtual structures appear as an organizational concept that enables the firm to meet new market needs and overcome its limitations.

In this new business climate, the virtual organization is a key element in the development of dynamic organizations in a global context (Bremer et al., 1995; Goldman et al., 1995; Zimmermann, 1997), particularly in the case of small and medium-sized firms (Erben and Gersten, 1997; Kocian, 1997; Schertler, 1998). In that respect, it should be stressed that it is especially the small and medium-sized firms that lack the resources to face that challenge individually (Erben and Gersten, 1997; Zimmermann, 1997; Amberg and Zimmermann, 1998; Rautenstrauch, 2002). On that basis, small and medium-sized firms engage in networking to gain the advantages of bigness while keeping the flexibility of smallness (Zimmermann, 1997; Sydow and Windeler, 1998). It is very costly for large firms to maintain all the necessary capabilities in the value creation process to be able to respond to the rapid market changes that affect their production activity (Erben and Gersten, 1997); so they probably concentrate on certain distinctive capabilities and use external resources for other activities. In fact, network literature highlights the importance of the external resources available to the firm through its interorganizational relationships (Gulati, 1999; McEvily and Marcus, 2005; Zaheer and Bell, 2005).

The flexibility of the traditional organization is increased through the use of virtual organizations (Vickery, 1994). The presence of sophisticated information and communication technologies (ICT) provides organizations with greater flexibility in their relations by means of better interconnectivity, which has facilitated and encouraged the creation of virtual positions within the organization (Vickery, 1994). Thus, organizations are becoming virtual organizations in order to respond to this dynamic environment (e.g., Mackenzie, 1986; Mowshowitz, 1994).

In any case, it is necessary to stress not only the idea that the cooperation partners complement one another but also that they really need one another insofar as the alliance enables each to access a source of competitive advantage (e.g., Porter and Fuller, 1986; Geringer, 1991; Kanter, 1994; Child and Faulkner, 1998; Navas and Guerras, 1998). The success of the organizational network lies in its complementarity in the sense that it is not important to be competitive as units but as the network as a whole, and in the complementarity of the added value of each unit in the network as a whole (Navas and Guerras, 1998). However, for the network to be competitive, the different functions performed by the partners must be adequately integrated. Therefore, it is essential to consider two fundamental aspects when choosing alliance partners, namely strategic fit and cultural fit (Child and Faulkner, 1998). In referring to the strategic fit, those authors highlight the need for the resulting value chain to make it possible to generate competitive advantages for the partners. This means that the resources contributed by the partners must be complementary and provide synergies (Chetty and Blankenburg Holm, 2000). Child and Faulkner (1998) also stress the importance of cultural factors in the development of an alliance and state that an attitude of understanding the cultural differences and desire for compromise on cultural differences may be vital to the collaboration success.

Based on the above, the principal objective of this work is to analyze which strategy formation processes prevail in decision taking in virtual organizations, for which the analysis is based on their general characteristics. To that end, the work is structured as follows. Firstly, the virtual organization is analyzed from various study perspectives and the main elements of its conceptualization are described. Secondly, the different theoretical approaches or perspectives that describe the strategy processes are described. In the following section, the work determines which strategy formulation processes dominate decision taking in virtual organizations, based on their general characteristics. The final section presents the main conclusions and discussion.

2. VIRTUAL ORGANIZATIONS: PERSPECTIVES OF STUDY

The literature has considered the virtual organization from different points of view. Authors such as Sieber (1997), Zimmermann (1997) and Saabeel et al. (2002) identify two perspectives from which to study the virtual organization, depending on the conceptualization. One perspective considers the organization as a structure or system comprising interrelated elements, while the other emphasizes efficacy and efficiency as the central objectives to be organized virtually, which implies attributing the virtual organization with a strategic direction. More specifically, Zimmermann (1997) analyzes the virtual organization from one approach that is called institutional and another called functional. From the institutional perspective, the virtual organization is a combination of independent firms that contribute their distinctive capabilities, and where the use of technology is a key element in the organization, while the functional perspective considers virtuality as a strategic attribute of every organization.

At the same time, Saabeel et al. (2002) present those two analytical approaches as the structure perspective and the process perspective, depending on whether the focus is on the basic components of the organization and its properties or on the conduct of the

virtual organization as a strategic proposal, respectively. According to the first approach, the structure perspective, the virtual organization is considered a type of cooperation (e.g., network, alliance) between organizations, firms, groups or individuals. This can be seen in the many definitions of the virtual organization that begin by stating that it is 'a network of organizations, or individuals' while some authors also describe it as a combination of distinctive capabilities or activities. For example, Davidow and Malone (1992) refer to the virtual organization in terms of patterns of information and relationships and state that it involves the creation of virtual products by means of a sophisticated information network in which not only the firm's highly qualified employees participate, but also suppliers, distributors, salespeople and even consumers. However, Byrne et al. (1993) propose a more specific concept when they consider the virtual organization as a temporary network of independent firms united by information technology to share skills, costs and access to one another's markets. The literature also includes other works that apply the idea of the virtual organization not only to interorganizational dependencies or relationships (between partner-organizations) but also to intraorganizational (Bultje and Van Wijk, 1998).

On the other hand, the process perspective refers to the fact that, when faced with changes in the internal or external environment, the virtual organization responds by changing its own condition or that of its environment. It is what Venkatraman and Henderson (1998, p.34) define as 'virtually organizing', which they describe as "[...] a strategic approach that is singularly focused on creating, nurturing, and deploying key intellectual and knowledge assets while sourcing tangible, physical assets in a complex network of relationships". Moreover, Syler and Schwager (2000, p.1699) support that idea when they state that the virtual organization "[...] it is not an organization, but rather it is a strategy for organizing the elements of the value chain or a characteristic of an organizational approach". Following a more generic approach, such as that of

Mowshowitz (1994, 1997), the virtual organization would be understood as a form of structuring and managing objective oriented activities.

Table 1 summarizes some basic ideas underlying the notion of the virtual organization in the literature, grouping authors according to whether they focus on the structure or process approach to study such organizations.

(Insert Table 1)

Various authors (e.g., Sieber, 1997, 1998; Venkatraman and Henderson, 1998; Syler and Schwager, 2000; Criado, 2001; Keinänen and Oinas-Kukkonen, 2001) describe 'virtuality' as a capability or characteristic that every organization possesses to a greater or lesser extent, which seems to support the functional perspective developed by Zimmermann (1997). However, as that author stresses, "[...] organizations with the described institutional characteristics are most likely to reach the objectives pursued with the building of virtual enterprises" (Zimmermann, 1997, p.4). In that respect, it is necessary to briefly focus attention on the idea of virtuality in terms of an organization's ability to obtain and coordinate the distinctive capabilities congruently by means of the design of the value creation process in order to give the market better and differential value (Sieber, 1998; Venkatraman and Henderson, 1998). This supposes that an organization develops its basic core activities while it obtains its non-core capabilities externally, that is, from other organizations with which it constitutes the virtual corporation. The objective is differentiation in the market by means of better performance. In that way, the aim is to extend the reach of efficacy and efficiency to other organizations and so produce 'win-win' situations in the agreements between firms that favor cohesion among the virtual organization partners.

In short, one can deduce that it is preferable to study the virtual organization from a strategic approach and consider virtuality as a possible attribute of any organization. However, the application of that perspective is finally specified in the configuration of a network of partners who contribute different complementary capabilities and where technology is the tool that facilitates the model: all of which are elements defining the structural perspective of the virtual organization. In effect, Syler and Schwager (2000) argue that the virtual organization is not an organization but a strategy to organize the elements of the chain of value or a characteristic of an organizational approach. They also suggest that the virtual organization is an organizational form that displays a higher degree of flexibility and synergy. As Saabeel et al. (2002) indicate, the combination of those two approaches provides the management of a virtual organization with a better perspective of how to organize external relations in such a dynamic environment. Therefore, this should be the approach to be taken when making a more descriptive conceptualization of the virtual organization although it does not mean accepting the idea of the virtual organization as an institutionalized form of organization.

In that respect, the literature contains numerous definitions of how a virtual organization is understood (e.g., Goldman et al., 1995; Hedberg et al., 1997; Sieber, 1997; Jägers et al., 1998; Venkatraman and Henderson, 1998; Ahuja and Carley, 1999; DeSanctis and Monge, 1999; Criado, 2001; Franke, 2002; Saabel et al., 2002; Camarinha-Matos and Afsarmanesh, 2006; Pedersen and Nagengast, 2008; Zuo and Panda, 2008), each highlighting different aspects or perspectives. On the basis of the different considerations of the most important authors in the context of the study, we propose the following definition of the virtual organization:

The virtual organization is a network of legally independent organizations which, based on cooperation and supported by the

use of information and communications technologies, seeks to achieve a specific objective and thus exploit a market opportunity for the time that it is economically justifiable.

That definition is relatively generic because of the need to consider the differences found in the literature regarding the elements on which the notion of a virtual organization is based. In that respect, we should stress the idea that the aim of 'organizing virtually' by means of the joint action of independent agents is to accomplish a common business goal and exploit a determined opportunity in an environment of collaboration. To that end, the partners in the cooperation network share their resources and capabilities, as well as access to the market, for as long as necessary (e.g., until the objective is achieved or the organization is no longer effective). This means that the temporal dimension of the virtual organization is marked by the characteristics of the opportunity to be exploited. Moreover, the use of ICT constitutes another of the virtual organization's defining elements although, as we explain later, it is considered as a medium that facilitates virtuality.

As can be seen, the proposed definition combines the two perspectives of the analysis of the virtual organization: the structural perspective and the process perspective. However, the emphasis is on the latter since it supports the idea that virtuality implies a strategic alternative. That view constitutes the center point of this work since the fundamental purpose is to analyze which processes of strategy formulation prevail in decision making in virtual organizations, beginning with their general characteristics.

These networks become a promising solution to respond to international market demands. Therefore, Johanson and Mattson's (1988) network approach to internationalization is preferentially chosen here as a relevant theoretical framework because it includes a dynamic element by focusing on network relationships. This

model uses social exchange theory to illustrate and also explain how firms develop networks organically to internationalize. More concretely, these authors consider business networks as the relationships a firm has with its customers, distributors, suppliers, competitors and government, i.e. the actors in a business network. They argue that as the firm internationalizes, the number and strength of the relationships between different parts of the business network increases. By internationalizing, the firm creates, develops and maintains business relationships with counterparts in other countries. This occurs in different ways: first, by forming relationships with counterparts in countries that are new to the firm (international extension). Second, by increasing commitment in already established foreign networks (penetration). Third, by integrating their positions in networks in various countries (international integration).

However, internationalization in all of these cases implies "an exploitation of the advantage this network constitutes" (Johanson and Vahlne, 1990, p.20). As we have seen, the activities in virtual organizations and networks allow the firm to form relationships, which help it to gain access to resources and markets. An assumption in this model is that a firm requires resources controlled by other firms, which can be obtained through its network positions (Johanson and Mattson, 1988). Johanson and Mattson also use the term net to specify certain sections of a network. For instance, national net refers to networks in other countries, and production net refers to a firm's relationships that revolve around activities in a specific product area.

Given the importance of virtual organizations and networks in today's business world and their rapid development in international contexts, it is necessary to examine the functioning of such organizations beyond a mere description. Therefore, it is essential to conduct a theoretical analysis of the strategy processes present in virtual organizations.

3. THEORETICAL APPROACHES TO STRATEGY FORMATION

Beyond classification sketches of research papers about strategy, which distinguish between “content” and “process”, or between “formulation” and “implementation” of strategies, some authors have tried to link the classification criteria with the principles of strategic management (e.g., Mintzberg, 1990; Mintzberg et al., 1998; Rouleau and Séquin, 2001). In this sense, the strategy literature provides various lists of different schools of thoughts. Among those classifications, the outline of the ten schools of thought developed by Mintzberg (1973, 1990) and Mintzberg et al. (1998) stands out as one of the most exhaustive and complete classifications and addresses a good part of those developed in the field.

The paper published by Henry Mintzberg in 1990 analyzes the processes of strategic management from different approaches. The classification offered by this author has ten different approaches, and states that each of them has a connection with one strategic school of thought. Therefore, each school of thought is associated with a particular model of strategy formation with its distinctive characteristics (Table 2).

(Insert Table 2)

In addition, these ten schools of thought about the strategy formation process generally fall into three groupings (Rialp, 2003): (a) the prescriptive, rational-oriented approach (incorporating the design, the planning, and the positioning schools) which conceives strategy formation as the result of a formal, intentional process (deliberate strategy); (b) the descriptive, organizational process-oriented approach (formed by the entrepreneurial, the cognitive, the learning, the political, the cultural, and the environmental schools) which is focused on the notion of emerging strategy; and, finally, (c) the integrative approach, a third category where, until now, just the

configuration school is included. For Mintzberg (1990), Mintzberg et al. (1998) and Mintzberg and Lampel (1999), the configuration school is the only school of an integrated character.

Based on Mintzberg's proposed classification of schools of strategic thought, various authors have developed a series of alternative, or complementary classifications that aim to expand research in that respect (e.g., Chaffee, 1985; Bailey and Johnson, 1992; Elfring and Volberda, 2001). In this research work, we focus on the proposals of Mintzberg (1990) and Bailey and Johnson (1992) since they are the classifications that encompass most typologies and are those on which the other regroupings in the literature are based.

Bailey and Johnson (1992) established six theoretical perspectives of strategy development processes: planning, incremental, political, cultural, visionary, and enforced choice perspectives. There is a close parallelism between these six perspectives and Mintzberg's schools of thought. In this sense, we can even state that the aim of those authors was to improve and synthesize the schools of strategic thought identified by Mintzberg.

First, the planning perspective describes the strategy formation as an intentional and logical process, involving a rational, sequential, and analytical set of procedures. Well-defined strategy goals and objectives are set by the senior members of the organization. The procedures comprise a systematic analysis of the organization and its environment. Strategic options are generated and evaluated. Based on this assessment, the option which maximizes the value outcomes in relation to the organizational goals and which best fits the selection criteria is chosen. The result is a full-blown strategy, which is characterized by being mechanistic (Bailey and Johnson, 1992). However, according to Elfring and Volberda (2001), the strategy process is

described in a static way, which makes harder the continuous adaptation of the strategies to the environment of the organization.

Second, according to the incremental perspective, strategy is developed in an iterative manner, encompassing feedback loops to previous phases where problems and solutions may be redefined or redeveloped (Lyles, 1981). In this respect, managers know where they want the organization to be in the future and try to move towards that situation in an evolutionary way by attempting to secure a strong core business (Quinn, 1980). The decision-makers develop a learning-by-doing system, which implies that, over time, successful strategies are retained while other inappropriate strategies are eliminated. The strategies developed will change every time the environment changes (Bailey and Johnson, 1992). The existence of an 'incremental perspective' in the formation of strategies has been argued by such authors as Quinn (1980), Lyles, (1981), Chaffee (1985), Johnson (1987), Quinn and Voyer (1997).

Third, the political perspective views the strategy formation as a negotiation process developed by the firm. In this case, different interest groups or stakeholders, both internal and external to the organization, come into play, each with its own goals and objectives. Therefore, the strategy will depend on coalitions and alliances of these interest groups, and it will result in negotiations among them. Thus, coalitions are formed to pursue shared objectives and to sponsor different strategic options (Narayanan and Fahey, 1982). These options are fought for, not only on the basis of their potential benefit to the organization, but also because they have implications for the status of influence of different stakeholders. In this process, certain variables such as information, power or influence of every group, alliances and networks, are the key elements in the strategy-making process. Cyert and March (1963), Narayanan and Fahey (1982) and others have described the idea that strategy formation follows a political negotiation process.

Fourth, the cultural perspective describes the strategic process based on the concept of business culture. Shared frames of reference, which are the organization's beliefs, enable the organization and the world in which it operates to be understood. These frames of reference exist at the organizational level, but also on an industry wide basis in the form of commonly accepted 'recipes' and within institutional types (DiMaggio and Powell, 1983). Managers, then, are influenced by a number of frames of reference when determining their firm's strategy. These frames operate to simplify dealing with the complexity of situations, provide a ready-made frame for the interpretation of new situations, enable decisions to be made in a way that makes sense and provides a guide to appropriate behavior (Weick, 1979; Gioia and Poole, 1984). Authors like Johnson (1987) and Bryson (1995) have attached great importance to this perspective in their research on the strategy formation process.

Fifth, the visionary perspective defines strategy as a visionary process, in which the leader establishes a framework for strategic decision-making. The intuition and innovation of the founder play an important role. The visionary perspective considers that the strategy an organization adopts can also be seen as emerging from a vision that represents the desired future state of the organization (Jacques and Clement, 1991; Ackoff, 1993). The strategy will be defined when the leader turns his/her idea into a reality for the firm.

Finally, the enforced choice perspective was developed through the organizational ecology perspective proposed by Hannan and Freeman (1989) among others and based on the consideration of strategy as a reactive and deterministic process. In this sense, factors in the environment impinge on the organization in such a way as to encourage the adoption of the organizational structures and activities most suited to that environment. Therefore, the strategy will come as a response to the options

offered by the environment. This strategy is restrictive, prescriptive, and not intended; but it is just considered as a response by the company to environmental variations (Aldrich, 1979).

Considering the overall classification of the strategic processes proposed by Mintzberg (1990) and those proposed by Bailey and Johnson (1992), we can say that they have many points in common. Each of the perspectives of Bailey and Johnson (1992) can be related to the schools defended by Mintzberg (see Table 3). When establishing the links between the different proposals of strategy formation processes, we do not center on any classification in its pure form, but consider it suitable to propose our own classification on the principal basis of those proposed by Bailey and Johnson (1992).

(Insert Table 3)

It can be seen that our proposals practically coincide with the perspectives established by Bailey and Johnson (1992), with three small, exceptions. Firstly, those authors attach the label 'incremental perspective' to the perspective describing strategy formation as a learning process, while we have decided to maintain the name given by Mintzberg (1973), the 'learning perspective'. This is because we consider that the most important characteristic defining this perspective is that the strategy appears as a result of a learning process. Secondly, the proposal of Bailey and Johnson (1992) does not consider the existence of a cognitive perspective, which is included in our proposal and totally corresponds to the cognitive school described by Mintzberg (1973). Lastly, our classification includes the configuration perspective, which is not described in the alternatives proposed by Bailey and Johnson (1992).

In that respect, when we relate the theoretical approaches to the strategic processes with the characteristics of virtual organizations in the following section, in order not to

be repetitive, we use our own classification adapted from Bailey and Johnson (1992) and shown in Table 3 as the frame of reference.

4. STRATEGY FORMATION IN VIRTUAL ORGANIZATIONS

Considering all the previously mentioned contributions on strategic processes and virtual organizations, in this section we determine which strategy formation processes prevail in decision taking in virtual organizations, starting from their general characteristics.

According to Hedberg and Olve's (1997) approach, there are five main elements that hold the virtual organization together: (1) the common pool of economic resources and other resources that require financial capital; (2) the shared infrastructure, such as information technology, delivery systems, storage, procedures processes, etc.; (3) shared capabilities expressed in terms of human resources, access to networks, information, knowledge, etc.; (4) the building of mutual trust between the partners and individual participants in the imaginary system, and (5) the generation of relationships, trust and identity from the market towards the organization.

On the same line, when the virtual organization is considered a coalition, another important characteristic of organizing virtually stands out: the broad distinction between competition and cooperation. Thus, all the firms are positioned in a network of resources and simultaneously perform functions of competition and cooperation (Venkatraman and Henderson, 1998) and so it is necessary for such types of organizations to balance those two catalytic forces in order to maintain their efficacy (Balint and Kourouklis, 1998). In short, it is fundamental that communication in virtual organizations is designed to support a culture of collaboration or cooperation (Hedberg and Olve, 1997). Communication can strengthen member identification, and

organizational identification may be essential to sustaining virtual organizations because it facilitates coordination and control of dispersed organizational actors (Wiesenfeld et al., 1999). The establishment of a virtual organization requires a series of coordination mechanisms other than those of the hierarchy or market to be put into practice (Criado, 2001). Those mechanisms are based neither on authority nor opportunism, but on leadership, shared responsibility (cooperation) and, above all, trust. Strategic management research shows that the presence of trust is an important element of interorganizational relationships (e.g., Ring and Van de Ven, 1992; Gulati, 1995; Madhok, 1995; Zaheer and Venkatraman, 1995; Das and Teng, 1998; Zaheer et al., 1998). Trust constitutes an important element that creates intellectual capital and leads the virtual organization to success (Hedberg and Olve, 1997); therefore, the building of mutual trust is the element that unites the partners in an imaginary or virtual organization. With trust, virtual organizations can leverage the ability and willingness to learn, thereby enhancing performance and attention to reliability over time (Grabowski and Roberts, 1999).

By taking the elements highlighted by those authors and comparing them with the principal factors of the schools of strategic process, we can establish, first of all, that those characteristics mainly correspond to the strategy formation of the political school, specifically within the macropolitical orientation. From the macropolitical school, Mintzberg and Lampel (1999) describe the organization as an entity that uses its power over others and between partners in alliances, joint firms and other network relationships to negotiate collective strategies in its own interests. Thus, organizations that fit the macropolitical model of strategy formation will tend to develop strategies based on a negotiation process undertaken by the firm both internally and externally (Bailey and Johnson, 1992). These characteristics of the macropolitical school are present in virtual organizations, insofar as the negotiation-based strategy implies that the parties display trust in and commitment to the agreements reached. Moreover, the

macropolitical school considers that networks between partners and other stakeholders help establish coalitions (cooperation agreements) that facilitate the accomplishment of particular objectives (Bailey and Johnson, 1992). From that perspective, we can consider that the political school, specifically the macropolitical school, is predominant in the strategy formation of virtual organizations. According to these arguments we establish the following proposition:

Proposition 1: The greater the importance of negotiation and collaboration in the virtual organizations is, the more likely a strategy formation process highly aligned with the political perspective can be obtained.

The management of virtual firms must center on building a special business culture based on trust, as well as on stimulating the cooperation of the participants (Zimmermann, 1997). In fact, Mirabell (1999) points out that the virtual organization is based on trust, commitment and complicity and is created to achieve great flexibility and response capability. More specifically, Zimmermann (1997) stresses that the management of a virtual organization must attend mainly to three tasks. Firstly, it is extremely important to build a business culture based not only on trust but also on responsibility, common values and transparency. Since virtual firms do not really institutionalize central governance mechanisms to facilitate maximum flexibility and creativity, it is necessary to generate a special culture to compensate for the loss of central functions. Secondly, it is necessary to establish basic rules and standards for cooperation that must evolve with time. This is necessary because an excellent business culture is not sufficiently able to regulate collaboration between the partner firms. Lastly, it is necessary to boost cooperation continuously since rule-based cooperation in a business culture is not enough. A prerequisite is the establishment of adequate general conditions that facilitate cooperation and even the transmission of trust and common values as well as compliance with the rules.

Based on the characteristics of the virtual organization that are highlighted by Zimmermann (1997) and Mirabell (1999), beyond the negotiation processes, culture is a determining factor. Considering this element and stressing the variable of culture as a principal component in virtual organizations, we can relate those processes primarily to the cultural school proposed by Mintzberg (1990). As previously explained, virtual organizations follow the principles of the cultural school regarding the importance of collectivity. In that respect, it stands out that in virtual organizations the tendency is to develop strategic processes where culture acts as a linkage factor and, insofar as the culture is assumed and shared by the members of the organization, commitment and a trusting relationship can be developed, regulated by rules that facilitate cooperation but are based on cultural aspects shared by all the members and their network. From this cultural perspective, strategy formulation is fundamentally a process of collective conduct based on beliefs shared by the organization's members (Mintzberg, 1990; Mintzberg et al., 1998). These important characteristics of the cultural school are reflected in the determining factors of virtual organizations, where collectivity and cooperation underpin the existence of the virtual organization. That argument leads us to conclude that the strategy formulation process in virtual organizations is also influenced by the cultural school. Therefore, the following proposition is developed:

Proposition 2: The greater the importance of collectivity and shared values in the virtual organizations is, the more likely a strategy formation process highly aligned with the cultural perspective can be obtained.

Recent years have seen the concept of dynamic capabilities gain in importance (Teece et al., 1997; Tyler, 2001; Zollo and Winter, 2002). In that respect, Teece et al. (1997) refer to an organization's ability to achieve new forms of competitive advantage, such as 'dynamic capabilities'. For those authors, the term 'dynamics' refers to the

organization's capability to renew competencies to achieve coherence with the changing environment, since time is an increasingly critical factor, the need for innovation increases and the nature of the competition and future markets is difficult to determine (Teece et al., 1997). The creation and development of dynamic capabilities is limited by the inertia stemming from past successes and by the risk that change entails (Lorenzo and Ruiz, 1998). Consequently, the creation of distinctive dynamic capabilities is an essential prerequisite of participation in a virtual firm (Balint and Kourouklis, 1998). Ott and Nastansky (1997) state that the know-how, knowledge and ability required to do something are key factors in virtual organizations. In that sense, knowledge –mainly technical knowledge, knowledge about customers and market, as well as organizational and procedural knowledge- is an element that each partner brings to the organization as its basic competency. Optimum collaboration between partners depends on shared knowledge, which means that in virtual organizations there must be mechanisms that permit the capture of information and ensure that knowledge is available throughout the whole organization. As the literature suggests, the ability to learn and the ability to change are probably the most important capabilities that a firm can possess (Barney et al., 2001).

From this perspective of dynamic capabilities within the virtual organization, we see that the knowledge, learning and analysis capability described in the logical incrementalism (Quinn, 1980) is related to the determining characteristics of the strategic processes described under the learning school. Focusing the analysis on the context of the virtual organization, the concept of development and increase of dynamic capabilities is fundamental to understand the functioning of this network. Thus, to be part of a virtual organization, a firm must be able to identify its distinctive capabilities and complement them with the distinctive capabilities of other firms (Balint and Kourouklis, 1998). On the basis of the learning school, the complex and dynamic nature of the environment, together with the degree of diffusion of knowledge existing

in the organization, makes deliberate proposals in the strategy formulation process impossible.

Therefore, strategy formulation adopts the form of a process of learning over time in which formulation and implementation are indistinguishable phases (Mintzberg, 1990). On the one hand, logical incrementalism is the result of the organizations' social and political processes (Pettigrew, 1977, 1985) and, as mentioned before, virtual organizations consolidate due to the partners' negotiations and cooperation agreements. On the other hand, the logical incrementalism in the learning school is based on the specification of programs and routines of strategic decisions (Nelson and Winter, 1982), characteristics that are also present in virtual organizations. In this sense, we can establish that the strategy formulation process in virtual organizations is marked by the learning school, where the virtual organization has to learn skills and develop dynamic capabilities (adapted to the demands of the environment) depending on knowledge accumulated in the past that leads to organizational routines that help the organization maintain its networks and coalitions.

Proposition 3: The greater the importance of experience and accumulated knowledge in the virtual organizations is, the more likely a strategy formation process highly aligned with the learning perspective can be obtained.

5. CONCLUSIONS AND DISCUSSION

In this study we have adopted a heuristicstepwise- comparative method as a systematic research methodology which starts from "known facts" in the process of reaching "not completely known facts" (Remenyi et al., 1998). For this reason, we first review the virtual organization research focused on the emergence and development of this phenomenon. Extant literature contains numerous definitions of how a virtual

organization is understood (e.g., Goldman et al., 1995; Hedberg et al., 1997; Sieber, 1997; Jägers et al., 1998; Venkatraman and Henderson, 1998; Ahuja and Carley, 1999; DeSanctis and Monge, 1999; Franke, 2002; Saabel et al., 2002; Camarinha-Matos and Afsarmanesh, 2006; Pedersen and Nagengast, 2008; Zuo and Panda, 2008), each highlighting different aspects or perspectives. Virtual organizing is considered a strategic attribute that can characterize any organization (Sieber, 1998; Venkatraman and Henderson, 1998; Syler and Schwager, 2000; Keinänen and Oinas-Kukkonen, 2001). Therefore, the virtual organization is a strategy to organize the elements of the chain of value or a characteristic of an organizational approach (Syler and Schwager, 2000).

Next, we continue reviewing conceptual approaches focused on the firm's strategy-making process (the so-called schools of strategic thought). Based on Mintzberg's proposed classification of schools of strategic thought, various authors have developed a series of alternative, or complementary classifications that aim to expand research in that respect (e.g., Chaffee, 1985; Bailey and Johnson, 1992; Elfring and Volberda, 2001). In this work, we focus on the proposals of Mintzberg (1990) and Bailey and Johnson (1992) since they are the classifications that encompass most typologies.

In the subsequent section, we relate virtual organization research to the different theoretical approaches on strategy formation processes previously reviewed, with the aim of establishing some theoretical links underlying both fields of research, in the form of a set of conceptual propositions designed to guide future interdisciplinary research. As a result, that analysis has enabled us to establish that the factors of negotiation, coalition, cooperation and networks, which are fundamental for virtual organizations, describe a strategy-making process aligned with the political perspective (Mintzberg, 1990; Bailey and Johnson, 1992). Secondly, focusing on the important role of culture in virtual organizations since it promotes trust, responsibility, common values

and transparency, we consider that the strategy-making process will be aligned with the cultural perspective (Mintzberg, 1990; Bailey and Johnson, 1992). In addition, based on knowledge and learning as key factors in the success of virtual organizations, we can establish that the strategy formation process seems to correspond well with the learning school (Mintzberg, 1990) or the incremental perspective (Bailey and Johnson, 1992). Therefore, according to the elements that we consider fundamental to the development of virtual organizations, we propose that their strategy formation process will be aligned with three different perspectives: the political, the cultural, and the learning or incremental.

The joint consideration of those three perspectives leads to the conclusion that the strategy-making process in virtual organizations could be aligned with the configurational perspective (Mintzberg, 1990; Bailey and Johnson, 1992). According to Mintzberg and Lampel (1999), as circumstances change, firms may need a change of perspective in order to maintain consistency between their strategy and the context. Those authors state that managers choose a strategy-making process or combination of processes without considering the full attributes of each school. Consequently, the following proposition is developed:

Global proposition: The greater the importance of negotiation, collaboration, cooperation, trust-based culture and incremental learning in the virtual organizations is, the more likely a strategy formation process highly aligned with the configurational perspective can be obtained.

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Table 1. Perspectives of analysis of virtual organizations: structure versus process

PERSPECTIVE	AUTHORS^a	TERMINOLOGY
ESTRUCTURE	Byrne et al. (1993) Strader et al. (1998) Van Aken et al. (1998)	Network
	Grenier y Metes (1995) Wildeman (1998)	Alliance
	Mertens et al. (1998) Wüthrich and Phillips (1998)	Form of cooperation
	Goldman et al. (1995)	Combination of core competencies
	Davidow and Malone (1992)	Combination of activities
	Travica (1997)	Group of individuals/organizations
	Ahuja and Carley (1999)	Network structure
PROCESS	Venkatraman and Henderson (1998) Sieber (1997, 1998)	Strategic approach
	Mowshowitz (1994, 1997)	Management approach
	Hale and Whitlam (1997)	Continuous or institutionalised change
	Zimmermann (1997)	Functional view (atribute of every organization)
	Katzy (1998)	Action or ability
	Syler and Schwager (2000)	Source of competitive advantage

^a In *italics* the references added.

Source: Adapted from Saabeel et al. (2002, p.5)

Table 2. Mintzberg's relation of ten approaches with the schools of strategic thought

The strategy formation as...

- A conceptual process, based on the research related to the Design School.
 - A formal process, based on the research related to the Planning School.
 - An analytical process, based on the research related to the Positioning School.
 - A visionary process, based on the research related to the Entrepreneurial School.
 - A mental process, based on research related to the Cognitive School.
 - An emerging, learning process, based on research related to the Learning School.
 - A process of power and negotiation, based on research related to the Political School.
 - A collective, ideological process, based on research related to the Cultural School.
 - A passive, reactive process, based on research related to the Environmental School.
 - An episodic process of quantum-like transformation, based on research related to the Configuration School.
-

Source: Mintzberg (1990, p.108) and Mintzberg et al. (1998, p.5).

Table 3. Relation of taxonomies of strategy formation processes

Mintzberg's (1990) schools	Bailey and Johnson's (1992) approaches	Self classification
Design school		
Planning school	Planning perspective	Planning approach
Entrepreneurial school	Visionary perspective	Entrepreneurial-visionary approach
Cognitive school	No correspondence	Cognitive approach
Learning school	Incremental perspective	Learning approach
Political school	Political perspective	Political approach
Cultural school	Cultural perspective	Cultural approach
Environmental school	Enforced Choice Perspective	Environmental approach
Configuration school	No correspondence	Configuration approach