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THE ROLE OF TRUST ON COOPERATION AS META-ORGANIZATION USING A STEWARDSHIP APPROACH

EL PAPEL DE LA CONFIANZA EN LA COOPERACIÓN ENTENDIDA COMO META- ORGANIZACIÓN A TRAVÉS DE UN ENFOQUE DE STEWARDSHIP

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To my parents and my sister who have always trusted me.

You have been always proud of me when nobody else trusted me. You have been always behind me, pushing me forward.

You mom, dad, and sister are the most courageous people and the best example of selfless love I know.

To my dad who passed away without sharing this happiness. It's for you, dad! I am sure you are smiling from heaven.

*I thank God for you!
I am so proud of you!*

“Idle reader: thou mayest believe me without any oath that I would this book, as it is the child of my brain, were the fairest, gayest, and cleverest that could be imagined. But I could not counteract Nature's law that everything shall beget its like...”

From the author's preface to *The Ingenious Hidalgo Don Quixote of La Mancha* by Miguel de Cervantes

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“Sapere aude!”
(Dare to know! Have courage to use
your own understanding!)

Immanuel Kant¹

¹ The motto of Enlightenment is included in Kant’s “*An Answer to the Question: “What is Enlightenment?”*” Königsberg, Prussia, 30th September, 1784.

To Kant “Enlightenment is man's emergence from his self-incurred immaturity. Immaturity is the inability to use one's own understanding without the guidance of another. This immaturity is self-incurred if its cause is not lack of understanding, but lack of resolution and courage to use it without the guidance of another. The motto of Enlightenment is therefore: *Sapere aude!* Have courage to use your own understanding!”

Available in English at https://web.cn.edu/kwheeler/documents/What_is_Enlightenment.pdf

Available in original German at <http://www.ub.uni-bielefeld.de/diglib/aufkl/berlmon/berlmon.htm>
1784 Vol. 2: 481 – 494.

The original use of the phrase *Sapere aude* appears in the Roman poet Horace’s (65–8 B.C.) *First Book of Letters* (20 BC). In the second letter, addressed to Lolius, in line 40, the passage is: “*Dimidium facti, qui coepit, habet; sapere aude, incipe*”. (He who has begun is half done; dare to know, dare to begin!). The original Latin HORATI FLACCI EPISTVLARVM LIBER PRIMVS is available at <http://www.thelatinlibrary.com/horace/epist1.shtml>

INTRODUCTION

This dissertation is the result of a research program on the role of trust on cooperative relationships. Literature and practitioners highlight trust contribution to successful relationships, but it is possible to find enduring cooperative relationships where partners openly declare not to trust their partners. As cooperation length is associated with success, we have to decide whether cooperation is possible without trust or there should be a more complex relation between trust and cooperation.

We propose to rethink what we know about cooperative relationships using a solid framework with roots in organization theory, interdependence theory, complexity theory, and even using metaphors from psychics. As a result a meta-organizational framework is proposed to better understand cooperation and competition. Additionally a process perspective is necessary when analysing cooperative relationships and all partners' perspectives should be taken into account along cooperation stages. Thus, the role of trust can be better studied using this both analytic and systemic approach to cooperation. But, we also find that trust is not a unidimensional concept but a multidimensional construct. So, the role of trust is more complex and different trust types can be encouraged. To govern and to manage cooperative relationships as complex meta-organizations trust-based stewardship theory offer useful insights. Also, the roles of meta-leadership and meta-entrepreneurship are explored.

To test trust multidimensionality and the relevance of the meta-organizational framework quantitative and qualitative techniques have been used in a multi-method research design. Also, we have tested the cross applicability of our target-based trust typology both in inter-organizational and interpersonal relations.

Therefore, this research looks for theoretical and practical evidence of the role of trust as a multidimensional construct on the stages of the process of business cooperation, better explained by stewardship theory than by agency theory in lasting cooperative relationships. Our research proposal can be also formulated as follows: When a cooperative relationship is designed as a meta-organization and is managed according to a stewardship approach, different trust types can be developed and they influence all stages of the cooperation process, increasing meta-organization's success possibilities.

The research is structured into five chapters what deals with the theoretical proposal of cooperative relationships as meta-organizations, the theoretical analysis of the multidimensionality of trust in an organizational context, the empirical test of trust multidimensionality in inter-organizational and interpersonal contexts, the role of trust along cooperation stages exploring how IT can influence it, and finally, proposing a comprehensive framework and the results of a longitudinal collective case study.

The first chapter is entitled “Governance of Cooperation Relationships as Meta-Organizations: From Agency «Hard Control» to Trust-based Stewardship «Soft Control»”².

Theoretically, the importance of trust is stressed as a key variable for business cooperation and even as the most efficient governance mechanism, such that the existence of trust among partners is observed in successful relationships but is not observed in unsuccessful relationships.

² Forthcoming in Das, T. K. (Ed.). (2016). *Governance Issues in Strategic Alliances [GISA]. Research in Strategic Alliances Series*. Charlotte, NC: Information Age Publishing.

To better understand this relation, we consider business cooperative relationships as meta-organizations, using insights from system, complexity and chaos theories. This approach allows us to use organizational levels of analysis to develop a better understanding of cooperative relationships from a dynamic perspective by analysing several aspects of those relationships: the initial decision to cooperate, the election of the members, the agreement negotiation and its structure, the management of the relationship, the outcomes evaluation, and the possible evolution of the relationship. A second-order complexity approach also reveals possible partners' different narratives about the relationship as a potential source of conflict, along with the potential advantages of meta-leadership and -entrepreneurship.

In an attempt to address this complexity, the study of the governance of cooperative relationships as meta-organizations can benefit by transitioning from an agency to a stewardship approach, which is possible if enough trust is present throughout the cooperation process. Nevertheless, trust in partners is not the only form of trust that is relevant to cooperation. We propose a typology of trust (Márquez-García, 2003, 2008; Márquez-García & Bruque-Cámara, 2007)—self-trust, trust in partners, and trust in the cooperative relationship—that could enable an understanding of how a critical trust threshold can be built to make cooperation possible, using both generic trust and trust that is specific to the relationship.

The second chapter is entitled “Trust multidimensionality”³ and explores a proposal of trust typology based on organizational levels of analysis that can be applied both within and among organizations.

Everywhere trust is stressed as one of the basic variables in any human interaction (Gambetta, 1988). So, whenever we deal with relationships it is necessary to consider trust (Deutsch, 1958) and the efficiency, adjustment, and even the survival of any social group depends on the presence or absence of trust (Rotter, 1967).

Trust has an individual and personal origin and it has been studied in psychology (Deutsch, 1958; Erikson, 1968; Rotter, 1967, 1971, 1980; Couch, Adams & Jones, 1996; Couch & Jones, 1997) as a basic feature of all the social situations that require cooperation and interdependence. We could find theoretical precedents that recognize the generalization and relevance of the informal trust relationships for business, such as Macaulay (1963), Arrow (1974) and Lorenz (1988). In the last 20 years its applicability as the key factor for business success (Drucker, 1993; Davidow & Malone, 1992; Sabel, 1993; Handy, 1995) is more and more recognized in economy and management (Blomqvist, 1997; Huemer, 1998; Lane, 1998; Sako & Helper, 1998; Faulkner, 1999; Kramer, 1999). Most of the studies on trust differ considerably in approaches, objectives, methodologies and conclusions (Ruscio, 1997; Jones, 2002), although they agree in the enormous trust potential. Trust has become not only an important coordination mechanism—even the most efficient government mechanism according to Arrow (1974)—, but more and more trust is considered as a precondition for a better performance and competitive success in the new business environment (Bradach & Eccles, 1989; Ring & Van de Ven, 1992;

³ In Torres-Coronas, T., and Arias-Oliva, M. (Eds.) (2008). *Encyclopedia of Human Resources Information Systems: Challenges in E-HRM* (pp. 883-890). Hershey, PA: Idea Group Inc.

Sako, 1998). So, trust favours the creation and maintenance of competitive advantages (Jarillo, 1988; Barney & Hansen, 1994). The growing number and variety of interchange relationships and the increasing complexity and uncertainty of business environment cannot be faced without interpersonal, intra-organizational, and inter-organizational trust (Lane, 1998). In addition, considering that knowledge is turning into the main source of competitiveness and people should share sensible information, trust will become in a practically indispensable element (Lane, 1998).

According to Lewicki and Bunker (1995) the study of trust can be framed attending to its consideration as an individual characteristic, as a characteristic of the interpersonal transactions, or as an institutional phenomenon. So, when talking on trust we should consider not only the interpersonal approach. It is necessary to take into account people's own perspective, their relationships and the context where trust should arise. Originally, the construct was defined in uni-dimensional terms, but both inductively and deductively have been demonstrated its multidimensional nature. So, in the literature we find a varied typology (Parsons, 1969; Chun & Campbell, 1974; Wright & Tedeschi, 1975; Lewis & Weigert, 1985; Zucker, 1986; Moorman, Zaltman & Deshpandé, 1992; Shapiro, Sheppard & Cheraskin, 1992; Sako & Helper, 1998; Faulkner, 1999; Gefen, Rao & Tractinsky, 2002; Márquez-García, 2003; Castaldo, 2003) attending to the bases on which trust is founded and the targets where trust is placed.

This chapter assumes that any organizational behaviour can be analyzed from an individual, interpersonal, and organizational perspective, so the study of trust can be oriented in these three complementary views. Thus, we present a trust typology that differentiates among each person's trust in himself/herself, trust in others, and

trust in the organization. We think that this typology can contribute to a greater trust level within an organization, when not being exclusively focused in the interpersonal trust. Also it recognizes the relevance of trust in oneself both as a powerful auto-motivation element and as an antecedent of trust in others. Finally, also it shows the need to trust in the organization each one works for.

This multidimensional perspective can contribute to know better the role that trust plays within an organization. As cooperative relationships can be considered as meta-organizations, this multidimensional perspective on trust can be applied within an organization and among organizations.

The third chapter is entitled “Trust and cooperation relationships: Evidence of trust multidimensionality at inter-organizational and interpersonal relationships”⁴.

Here we propose a new trust typology for a better understanding of cooperation relationships. Traditionally, it is said that trust is a key feature of successful business collaboration, but the focus is only on trust to partners. Taking into account that we can find enduring cooperation relationships where some firms declare not to trust their partners, trust in partners could not be the only relevant form of trust for cooperation. So, we think it is necessary to look for “new ingredients” for the “trust recipe”, if exists, to get successful cooperation. In this search we propose two additional trust types (trust in cooperation, and trust in oneself) that, jointly with trust in partners, could help to explain better the role that trust plays in cooperation relationships.

⁴ Paper presented at the *Second Workshop on Trust within and between Organizations* of the European Institute for Advanced Studies in Management (EIASM). 2003. Amsterdam, The Netherlands.

With this aim we have designed a research starting with a qualitative approach to three cooperation relationships where we tried to find empirical evidence of this new trust typology. So we have developed a case study for these relationships through in-deep interviews with all their partners (59). The three cases are a joint venture among 17 partners in the ceramics sector, an olive oil Protected Designation of Origin (PDO) (37) and an Economic Interest Group (EIG) in the furniture industry (5). The qualitative analysis helped us to understand better how cooperation could be maintained when apparently partners do not trust each other and to discover other relevant dimensions of trust. Also it provided us with good insights to generate items for trying to observe them.

So, in a second stage we have developed a survey with ad hoc scales ($\alpha > 0.70$) trying to get empirical quantitative evidence of this new typology we propose, studying with this instrument the same relationships' partners. So, we have items for each dimension of trust. Using exploratory factor analysis we obtained a 3 items unidimensional subscale for each trust type. Analysing this whole 9 items scale we get evidence of the multidimensional structure of trust through first and second order confirmatory factor analysis, and a structural model.

Since we use a psychological view applied to organizations and their relationships, we thought that could be interesting—and another evidence to support the proposed typology due to the small sample of firms interviewed—to try to detect these three types of trust within interpersonal relationships. So, we have designed a survey with an ad hoc scale ($\alpha > 0.70$) to get empirical evidence in this scope for our model. Using the same analysis methods (exploratory and confirmatory factor analysis, and structural equations modelling) we got another 9 items scale for

interpersonal trusts with 3 items subscales for each dimension of trust. The results get us evidence of the subscales unidimensionality, convergent and discriminant validity.

This chapter deals with the quantitative analysis. The results from a 59 firms sample in the inter-organizational scope, and from a 552 students sample in the interpersonal one, support this trust typology but suggesting a different hierarchy in the relevance that partners give to one or another trust type. The fact is that we get evidence of some trust forms we should consider for improving our knowledge on cooperation relationships.

The fourth chapter is entitled “Trust types and information technology in the process of business cooperation”⁵.

Reference is usually made to the relationship between trust and business cooperation considered in a global way, so that the existence of trust among members is observed in successful relationships and it lacks in those relationships that do not get success (Nielsen, 2004). We intend to contribute to the knowledge of this matter from an analytic perspective breaking down both concepts. First, we consider business cooperation from a dynamic point of view, analysing its process, from the initial decision to cooperate, the election of the members, the agreement negotiation and its structure, the management of the relationship, the outcomes evaluation, and the possible evolution of the relationship. Therefore, when we analyse the effect of trust on cooperation we will analyse its role throughout each one of the cooperation stages. Nevertheless, it is also necessary to break down the trust

⁵ In Brenan, L. L., and Johnson, V. (Eds.). (2007). *Computer-Mediated Relationships and Trust: Managerial and Organizational Effects* (pp. 14-33). Hershey, PA: Information Science Reference - IGI Global.

concept. In fact, in the literature we find a varied typology attending to the bases on which trust is founded and the targets where trust is placed. Considering cooperation as a dynamic process and trust in its different types, the analysis of the relation between trust and cooperation acquires a new perspective that can offer interesting insights to improve the knowledge of the role that trust plays in cooperation relationships as an alternative or complementary coordination mechanism to control. Using this analytic and dynamic focus we intend to analyze the role that information technology (IT) can play in the stages of the cooperation process and its influence on the different types of trust.

Since IT can facilitate to access to better information and increase interaction possibilities, its previous or ad hoc adoption on the part of the companies that decide to establish a cooperation relationship modifies the context in which its process is developed and the role that trust can play. This way, we wonder if IT reduces the need of trust increasing the possibilities to control the cooperation relationship, what types of trust can be more affected for IT, if IT can generate trust that favour the relationship, what it is necessary so that members trust in IT, etc. We will also analyze the possible slowing down effect of IT in the construction of particular types of trust. In this sense, we consider that it is possible the appearance of “electronic barriers” that could hinder the strengthening of some types of trust from a certain level of IT adoption. This effect can be bigger as the cooperation relationship is sustained in an exclusive way in the usage of IT. As prior research has elicited, deep trust relationships are easier to build up when there is a face-to-face interaction between the subjects involved in the relationship. Even in the most bureaucratic, impersonal environments, human interaction may help to establish a deep-rooted

trust relationship. In this case, a strict electronic interaction may prevent to achieve the critical mass of face-to-face contacts that allow trust building. In sum, it could be worthy to analyse the relationship that arises between the mix of the face-to-face vs. electronic interaction and the type and level of trust that may be developed. In this relationship several contingent factors may play a specific role, such as personality traits, power balance among interlocutors, the non-virtual social network in which the individual is embedded, the type of technology being used, and even national cultural differences.

The fifth chapter is entitled “A kinetic approach to the interplay between cooperation and competition in a complex and trust-mediated meta-organizational framework”⁶.

Considering meta-organizations as a holistic unit of analysis in a second-order complexity framework offers better knowledge possibilities on the interplay between cooperation and competition than individual firms, transactions, and even, relationships, and networks. Chaotic attractors are necessary to be managed in meta-organizations. Kinetic theory offers interesting insights to better understand them. Within this framework, trust-based stewardship theory sheds more light than agency theory. Trust in cooperative relationships acquires a renewed role when distinguishing different trust types according to their target. Trust in partners, trust in the meta-organization, and trust of each partner in itself are essential for understanding cooperation and competition within and among meta-organizations.

This chapter intends to contribute with a proposal to better understand the interplay between cooperation and competition. Our aim is to deconstruct and to

⁶ Paper presented to *Strategic Management Journal*.

rebuild business cooperation and competition using insights from social sciences, systems theory, complexity, autopoiesis, fractals, and a metaphor from physics. We use strategic business units as micro-unit of strategic analysis, meta-organizations as the most holistic and close to the real world macro-unit of organizational analysis, and interdependences among them as the field where both cooperation and competition exist. Meta-organizations are complex systems, and their members' narratives on different levels of organizational analysis add a second-order complexity that needs to be managed. Applying metaphorically the kinetic theory of matter we get interesting insights for understanding cooperative and competitive interactions within and among meta-organizations. In this context it is stressed the theoretical and practical relevance of the stewardship approach and trust. A longitudinal collective case study is presented to illustrate the utility of this kinetic and complex meta-organizational approach, and the role of trust types along a meta-organization's lifetime.

Finally, we highlight some conclusions, recommendations and further research, as well as the limitations of this research.

*Men must think and know for themselves
(...) Truth has been my only aim; and
wherever that has appeared to lead, my
thoughts have impartially followed,
without minding whether the footsteps
of any other lay that way or not. Not
that I want a due respect to other men's
opinions; but, after all, the greatest
reverence is due to truth: and I hope it
will not be thought arrogance to say,
that perhaps we should make greater
progress in the discovery of rational
and contemplative knowledge, if we
sought it in the fountain, in the
consideration of things themselves; and
made use rather of our own thoughts
than other men's to find it. For I think
we may as rationally hope to see with
other men's eyes, as to know by other
men's understandings. So much as we
ourselves consider and comprehend of
truth and reason, so much we possess of
real and true knowledge. The floating of
other men's opinions in our brains
makes us not one jot the more knowing,
though they happen to be true.*

John Locke⁷

⁷ Chapter III. Section 24. *An Essay concerning Human Understanding* (1689). Available at <https://archive.org/details/humanunderstandi00lockuoft>

CHAPTER 1

GOVERNANCE OF COOPERATIVE RELATIONSHIPS AS META-ORGANIZATIONS: FROM AGENCY “HARD CONTROL” TO TRUST- BASED STEWARDSHIP “SOFT CONTROL”

1. INTRODUCTION

Numerous theoretical and practical studies published in recent decades have demonstrated an interest in cooperative relationships among firms (Borys & Jemison, 1989; Child, Faulkner, & Tallman, 2005; Contractor & Lorange, 2002; Das, 2008-2016, 2013; De Rond, 2003; Dussauge & Garrete, 1999; Grant & Banden-Fuller, 2004; Gulati, Puranam, & Tushman, 2012; Nohria & García-Pont, 1991; Porter & Fuller, 1986). Nevertheless, no consensus has been reached regarding the definition of cooperation, its nature, its objectives, etc., not only because of the variety of forms it can adopt but also because of the profusion of heterogeneous studies with results that are not comparable (Das & Teng, 2002; Dussauge & Garrette, 1999; Estélyiová, 2012; Gomes-Casseres, 1996, 2003; Hoffmann, 2007; Lorange & Roos, 1992). This seems to be an intrinsic feature of organizational studies: as early as 1940, Barnard (1940, pp. 113-114) notes that “different terms are used in different organizations for the same things, and that the same terms mean different things in different organizations.”

Most cooperative relationships are thoroughly planned, organized and formally controlled in an attempt to elaborate a detailed catalogue of all of the possible contingencies that could arise and the strategies and tactics that could provide better results for preventing or addressing them. To prevent opportunism and fostering cooperative behaviours in cooperative relationships, a variety of governance structures can be broadly classified as joint ventures, minority equity alliances, and contractual alliances (Teng & Das, 2008). However, failure rates in cooperative relationships are so high that cooperation is considered a difficult option

not only because of its intrinsic nature but also because of a lack of appropriate governance and management mechanisms.

In the search for the determinants of success, the importance of trust as a key variable for business cooperation has been stressed theoretically—and it has even been characterized as the most efficient governance mechanism—but reference is usually made to the relationship between the two concepts considered globally, such that trust among members is found in successful relationships and is lacking when cooperation fails. This research intends to contribute to the existing knowledge on the relation between cooperation and trust.

With the aim of developing a general framework to analyze cooperative relationships in an organized and systematic way, to search for a better understanding of their nature and to attempt to govern them more effectively, we propose to observe such relationships using a holistic-dynamic approach, which assumes that a cooperative relationship is really a new organization (Márquez & Casani, 1999, 2000), an extended organization, or a meta-organization (Gulati *et al.*, 2012)—i.e., an organization composed of organizations. Therefore, cooperative relationships are meta-organizations in which the integrating individuals are organizations (Albers, 2010; Theurl, 2005) that agree to accomplish some or all of their activities in a coordinated way to improve their competitiveness. Just as firms are composed of individuals, cooperative relationships show an additional aggregation level, where the “individuals” of the meta-organization are other organizations.

Upon considering cooperative relationships as meta-organizations, agency theory has a special interest in attempting to explain the behaviour of the partners involved in the relationship, keeping in mind that those partners’ interests can be

divergent. However, if it were possible both to identify common objectives and to align interests, firms would assume stewardship behaviours in the cooperative relationship. This could make it possible to move from an ownership-based “hard control” governance approach to a trust-based “soft control” one that considers cooperative relationships as meta-organizations. Thus, using a framework of two intra- and two inter-organizational agency relationships, such relationships can evolve into stewardships if enough trust is present throughout the cooperation process.

There is a noteworthy literature on trust and its basis, foundations and typologies, but the literature primarily focuses on trust among partners. However, in light of the fact that we can find enduring cooperative relationships in which some firms declare that they do not trust their partners we conclude that trust in partners cannot be the only relevant form of trust in a cooperative relationship. A target-based trust typology (Márquez-García, 2003, 2008; Márquez-García & Bruque-Cámara, 2007)—self-trust, trust in partners, and trust in the cooperative relationship—could facilitate an understanding how the construction of a critical trust threshold can make cooperation possible, even when trust in partners is weak.

This chapter is organized as follows. First we re-define cooperative relationships using a classical framework from organizational studies that offers new insights by conceptualizing them as meta-organizations. This organizational approach is updated with analogies from open and natural systems, complexity and chaos theories.

Assuming a cooperative relationship is really a type of organization, it is possible to apply organizational levels of analysis to the study of cooperation. Thus, we can analyze the process and dynamics of cooperative relationships from an

individual, a group, or an organizational perspective, in which the individuals are not workers but partners, groups are not formed by people but by firms (which could be more or less interested in or committed to the relationship), and the organizational level is represented by the entire cooperative relationship.

By conceiving of cooperative relationships as meta-organizations, it is possible to adopt a new perspective on their governance from two different perspectives: agency or stewardship. Their underlying assumptions are very different, and the latter makes cooperation governance easier because partners' objectives can be aligned and trust can be developed. Thus, using insights from complexity theory, it could be possible to design meta-organizations in which promoting the conditions for encouraging stewardship behaviours would make it possible to use trust-based "soft control" governance systems. Even when trust in partners is weak, the possibility of reaching a trust threshold by encouraging partners' self-trust and trust in the cooperative relationship can make cooperation possible, sustainable and more successful for all partners if they behave as stewards.

2. COOPERATIVE RELATIONSHIPS AS META-

ORGANIZATIONS: SYSTEMS, COMPLEXITY AND CHAOS

The study of cooperation at both the theoretical and empirical levels has evolved from understanding cooperation mainly as an act focusing on how to achieve the best agreement, to consider cooperation as a process and from there, to widen it to the idea of a relationship. The study of cooperation has taken different approaches, such as using transaction-cost theory, game theory, agency theory, resource-based theory, etc. Currently, greater attention is given to the intangible aspects of cooperative

relationships among firms, highlighting these intangible advantages as being more difficult to copy and therefore more susceptible to becoming a source of sustainable cooperation-based competitive advantages.

Business cooperation is usually defined as the result of an agreement among two or more independent firms that join or share some of their capacities and/or resources without either merging or losing their strategic autonomy (Child & Faulkner, 1998; Dussauge & Garrette, 1999), thereby establishing a particular level of interrelationship with the goal of increasing their competitive advantages.

2.1. Cooperative Relationships as Meta-Organizations

Looking for a general and solid framework to analyze cooperative relationships, we realize that cooperation implies a mutual decision to engage in coordinated common efforts to reach predetermined objectives. Therefore, although a cooperative relationship is an organization, its components are other organizations.

Consequently, a cooperative relationship is a meta-organization that arises—more or less formally—out of the will of two or more organizations that decide to share their own resources and capacities to better attain their individual objectives through a joint and coordinated performance.

Using Khun’s (1962) approach, this proposal recovers the organizational paradigm for improving our knowledge of cooperative relationships, which does not indicate a reductionist view, because organizations are a complex (Anderson, 1999; Simon, 1996), multidimensional and paradoxical (Stacey, 1991, 1995, 1996) phenomenon that can be apprehended in very different ways. Arrow (1984, 176) foresaw this dynamic when he noted that “the participants in organizations may be

organizations themselves as well as individuals.” Earlier, Barnard (1938, pp. 111-112) defined a cooperative relationship as “a new complex organization embracing the two original organizations cooperating,” that is, a meta-organization, a supra-organization, an extended organization, and organization (composed) of organizations, in which individuals are other organizations.

In simple organizations, the existence of objectives and resources is not a sufficient condition to result in an organization. Organizations need to be governed and managed to stimulate the participation of their members and to obtain the best possible coordination of their efforts. The same happens in cooperative relationships. It is necessary for each member to make its best efforts and for the organization to know how to coordinate each member’s efforts with those of the other firms to create synergies, thereby establishing dependencies and a relationship scheme among partners.

The meta-organization that emerges when creating a cooperative relationship also shares the characteristics that are attributed to organizations as systems. It is integrated by a set of elements or subsystems, which are mutually interrelated among themselves and the environment. Although that system is structurally divisible into parts, it is functionally indivisible, because a division would result in the loss of some of the system’s essential properties, given that the characteristics and behaviour of each element of the relationship are influenced by the other elements, which in turn influence the properties and behaviour of the group. Thus, cooperation as a meta-organization (and therefore, as a system) has properties that are not found in any of its elements. In the study of cooperation, it is necessary to complement the reductionist approach that attempts to explain systems through the individual study

of their elements because a system yield depends fundamentally both on the form in which its elements mutually interact and on its relationship to other systems (holism). Therefore, the unit of analysis should be the meta-organization as a system, not the firms (elements), the transaction (short-term interchange), or the relationship (long-term interchange).

The concept of entropy, which Bertalanffy (1973) and Van Gigch (1974) use for open systems (biological and social), can also be useful for improving our understanding of cooperative relationships. Because entropy is a measure of the amount of disorder in a system, it can be related to the amount of uncertainty in a situation of a choice among many available alternatives. Accordingly, reducing the entropy of a system means reducing the amount of that system’s uncertainty by increasing the information available, thus helping generate order. Mechanisms capable of generating negative entropy help produce a higher level of order in the system. The tendency of systems to decay into a state of disorder “can only be suspended or reversed by an external source of ordering energy directed by an informational program and transformed through an ingestion-storage-converter mechanism into the specific work required to build up the complex structure of that system. If either the information program or the converter mechanism is not available to that ‘open’ system, it will *not* increase in order, no matter how much external energy surrounds it” (Morris, 1976, p. 2), and the system will proceed to decay.

Because entropy or disorder tends to increase in a cooperative relationship, the relationship becomes more difficult to govern. Thus, factors such as a greater number of firms (even potential competitors), conflicting objectives, cultural and/or geographical distance, etc., can increase entropy in the absence of proper governance systems that give order to the system. When the relationship’s governance does not

effectively produce this negative entropy, it fails to keep the system united, and that system may ultimately disappear. The second law of thermodynamics states that closed systems degenerate to a fixed-point equilibrium characterized by maximum disorder. The design of cooperative relationships as closed systems is probably one of the reasons for the high failure rate of business cooperation. According to Buckley (1967, p. 50), “that a system is open means, not simply, that it engages in interchange with the environment, but that the interchange is an essential factor underlying the system’s viability.”

2.2. Cooperative Relationships as Complex Meta-Organizations

Current postmodern perspectives on organizations are focused on complexity, autopoiesis, chaos, and fractals, offering new insights to explain organizational behaviour (Millett, 1998, 1999; Stacey, 1991, 1995, 1996; Tsoukas & Knudsen, 2003). Complexity is changing how we think about organizations (Richardson, 2005). The key concepts of complexity are relevant not for constituting a theory with predictive validity but as a guide for interpretation (Hayles, 1990). As Richardson (2008, p. 19) states, “complexity has not only been seen as a route to a possible theory of organization, but also as a powerful metaphorical tool” (Lissack, 1997). A complex system is characterized by numerous elements that interact constantly and spontaneously, organizing and reorganizing themselves into increasingly elaborate structures (Williams, 1997). The complexity paradigm allows us to understand plurality, interconnection, instability and uncertainty as implicit aspects of the complex world (Jantsch, 1980; Kauffman, 1991; Stacey, 1991; Waldrop, 1992). Therefore, real-world systems cannot be fully understood, designed, controlled, or

predicted (Goldstein, Allen, & Snowden, 2004), and governance and management should adapt to address complex systems, trying to cope with unexpected events by adapting actions to the new situation (Holland, 1996). This means using nonlinear dynamic systems models that implicitly renounce predictability (Casti, 1994), changing probabilities into possibilities.

Some features of complex systems offer an interesting perspective when applied to cooperative relationships as complex meta-organizations because there is no proportionality between cause and effect. Nonlinearity acknowledges that small causes may produce large effects in cooperative relationships. Additionally, because complex systems are very sensitive to initial conditions, small differences can result in the configuration of very different systems. Due to the impossibility of fully specifying initial conditions with total accuracy, cooperative relationships have the tendency to become unpredictable. Moreover, because systemic behaviour is the emergent outcome of multiple interactions, complex systems such as cooperative relationships tend to provide for the emergence of new modes of behaviour that are not reducible to the previous description of the system’s behaviour. According to Richardson (2008, p. 15), emergence is also shown as “a process from which macroscopic properties ‘emerge’ from microscopic properties, i.e., the properties of the whole emerge from the properties of its parts.” The new entities (e.g., cooperative relationships as meta-organizations) “have novel properties in relation to the properties the constituent parts have, i.e., whole departments do not act just like individual people, and ‘team-ness’ is not the same as ‘person-ness’. What is even more interesting is that these supposed abstractions can interact with the parts from which they emerged—a process known as *downward causation*.”

Considering organizations as social systems in constant interaction with their environment, Miller's (1978) theory of living systems also provides an interesting framework for analysing cooperative relationships. According to Katz & Kahn (1978) and Scott (1981), the paradigm of natural open systems may be the most suitable for understanding organizations that do not always act rationally, nor do they do their best for their members (Anderson, 1999). Moreover, as a living system, the concept of autopoiesis is applicable (Varela, Maturana, & Uribe, 1974). Autopoietic systems integrate a network of processes or operations and can create or destroy elements of the same system, producing themselves in response to environmental changes. Even if the system changes structurally, this network of processes or operations remains, maintaining its identity as a system. As a result, the system is both self-produced and self-organized (Kauffman, 1993; Luhmann, 1996; Stacey, 1995). Self-organization creates attractors in the form of "system memory," redundancy (which makes them less vulnerable to disruptions and malfunctioning parts), or self-reference.

If cooperative relationships are considered as living autopoietic systems, they could change structurally (with the ins and outs of organizations) but maintain their identity if they had the ability to self-replicate the components necessary to continue the processes or operations that characterize the system. Drawing from Levine and White (1961) and Thompson (1967), the availability of alternative sources of resources (partners) increases the meta-organization's power and autonomy by decreasing its dependence upon any particular partner. From this perspective, the challenge in the study of business cooperation is determining how to produce autopoietic systems that can be self-produced and self-organized, going beyond the

elements (companies) that integrate the relationship during its evolution as a system. Consequently, these systems are adaptive, they operate far from equilibrium, and they can be inherently unpredictable.

2.3. A Chaos Approach to Cooperative Relationships as Meta-Organizations

The development of the complexity paradigm has led to the study of organizations—applying chaos theory—as self-regulated, complex systems (Capra, 1982; Gleick, 1987; Jantsch, 1980; Stacey, 1991, 1995, 1996; Waldrop, 1992). According to this evolutionary approach, the system is continuously transforming itself into one with a higher level of complexity, producing changes that are irreversible, and thus evolutionary, and even small changes can cause complex and unpredictable disorders (Smither, Houston, & McIntire, 1996). Therefore, cooperative relationships can be considered from the perspective of chaos.

Organizations as open systems do not experience the growth of entropy that leads to the disappearance of closed systems; instead, they move in patterns on the edge of chaos, poised between order and disorder (Brown & Eisenhardt, 1998), creating higher-level systems as a result of the process of self-organization (Gallardo, 2002), which can be understood as the ability of open systems either to form other systems or to create structures spontaneously as a result of the interplay among its members (Maturana & Varela, 1980; Tasaka, 1999). From this perspective, Goldstein (1999) sees networks as self-organized organizational structures, so that the emergence of cooperative relationships could be explained as the necessary self-organization output derived from the fact that firms are chaotic open systems.

In organizations, and therefore in cooperative relationships as meta-organizations and nonlinear dynamic systems, people (partners) do not behave according to the model of a rational optimizer, but they change their behaviour by collectively learning from their experiences (Brown & Eisenhardt, 1997; Kelly & Allison, 1999). Their members' needs and desires are not homogeneous, and their objectives and behaviours may conflict and force adaptation. As self-regulated complex systems, organizations are not rigid structures; instead, they are flexible manifestations of underlying processes (Capra, 1982). Therefore, the dynamic process of cooperation and learning (Doz, 1996) among partners in a cooperative relationship helps increase the available information, thus reducing entropy and helping organize the system.

Given that a system can become chaotic when modifying a parameter that represents its complexity, knowing its attractor can allow us to use and/or to attempt to influence it (Anderson, 1999). Dolan and García (2002) propose a chaotic business model that can be extended to cooperative relationships as complex meta-organizations, in which skilful leadership can take advantage of addressing values, identity, history, a sense of purpose, etc., as chaotic attractors because maintaining a self-organized state requires one to import energy into the system (Prigogine & Stengers, 1984).

The attractors of chaos theory that lead to self-organization are fractals (Gallardo, 2002). This fractal theory is also applied to the study of organizations, which considers them equilibrium systems in which small but multiple forces and visions coexist that drive the organization toward a new state of equilibrium. The application of fractal theory questions the linear thinking of one vision and one

mission, accepting the existence of multiple visions and missions in strategic planning. In the fractal approach, the units of an organization (cooperative relationship) are not the only replicas of the organization’s central thought; however, it is desirable to find in each employee or collaborator (in each organization) a replica, at the appropriate scale, of the spirit of cooperation.

3. RETHINKING THE COOPERATION PROCESS USING ORGANIZATIONAL LEVELS OF ANALYSIS

The growing theoretical pluralism in organizational literature leads Astley & Van de Ven (1983) to propose a meta-theoretical framework for classifying the main schools of thought on organization and administration according to two analytical dimensions: the level of organizational analysis and the relative emphasis on the deterministic or voluntaristic foundations of human nature. Traditionally, individual organizations (at the micro level) have been the subject of analysis, although the study has been expanded to a higher level of groups of organizations (at the macro level). In this sense, Hall (1996) also notes that the analysis of social organizations can be done either at the macro level or at the micro, interpersonal or intergroup level. Scott (1981) recommends focusing organizational research on differentiating among the structural level (characteristics and performance of the organizational structure), the socio-psychological level (participants’ behaviour), and the ecological level (the organization as an entity enrolled in a broader context of relationships).

By combining these perspectives, Fuente, García-Tenorio, & Guerras (1997) distinguish four levels of analysis: a) individual, which studies people who are part of an organization and focuses on issues such as personal values, knowledge,

attitudes, motivation, etc.; b) group, which studies groups of people who exist within an organization and the relationships established among them and addresses issues such as leadership, power, communication, conflict, etc.; c) organizational, which focuses on the functioning of the organization as a whole and its most important component parts, studying organizational structure, informal organization, management processes, the evolution of the organization, etc.; d) groups of organizations and inter-organizational relationships, which considers the organization as a part of a larger system, understood as a population of organizations, networks, etc. The first two levels of analysis are often called micro-organizational and the last two macro-organizational. The last two correspond to Scott's (1981) structural level (organizational) and ecological level (groups of organizations).

As a result, it is possible to focus any organizational question from multiple perspectives, using these levels of analysis, taking into account the systemic interdependencies among them and their reciprocal influences, as each level integrates the precedents as subsystems with which it maintains interdependence relations. Therefore, considering cooperative relationships as meta-organizations and systems, by applying the principle of isomorphism, it is possible to study business cooperative relationships using these levels of analysis. The individual level (micro) is represented by simple organizations involved in the relationship, the macro level corresponds to the cooperative relationship as a meta-organization, and the meso level corresponds to the groups of firms within the relationship. The complex nature of the systems is evident in the interaction among the levels of analysis. Both views (micro and macro) are both necessary (Porter, 1996) and complementary (Fuente *et*

al., 1997), serving the meso level (Liljenström & Svedin, 2005) as a link for studying the role of groups (of partners) in organizations (meta-organizations).

3.1. Second-Order Complexity in Cooperative Relationships

This perspective is compatible with the narrative approach (Hatch & Yanow, 2003), which implies second-order complexity (Tsoukas & Hatch, 2001). Second-order complexity is also a very useful approach for understanding cooperative relationships, at which we can arrive by combining the complexity view to explain both the dynamics within the meta-organization team (Solansky, Beck, & Travis, 2014) and fractal theory’s multiple perspectives. As shown in Table 1, considering multiple individual, group and organizational narratives from a dynamic perspective, it is possible to obtain a better understanding of the cooperation process (Ariño & De la Torre, 1998; Axelrod, 1984; Doz, 1996), from the initial decision to cooperate, partners’ election, the negotiation of the agreement and its structure, the management of the relationship, the evaluation of outcomes and the possible evolution of the relationship.

Table 1. Narratives, organizational level of analysis and cooperation process

Cooperation relationship among n partners Partner $_i$ ($i = 1$ to n)		Organizational level of analysis		
Stage	Cooperation process	Individual	Group	Organizational
1	Initial decision to cooperate	Partners’ individual narratives on stage 1	Partners’ group narratives on stage 1	Partners’ organizational narratives on stage 1
2	Selection of partners	Partners’ individual narratives on stage 2	Partners’ group narratives on stage 2	Partners’ organizational narratives on stage 2
3	Negotiation and organizational structure	Partners’ individual narratives on stage 3	Partners’ group narratives on stage 3	Partners’ organizational narratives on stage 3
4	Relationship management	Partners’ individual narratives on stage 4	Partners’ group narratives on stage 4	Partners’ organizational narratives on stage 4
5	Evaluation	Partners’ individual narratives on stage 5	Partners’ group narratives on stage 5	Partners’ organizational narratives on stage 5
6	Evolution	Partners’ individual narratives on stage 6	Partners’ group narratives on stage 6	Partners’ organizational narratives on stage 6

These levels of analysis represent complexity layers that produce different narratives about the cooperative relationship from all partners' point of view about their particular motives for cooperating and maintaining their involvement in the relationship, their perception of their partners' selection process, the negotiation of the agreement and the final adopted structure, the management of the relationship, their pros and cons assessment and their prospective perception about the evolution of the cooperative relationship. Many years ago, Simon (1957) highlighted the multiplicity of attitudes, beliefs and internal goals that configure all organizations. Each narrative on the relationship represents a partial view of reality—what we perhaps could not see before (Rorty, 1989)—a story with a plot that can be different from one partner to another and even throughout time. In this way, “complex thinking allows us to contemplate different representations at the same time (e.g., by proposing a meta-representation (Heylighen, 1990)), in order to have a less-incomplete understanding of the system” (Gershenson, 2007, p. 17).

This perspective fits Czarniawska's (1997a, 1997b, 1998) narrative approaches to the study of organizations because it addresses the nature of organizations using a narrative structure throughout a sequence of events; it also uses storytelling as a way of capturing the meaning of the construction (Boje, 1991; Boyce, 1995; Gabriel, 1995). According to Polkinghorne (1988, p. 36), the narrative scheme “serves as a lens through which the apparently independent and disconnected elements of existence are seen as related parts of a whole”. Therefore, narrative thinking places these elements into a sequenced, contextualized statement with a

plot, thus providing meaning and connection that would otherwise be absent (Tsoukas & Hatch, 2001).

At the beginning of the cooperative relationship, although there is not yet an entity, there is an intention to create a group from which all partners could benefit. Some firms could be more aware about the potential advantages of building a cooperative relationship, and so they play the role of promoters. Other firms could possess some resources and capabilities that make them suitable partners to collaborate with on a complementary basis. Each firm has its own narrative about the motives that lead it to consider creating a cooperative relationship. Theoretical explanations of cooperation can highlight economic, strategic, or organizational logics, but what really matters is each firm’s narrative. Within these narratives, it is possible to better understand how each firm sees the environment, the firm’s competitiveness possibilities, its perception of strengths, weaknesses, opportunities and threats, its past decisions and lessons learned, past experiences on common projects, the competitive advantages they would like to obtain from cooperating, etc. From an individual level of analysis, each firm has an ongoing narrative through which the project of cooperation should be understood. In addition, each firm has a particular perception of other potential partners, their motivations, their behaviours, etc. Perhaps there could be a positive past experience of collaboration with some firms that could foster new common projects. Negative past cooperation experiences, or information about risky partners, could prevent firms from developing a new cooperative relationship. This could be motivated by a need to improve competitiveness, assuming the high risks of suffering opportunistic behaviours. To prevent such risks, these potential partners will try to protect themselves through

detailed and formal written agreements that could either cause the relationship to end before it begins or leave a very narrow scope for action.

Taking a narrative approach to complexity theory means that “our understanding of complex systems and their properties will always be grounded in the narratives we construct about them.” Causality is what distinguishes a plot from a mere story. In a story, we ask, “And then?,” whereas in a plot we ask, “Why?” The dynamic process of cooperation is a story with different phases, and levels of organizational analysis help us understand the plot. When narrating, we provide evidence of our motives, our interpretations of our own and others’ reasons for acting. These motives are not fixed entities, but “they are open to multiple readings framed by the contexts and orientations of the readers caught up in the narrative act” (Tsoukas & Hatch, 2001, 1.002). The interactions “may conclude with the system moving off in a direction that is surprising” (Tsoukas & Hatch, 2001, p. 1.007) producing emergent modes of behaviour.

Throughout the cooperation process, the meta-organization is affected by two competing tensions (stabilizing and destabilizing tensions), maintaining the complex system between equilibrium and chaos. Individual, group and organizational levels of analysis can represent competing narratives in which positive perceptions and experiences can stabilize the relationship and negative ones can either end it or lead it to a crisis state. Thus, assuming each partner is also a meta-organization (because of its relationships with stakeholders, but usually with a low complexity level) that becomes part of a cooperative relationship (with higher level of complexity), these two competing tensions can be identified. Because it is easier to generate negative entropy in the first one (each partner as a meta-organization) and the last one (the

cooperative relationship as a meta-organization) is more complex, it is more likely that the cooperative relationship will fail to achieve its goals. Barnard (1938) was prescient when he stated that having a relatively definite group of people whose behaviours are coordinated with reference to some explicit goal or goals is not enough to create a (meta) organization. Partners' acts of organization and contributions to the (meta) organization are necessary to define an organization. Therefore, a meta-organization's attractors should be designed both to generate negative entropy and to maintain partners interested in the collaboration relationship.

Nevertheless, Barnard (1976) thought it possible to state abstract principles of general organization by studying aggregates of the phenomenon under controlled conditions (Ansoff, 1991), looking for regularities that could be codified in the form of rules (propositional statements) to be followed by practitioners (Tsoukas, 1994, 1998). However, these rules cannot address particular circumstances or singular experiences, and only the practitioner possessing the “knowledge of the particular circumstances of time and place” (Hayek, 1945, p. 521) can undertake effective actions in the moment. To comprehend a particular problem, aggregate, codified, past-derived knowledge is not very useful (Orr, 1996), and the practitioner needs not only to follow a bifurcation path (Kellert, 1993) but also to be aware that “a different problem may require a radical shift in representation” (Gershenson, 2007, p. 17). Propositional thinking addresses generalizations; it requires consistency and non-contradiction and ignores time. Thus, with this type of thinking, people in charge of cooperative relationships cannot handle paradoxical requirements or contradictions and will find it difficult to manage a system characterized by nonlinearity, feedback loops, and sensitivity to initial conditions.

3.2. Governance of Second-Order Complexity in Meta-Organizations

Cooperative relationships as second-order complex meta-organizations are not fixed and given objects to be governed and managed, and “there is as yet no general methodology to design and control self-organizing systems” (Gershenson, 2007, p. 2). Governing structures and management styles, which obviate or neglect this complex nature of cooperative relationships and its specific meaning to each partner, try to address a reality that can be very different. A portion of the high failure rate of cooperative relationships can be attributed to this complexity, and the form of cooperation is usually governed and managed using propositional thinking.

Therefore, to govern and to manage second-order complexity in meta-organizations, there are three options.

The first option is trying to reduce the meta-organization’s complexity. However, complexity is difficult to define and to measure because it “is meaningful enough to enable one to measure exactly how complex a system is” (Waddington, 1977, p. 30). System complexity is not an intrinsic property of that system; instead, it is observer-dependent, because the complexity of a system is directly proportional to the number of non-equivalent descriptions of the system that the observer can generate (Casti, 1986, 1994). Mechanisms to generate negative entropy in the system should be used in an attempt to reduce the system’s complexity, allowing the application of solutions that can work in systems with less uncertainty. However, governance and management scholars should be aware that it is impossible to accurately predict either the behaviour of the members of the relationship or the results that may be obtained (Gershenson, 2007; Richardson, 2008), although they

can create conditions that improve the likelihood of achieving goals that are of interest to all of the partners. Therefore, one way to reduce complexity in the meta-organization is to align partners’ interests and perceptions, leading to a common narrative that begins by choosing the most suitable partners, not only in terms of their resources or abilities but also in their motives to cooperate, their compatibility, and their real will to engage in a common project. The role of meta-leader or meta-entrepreneur could help develop narratives that are more common; however, it also could engender partners’ distrust if this meta-role is assumed by one or more partners or somebody related to them. Perhaps an external promoter from the public administration or the entire public agency can develop this role, but such promoters’ lower assumption of risk and their dedication to multiple projects could be seen by partners both as lacking commitment and as a non-specific involvement in the cooperative relationship.

The second option is developing specific governance mechanisms to address this second-order complexity in meta-organizations in which, even with different narratives, there can be shared values and a trust environment that helps maintain the cooperative relationship because of partners’ trust in the relationship’s ability to create common competitive advantages. Therefore, fostering a meta-organization’s attractors—values, identity, sense of purpose—despite differences in the partners’ narratives, can influence partners to engage in pro-meta-organizational behaviour by creating a setting (Anderson, 1999) in which partners voluntarily decide to engage in the behaviour that benefits the alliance (Parkhe, 1993) and trust mitigates uncertainty about partners’ behaviour (Casciaro, 2003; Das & Teng, 2001b; Gulati, 1995; Krishnan, Martin, & Noorderhaven, 2006). These attractors can work as schemata for suggesting how partners should behave. Partners’ schemata can be modelled as a set

of rules that can be characterized in very flexible ways (Anderson, 1999). According to Drazin & Sandelands (1992), systems, which consist of independent actors whose interactions are governed by a system of rules that are recursively applied, naturally generate a stable structure. Therefore, they self-organize because patterns and regularity emerge without the intervention of a central controller. This way, self-organization is the natural result of a nonlinear interaction, not any tendency of individual agents to prefer or seek order (Fontana & Ballati, 1999). Anderson (1999, p. 222) states that “when the interactions of large numbers of components involve positive feedback loops, some behaviours self-amplify, quickly crowding out others. Groups of components become locked into self-reinforcing feedback cycles that lead to predictable collective behaviour.” (Anderson, 1999, p. 222).

The third option is thinking in a way that makes it possible to accommodate multiple descriptions that are not equivalent descriptions—that are even contradictions. In other words, managers should “complicate” themselves (Weick, 1979, 1995), thus increasing the complexity of their understanding to match the complexity of the situation that they must manage (Tsoukas & Hatch, 2001), thus maintaining a balance between flexibility and stability (Weick, 1979). As Richardson (2008, p. 15) notes, “in complex systems causality is networked, making it very difficult indeed, if not impossible, to untangle the contribution each causal path makes.” Weick & Roberts (1993) have proposed the notion of “collective mind” as the pattern whereby individuals heedfully inter-relate their actions, which it can be applied to cooperative relationships as complex meta-organizations. “The more heedfully individuals inter-relate their actions, the more likely it is that unexpected events will be handled adequately” (Tsoukas & Hatch, 2001, p. 1006). Complexity

fosters an awareness of dynamic processes, unpredictability, novelty and emergence, leading to a “dynamic understanding” that is “holistic, historical, and qualitative” (Kellert, 1993, p. 114). Using a narrative, “things can be connected by co-occurrence, spatial proximity, formal similarity or metaphor.” (Tsoukas & Hatch, 2001, p. 1007). These connections can help to understand the nonlinearity, indeterminacy, unpredictability, and emergence of complex systems. Stories help organize “know-how, tacit knowledge, nuance, sequence, multiple causation, means-ends relations, and consequences into a memorable plot” (Weick & Roberts, 1993, p. 368). Therefore, relying on flexible mechanisms that take the meta-organization from one point of equilibrium to the next provides an option to cope with the second-order complexity of this complex meta-organization. Similarly, Das & Teng (1996, 2001a) argue that high uncertainty implies that partners should avoid hierarchical control modes. Real-time attention should be given to what is happening in the meta-organization from each partner’s perspective, knowing what happened in the past and what partners want to happen in the future. Perhaps, as Cohen & Stewart (1994) and Simon (1996, p. 1) state “complexity, correctly viewed, is only a mask for simplicity.”

4. COOPERATION GOVERNANCE: FROM AGENCY TO STEWARDSHIP

Cooperation can enhance partners’ competitiveness, but results do not arise automatically after signing the agreement. Any time a group of people or organizations come together to accomplish an end, the need for governance exists. Governance determines “who has power, who makes decisions, how other players

make their voice heard and how account is rendered” (Pateli, 2006). A governance system consists of mechanisms to coordinate, control and motivate its members’ behaviour (Albers, 2010). To Coase (1937), a firm is really a governance mechanism that enables the minimization and reduction of the transaction costs derived from coordinating and controlling a group of activities. From Williamson’s (1979, 1987, 1991, 1992) point of view, the term governance refers to how control is accomplished in contractual relationships that are established among the different collectives that compose the firm (shareholders, managers, employees, etc.). In this way, cooperation governance addresses how the relationships among the companies and individuals participating in the cooperative relationship are controlled. Various theoretical perspectives have justified alternative and complementary modes (based on control or on trust) for governing cooperative relationships (Das & Teng, 1998, 2001; De Man & Roijakkers, 2009), but all agree that the election of the most appropriate governance system for a cooperative relationship is a critical strategic decision (Parkhe, 1993) to be made by the potential partners.

Cooperative relationships have been differentiated in terms of the strength of the linkage among partners (Nooteboom, 1999), and equity involvement is a proxy that classifies them into joint ventures, minority equity alliances, and contractual alliances (Das & Teng, 1998; De Man & Roijakkers, 2009; Gulati & Singh, 1998; Yoshino & Rangan, 1995). Both of the equity arrangements (i.e., joint ventures and minority equity alliances) are believed to help align the interests of partner firms (Gulati, 1995) by discouraging partners’ opportunistic behaviours because equity serves as a mutual hostage that can be used to retaliate against and punish opportunistic partners (Dyer & Singh, 1998; Kogut, 1988). Additionally, the fact that

it is difficult for an opportunistic partner to quickly exit an equity arrangement after taking advantage of other partners discourages these opportunistic behaviours (Teng & Das, 2008). Joint ventures and minority equity alliances have a common characteristic of shared ownership, but they should be separated along the dimension of hierarchical control (Gulati & Singh, 1998).

The appearance and growth of large corporations has stressed a separation between ownership and control, but firms can rely on the authority that ownership and a formal structure confer to guide organization members' behaviour toward the organizational goals. Additionally, Etzioni (1964) considers that an organization's success is heavily dependent on its ability to maintain control over its members. In the same vein, literature on cooperative relationships has been usually focused on control-related issues that enable the enforcement of cooperative behaviours through retaliation and punishment (“hard control”). The power source for this action could be hierarchy, equity dependence, contractual commitments and strategic dependence. This “hard control” is a push strategy to compel partners to remain in the cooperative relationship, even if the motives that led them to participate have disappeared. This rigidity makes partners think very carefully about entering into a partnership, seeking to specify all of the possible contingencies that could arise over the lifetime of the relationship, attempting to formalize behaviours to address situations of uncertain and indeterminate characteristics and even situations whose appearance is unforeseeable. These structuring and formalizing practices can be seen as a demonstration of the bureaucratization that affects the growth of organizations. Therefore, when establishing a relationship, it is possible that partners' attempts to obtain an exhaustive level of control create suspicion and mistaken readings of the other partners' behaviour, increasing the likelihood of the anticipated ending of the

relationship. Additionally, it can be more difficult to achieve any common goals, at least to the extent that they might have been reached in the event if cooperation had been governed and managed in a more open and flexible manner.

However, when we join two autonomous and independent components with an excessively rigid and formal link, in the event of emerging differences, the link's inflexibility makes its breakdown more probable. This inflexibility converts the relationship into a brittle one in the face of any dissent, no matter how small. Thus, cooperative relationships' governance should tend toward a greater flexibility and adjustment capacity, establishing the necessary mechanisms to govern and manage in real time any emerging incidences and redefining the agreement according to each organization's needs and objectives.

Equity involvement as a proxy of ownership-based hierarchical authority has been taken as a measure of the strength of the linkage among partners (Nooteboom, 1999), but it does not seem to be the best proxy when assuming that a cooperative relationship is a meta-organization. An interdependent design is more relevant because it determines not only communication intensity and frequency but also partners' strategic influence on each other. These aspects are more important than having an equity arrangement or a (more or less) detailed contract. The latter emphasizes a static perspective centred on the agreement, and the former is both dynamic and process focused.

Unlike a push-based "hard-control" strategy, a "soft-control" strategy is a more flexible, pull-based strategy to attract partners to the cooperative relationship. By maintaining their independence, partners choose to participate and continue to participate over time because the attractors designed for the meta-organization link

the partners’ willingness to stay to the cooperative relationship. Taking into account that a meta-organization is intended to improve its partners’ competitive advantages and that agency theory studies bilateral relationships as how a particular delegation of authority is produced (Jensen & Meckling, 1976), agency theory offers an interesting framework for understanding partners’ behaviours.

As a result, each company is in charge (principal) of its own interests, delegating to the other partners the responsibility of helping it further those interests. Additionally, each firm is an agent of all partners’ interests (including its own) and should collaborate to achieve all of the partners’ objectives. Nevertheless, each firm should not leave in its partners’ hands the task of achieving its own objectives; instead, each firm should also attempt to achieve those objectives through its own initiative, with the help of its participation in the cooperative relationship. Therefore, the problem arises of when firms should elect to behave like agents of their own interests or agents of their partners’ objectives. It is a logical assumption that each partner will decide to make reaching its own objectives the top priority, because inter-organizational principals and agents also play the role of intra-organizational agents to whom their intra-organizational principals have entrusted the defence of their interests. The challenge is how to achieve each partner’s objectives collectively, because it is more likely for each firm to place more relevance on its own goals, using its partnership to better achieve them. To demonstrate this situation graphically (see Figure 1), let us consider a cooperative relationship among four firms (A, B, C, & D).

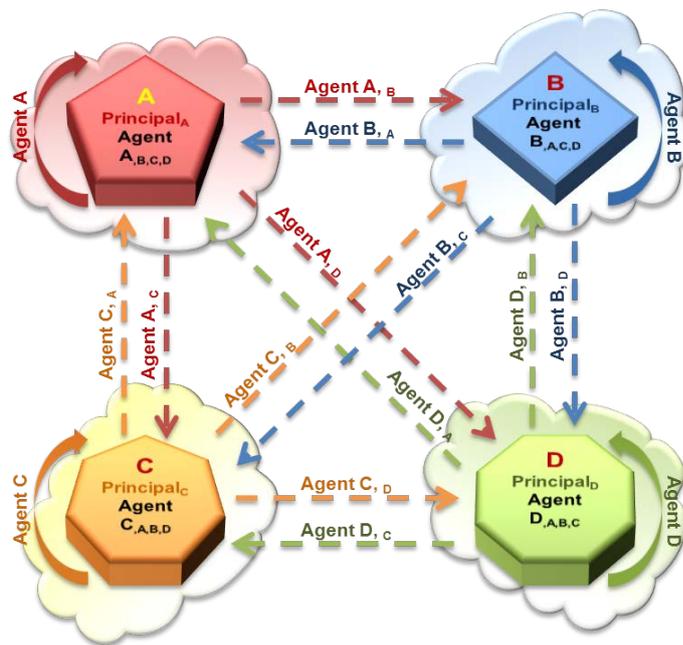


Figure 1. Principals and agents in cooperative relationships

Considering a cooperative relationship as a meta-organization, the distribution of the roles of principals and agents in the relationship can be seen from a different perspective (Figure 2). Maintaining their roles as the principals and agents of their own interests (intra-organizational agency relationships) (1st intra), partners in cooperative relationships also act as principals in the inter-organizational agency relationship (1st inter) that arises when cooperating because they (should) rely on the relationship (the meta-organization) as the agent with the responsibility to make a contribution that improves their competitiveness (see the left side of Figure 2). The meta-organization as a principal in an intra-organizational agency relationship (2nd intra) needs agents to achieve its own goals. These agents can be personalized as the executives of the relationship, when they exist; in any event, the relationship is implicitly composed of all of the partners. In the absence of an own-management organ for the relationship, companies are both principals and members of the

“associated agent”—that is, the cooperative relationship itself. However, the meta-organization needs to do things that it cannot do on its own. Thus, a new principal-agent relationship (2nd inter) arises in which the meta-organization is the principal and partner firms become the meta-organization’s agents (see the right side of Figure 2). Consequently, when cooperating, each partner acts both as principal and agent of its intra- and inter-organizational interests.

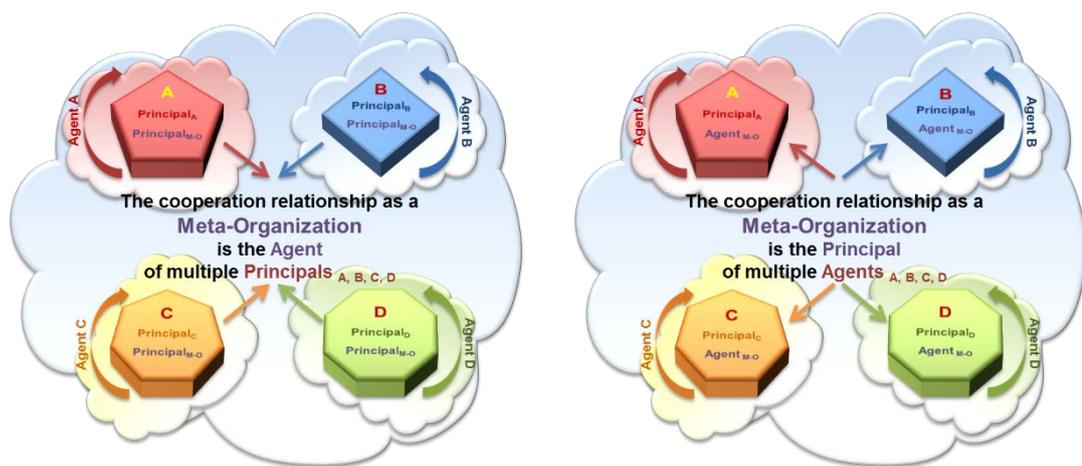


Figure 2. Principals and agents in a cooperative relationship as a meta-organization

Similar to Alchian & Demsetz’s (1972) central figure (the entrepreneur), which converts contractual relationships into bilateral relationships that configure the firm, the meta-organization allows conversion of multiple relationships among the partners into bilateral relationships (each partner to the meta-organization), so that each company would be mainly related to the meta-organization. This can be especially necessary when there are many participants in the cooperative relationship.

When the agent and principal’s utility functions coincide, there are no agency problems and it is possible for both principal and agent to increase their individual utility. Nevertheless, when the agent and principal’s interests are not aligned, given

the chance, some partners will attempt to maximize their own utility at the expense of the other partners. Therefore, because it is difficult for principals to know beforehand whether agents will behave loyally, it is necessary to provide adequate control mechanisms to avoid opportunistic behaviour.

Agency theory usually supposes individuals' selfish motivation. It necessarily results in a situation of divergent interests between principal and agent, and it is normal to expect that partners will be more concerned with behaving as agents of their own interests than as agents of the cooperative relationship. Nevertheless, opportunism could contradict rationality, from a strategic perspective, so this behaviour cannot be the best choice for partners to achieve their objectives. Additionally, to presuppose that the interests of principal and agent are always contradictory does not allow us to explain partners' behaviour in relationships in which these divergences do not really exist. In this way, complementary to agency theory, stewardship theory defines situations in which agents are not motivated by their individual objectives, but their motives are aligned with the objectives of the principal. Table 2 shows the comparison of the two theories proposed by Davis, Schoorman, & Donaldson (1997, p. 37).

Unlike the economical approach of the agency theory, the stewardship theory considers both sociological and psychological factors to determine a suitable form of organizational governance (here, the governance of cooperative relationships) in situations in which managers, as stewards, are motivated to act in the best interest of their principals. According to this theory, the steward's behaviour is collective and seeks to achieve the organization's objectives. For the steward, collective and pro-organizational behaviour has a higher utility than individualistic and selfish

behaviour; thus, when confronted by a choice between selfish or pro-organizational behaviour, the steward’s behaviour will not stray from the interests of its organization, and it will attempt to satisfy everybody involved.

Table 2. Comparison of agency and stewardship theories

	Agency Theory	Stewardship Theory
Model of Man	Economic man	Self-actualizing man
Behaviour	Self-serving	Collective serving
<i>Psychological Mechanisms</i>		
Motivation	Lower order /economic needs (physiological, security, economic) Extrinsic	High order needs (growth, achievement, self-actualization) Intrinsic
Social comparison	Other managers	Principal
Identification	Low value commitment	High value commitment
Power	Institutional (legitimate, coercive, reward)	Personal (expert, referent)
<i>Situational Mechanisms</i>		
Management Philosophy	Control oriented	Involvement oriented
Risk orientation	Control mechanisms	Trust
Time frame	Short term	Long term
Objective	Cost control	Performance enhancement
Cultural Differences	Individualism High power distance	Collectivism Low power distance

Source: Davis *et al.* (1997, p. 37).

According to Doz & Hamel (1998), strategic alliances serve the strategic objectives of partner firms, so partners (as principals) create a meta-organization (as stewards) to help their partners achieve their objectives (see the left side of Figure 3). The meta-organization’s stewardship role needs to be complemented with partners’ stewardship behaviour (right side of Figure 3). Therefore, if partners in a cooperative relationship behave as stewards instead of agents, they should be more likely to cooperate in an effective form to achieve the common objectives because doing so should also be the better choice to satisfy the partners’ organizational interests.

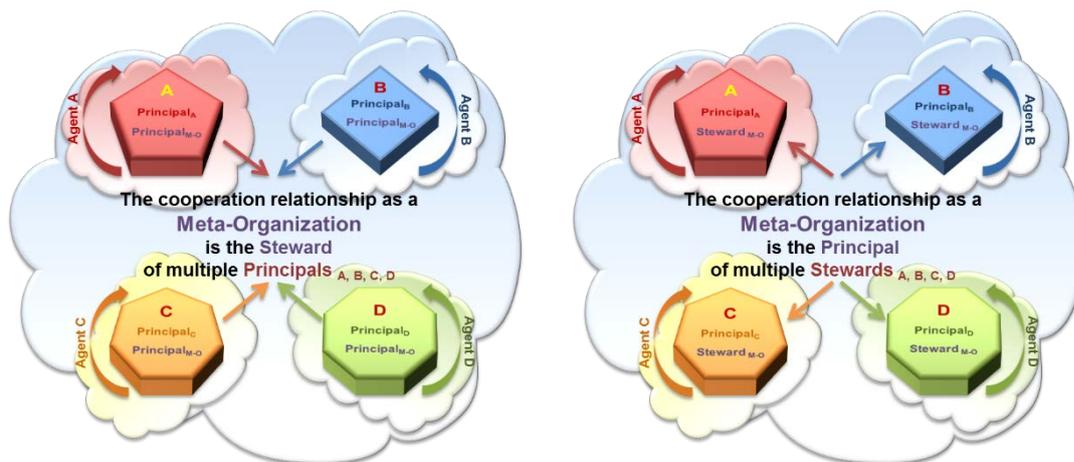


Figure 3. Principals and stewards in a cooperative relationship as a meta-organization

If the assumptions of stewardship theory are accurate, Davis *et al.* (1997) consider that decentralized governance structures are the most suitable (i.e., empowering governance structures and mechanisms are appropriate). They indicate that the steward's autonomy should be deliberately extended because the steward can be trusted. Applied to cooperation among firms, relationship governance would fit the stewardship model whenever the steward can be sufficiently trusted. This steward role must be performed on behalf the relationship, its managers—if they exist—and each of the cooperating firms. A form of discovering whether partners actually behave as stewards is to observe partners' trust toward their relationship, their trust in the relationship's managers (if they exist), and their trust in the other partners to be mutually helpful in improving their competitiveness.

Consistent with the assumptions of stewardship theory in the organizational field, Walton (1980, 1985) advocates what he calls a high-commitment management philosophy, which is characterized as highly participative through open communication, the empowerment of workers and the establishment of trust.

According to Lawler (1986, 1992), involvement-oriented approaches emphasize self-

control and self-management and do not separate thinking, controlling and performing the work.

When short-term cost control and productivity are important issues, the control-oriented approach produces better results. However, in long-term relationships and in unstable and uncertain environments, the involvement-oriented approach could be more effective. Control-oriented systems are designed to avoid vulnerability and thus to avoid the need for trust. Therefore, it is more likely that such systems will produce agency-theory relationships, whereas an involvement-oriented management philosophy is more likely to produce stewardship-theory relationships. Thus, we can substitute the control-oriented approach for involvement-oriented management in cooperative relationships, using leadership and trust to encourage stewardship behaviours from all partners.

The type of relationship (agency or stewardship) and “the success of the relationship is a function of the mutual choice between agency and stewardship by all parties in the relationship” (Davis *et al.*, 1997, p. 42); it is based on their motivation, identification, management philosophy and culture, and mutual expectations (Figure 4). If partners and the meta-organization choose a stewardship relationship, the potential outcomes are maximized. However, if both choose an agency relationship, the potential costs are minimized. If one chooses an agency approach and the other chooses a stewardship approach, the first can obtain benefits, if it behaves opportunistically, at the expense of the other.

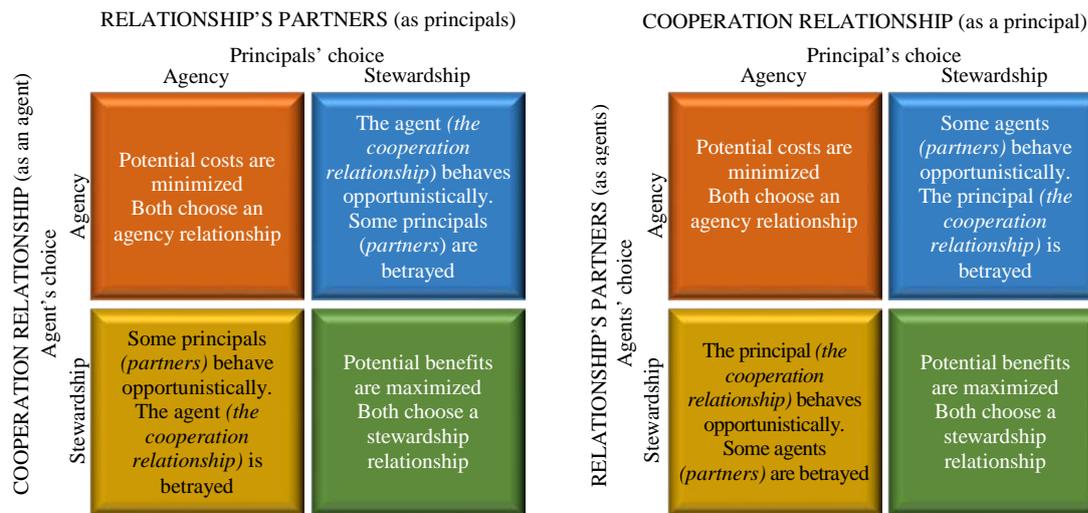


Figure 4. Inter-organizational agency or stewardship relationship choice

Although the best option for both parties—theoretically—is to choose a stewardship approach, the choice depends on the level of risk that is acceptable to each party and each party's willingness to rely on the other. Therefore, when parties have an individualistic orientation, the best choice (taking into account the choice of the other party) is an agency relationship. Only when both parties have a collectivist orientation and agree to subordinate their objectives to those of the partnership can the maximum benefit be obtained through a stewardship relationship.

4.1. Meta-Leadership and Meta-Entrepreneurship in Cooperation Relationships

If partners can create a trusting atmosphere in their relationship and the meta-organization has effective leadership, then partners are more likely to become stewards instead of agents, thus affecting the potential results of the cooperative relationship for its partners. According to Faulkner (1999), control in cooperative

relationships is the process by which one partner influences the behaviour both of the other and of the relationship itself. He also notes that control mechanisms extend far beyond the traditional mechanisms of equity ownership and board membership, although these aspects remain important. All definitions of leadership consider its function in influencing an organization’s people, i.e., influencing them to provide their best efforts in their work. Therefore, leadership in the arena of inter-organizational relationships (Fujishima, 2015) can be a useful and effective “soft control” mechanism for influencing partners’ narratives and therefore making them more similar, thus reducing second-order complexity. Accordingly, meta-organizational leadership would improve cooperation governance, management and results. This meta-organizational leadership role could be performed by one or several relationship partners (and can even shift from partner to partner according to the needs of a particular task) (Bion, 1961; Stacey, 1995), taking into account that the leadership role should not produce distrust. Additionally, the meta-organizational leader can be an external agent for the related companies to avoid opportunistic thoughts (e.g., hired managers or representatives of public administrations that support the joint project). According to Bennis (1983), the key factor in leadership is the leader’s credibility and trust. Thus, to be meta-organizational leaders, partners (or external agents) should both improve their credibility (a good reputation is a good token) and become trustworthy. The meta-leadership function (Bonner, 2013; Nicholss, 1988; Straw, 2010) in cooperative relationships must seek to influence both potential and current partners to be voluntarily engaged and oriented toward the achievement of the meta-organization’s objectives, because to do so would be the best way to achieve their individual goals.

This meta-leadership role can also be the result of partners' meta-entrepreneurial spirit (Hawn, 2011). Partners should maintain their entrepreneurial spirit to reinvent their business, proactively making the necessary changes to improve their competitiveness by redefining their resources and capacities. When partners have the potential to design a meta-organization, their available resources and capacities and consequently, the likelihood of new combinations, are increased. When partners activate others partners' resources and capacities and combine them with their own stock into new products or services to better satisfy customers, they are performing a meta-entrepreneur role. Meta-entrepreneurs do not need to have ownership-based control; instead, they require a broader vision of how to create a meta-organizational competitive advantage. Additionally, they need both to inspire partners with a shared vision of the meta-organization and to increase their awareness of the benefits of stewardship behaviour. Meta-organizational entrepreneurship would take the cooperative relationship from one equilibrium point to the next, generating an attraction effect on current and potential partners, because the meta-organization can easily redefine and reinvent its competitive advantages by adding new partners, creating new possibilities, etc.

4.2. Designing Interdependences in Cooperative Relationships as Meta-Organizations

Governance is about both control and coordinating (Gulati *et al.*, 2012) activities and people to achieve (meta) organizational objectives. Therefore, before considering how to control a relationship, it is necessary to design that relationship (Albers, 2010) in a way that makes it possible to coordinate interdependences for mutual gain.

Thompson (1967) defines three types of interdependence to describe the intensity of interactions and behaviours within an organizational structure. Borys & Jemison (1989) and Gulati & Singh (1998) use this framework as a parsimonious way of arraying the degree of interdependence in alliances. Employing systems isomorphism, a meta-organization can also be designed according to pooled, sequential and reciprocal interdependences. The first means that partners perform completely separate activities; they may not directly interact and do not directly depend on each other, but each contributes individual pieces to the same overall puzzle. Sequential interdependence occurs when one partner in the overall process produces an output necessary for the other partners' performance. Finally, reciprocal interdependence refers to the highest interaction intensity, because each one could depend on the other partners. These reciprocal interdependence models are the most complex and difficult to manage, because any partner can affect everyone else at any time. According to Gershenson (2007, p. iii), “reducing the ‘friction’ of interactions between elements of a system will result in higher ‘satisfaction’ of the system (i.e., better performance).”

Therefore, designing a meta-organization is primarily a question of what interdependences are necessary and the intensity of interaction in which partners can engage. The intensity of interdependence should be managed using different coordination methods. Thompson (1967) recommends standardization in rules and operating procedures for pooled interdependences, moderately adaptive planning and scheduling for sequential interdependences, and constant information sharing and mutual adjustments for reciprocal interdependences. Thus, if simple and informal communication possibilities exist in a cooperative relationship, coordination can be achieved by partners' mutual adjustment without structured governance mechanisms.

This can be the case in cooperative relationships among a few small firms with intense interaction, in which the firms can observe their behaviours reciprocally and adjust to each other. However, when partners do not have such direct contact or the number of partners makes contact more difficult, direct supervision can offer a suitable method of coordinating the cooperative relationship. That said, direct supervision is not the best mechanism because of the lack of an accepted common authority, and its utility further declines when complexity increases. Thus, normalization or standardization proposes, first, coordinating what activities or processes are going to be developed; second, what results partners want to achieve through the cooperative relationship; third, what should be partners' best profiles to achieve that which is supposedly good for all partners; and finally, what beliefs, values, norms, rules should be shared by the partners.

It is well known that in an organizational setting, mutual adjustment is the easiest coordination mechanism, and it is the chosen mechanism when complexity is too high for any other mechanism to prove suitable. Additionally, a good combination of all of the coordination mechanisms is necessary for organizations. Thus, cooperative relationships as meta-organizations can benefit from mutual adaptation when possible, should directly coordinate through their leadership to guide partners in a collaborative win-win scenario, should define what activities are necessary, and should determine who is/are the responsible partner/s. Of course, it is essential to specify which of the partners' objectives prompt them to create the meta-organization and what beliefs, values and norms they share. When complexity increases, the latter are more suitable. Therefore, assuming cooperative relationships are second-order complex meta-organizations, the combination of coordination

mechanisms should be focused on norms normalization (trust environment) and mutual adaptation based on the partners’ common goodwill. Such a stewardship approach to the meta-organization is in reality a governance mechanism that allows coordinating partners to behave in a manner that fosters mutual benefits.

5. THE ROLE OF TRUST IN COOPERATION FROM A TARGET-BASED TRUST TYPOLOGY

Trust is a basic characteristic of all social situations that require cooperation and interdependence (Johnson-George & Swap, 1982); it is perhaps the most efficient mechanism for governing economic transactions (Arrow, 1974). Despite the fact that trust belongs to the arena of interpersonal relationships (Williamson, 1993), we agree with Zucker (1986) that it is possible to move its implications to the organizational area, and literature on cooperative relationships has highlighted its positive influence in encouraging the development and evolution of relationships (Gambetta, 1998; Mellewigt, Madhok, & Weibel, 2007; Tubin & Levin-Rozalis, 2008).

When we say that we trust someone or that someone is trustworthy, we implicitly mean that the probability that he/she will perform an action that is beneficial or at least not detrimental to us is high enough for us to consider engaging in some form of cooperation with him/her. Thus, trust increases the possibility of cooperation experience and action. Trust can affect second-level complexity in cooperative relationships as meta-organizations because these possibilities are more focused around the common project. In addition, when trust exists, it can perform the role of normalizing norms in intra-organization coordination. As a result, partners’ narratives can be more similar when they share somewhat common interests.

Traditionally, it is said that trust is a key feature of successful business collaboration, but the focus is only on trust among partners within the cooperative relationship. However, taking into account that it is possible to find enduring cooperative relationships in which some firms declare their lack of trust in their partners, trust in partners cannot be the only relevant form of trust for cooperation. Indeed, the literature contains a varied trust typology related to the bases and targets of trust (Das & Teng, 1998; 2001b; De Man & Roijakkers, 2009; Faulkner, 1999; Márquez-García & Bruque-Cámara, 2007).

5.1. A Target-Based Trust Typology

Considering that the study of any organizational situation can be approached from three levels of analysis—individual, group and organizational—various types of trust (Márquez-García, 2003, 2008) can be identified using this analytic perspective applied to cooperative relationships as meta-organizations. As a result, a target-based trust typology differentiates among three possible targets in which trust can be placed: individual partners themselves, the other partners involved in the agreement, and the cooperative relationship itself as a meta-organization.

5.1.1. Each Partner's Trust in Itself

The decision to trust others requires a minimum level of trust in oneself, which allows one to endure the potential vulnerability incurred by placing trust in another. Therefore, before deciding whether to trust another, the subject should decide whether the subject can manage that situation's results.

From an individual perspective, the link between trust in others and trust in oneself is noted by Luhmann (1996), who argues that men are willing to trust when they have an inner security that enables them to await, with serenity, the possible disappointments of trust. In this way, accepting this potential vulnerability is not merely a consequence of trusting others: it is the result of trusting oneself. Therefore, trust in oneself is a condition that promotes additional trust. The feature of system isomorphism can be used to apply this insight from an individual system to an organizational one. Thus, each firm should have an inner security perception that influences its vulnerability perception with respect to engaging in cooperative relationships.

Each partner’s self-trust can be very beneficial both for itself and for the cooperative relationship if each firm believes in its own capacity, considers that it has a great deal to contribute to the meta-organization and wishes to make such a contribution, because self-trust could encourage the partners to interact. However, partners’ self-trust can also be detrimental to the cooperative relationship. Excessive self-trust probably will separate partners from the relationship, considering that their goals could be better achieved either without cooperating or by entering into a different cooperative relationship.

5.1.2. Trust in Partners

Trusting other people has a motivating and positive effect for both the trustor and the trustee (Petermann, 1999); this trust provides each partner with greater potential and capacity. Additionally, when one is trusted by someone, it is more likely that this trust corresponds to behaviour that is more responsible.

Trust in partners can have a contractual foundation and therefore, each partner should fulfil its obligations. It is necessary for partners be able to rely on their counterparts to behave according to the committed terms and conditions. It is also necessary that partners trust in the other partners' competence to do what they say. However, because partners habitually lack both all of the necessary information about the other partners and the ability to interpret that information, it is necessary to trust in their goodwill to make their best contribution to the cooperative relationship.

Both greater proximity and greater possibilities of interaction among partners can stimulate trust among them. According to Weick (1979), when there are not enough interactions among agents, patterns tend not to emerge. Projecting excessive trust in others can imply an increase in the risk of encountering opportunistic attitudes, although it is also possible for favourable behaviour to be generated in response to this received trust. A deficit of trust toward others can avoid the consequences of eventual opportunism, although also it can generate less favourable behaviour.

5.1.3. Trust in the Cooperative Relationship as an Organization

A cooperative relationship is itself a trust outcome. Every organization should be living proof of trust in cooperation. However, trust can erode and joint actions then lose their creative and transformational potential.

When discussing trust in the cooperative relationship itself, it is important for partners to trust that the cooperative relationship will fulfil its commitments, achieving the agreed-upon goals. It is also important for partners to trust in the cooperative relationship as the synergic addition of each partner's individual

capacities. Therefore, the cooperative relationship should be able to do what it was created to do. Finally, it is also recommended for partners to trust that the cooperative relationship can create further joint competitive advantages that exceed those currently contemplated.

If partners do not trust in the cooperative relationship, they will diminish both their commitment and their contribution to the meta-organization. The absence of contractual trust in the cooperative relationship would motivate partners either to leave or to look for other partners. If partners do not trust in the cooperative relationship's competence to deliver on the planned goals, it is also very likely that partners will look for companies that are more competitive and that could enter into the relationship. When partners do not trust the cooperative relationship's ability to produce greater results than planned, its evolution is less likely.

Accordingly, if there is enough trust in the cooperative relationship, it is more likely to achieve its goals, more easily surpassing the problems that can arise during the cooperation process. Nevertheless, too much trust in the cooperative relationship can also be detrimental because expectations that are too high can be difficult to fulfil, resulting in a perception that the cooperation experience has been inadequate.

5.2. Generic and Specific Trust throughout the Cooperation

Process

Therefore, the effect of trust on cooperation is a consequence of the trust level of each of the three targets (the partners themselves, the other partners, and the cooperative relationship). A lack of trust could be detrimental for creating and maintaining a cooperative relationship, but too much trust cannot be appropriate.

Thus, it is necessary to achieve the right trust level for each of the three targets along the cooperation process. However, trust types can be either more or less relevant at each stage of cooperation (Figure 5).

In the initial stages, potential partners are still deciding whether to cooperate. They are considering the advantages that can result from the relationship, their resources, capacities, knowledge of the other partners, past experiences in other relationships with the same or other partners, etc. Accordingly, in these initial stages, the individual level of analysis seems to be more relevant, as is the trust associated with each potential partner. When selecting partners, negotiating and defining the structure of the relationship, the role of trust in one’s partners arises. However, it is also important to consider trust in the meta-organization that the partners are creating even before it could formally exist, primarily when managing, assessing, and considering its possible evolution. Figure 5 represents a possible configuration of trust types’ relevance along cooperation stages, but for some partners, the trust targets can be more or less relevant at each stage.

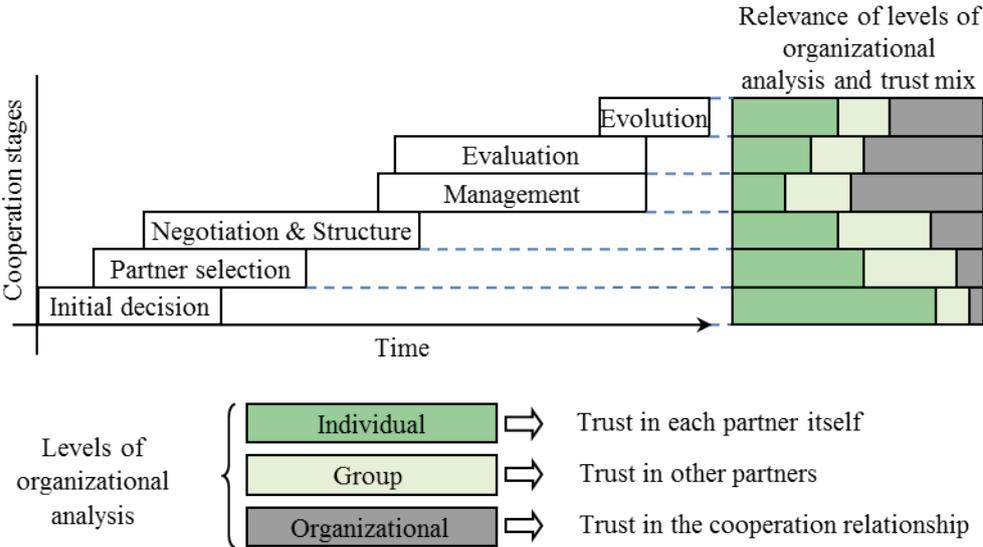
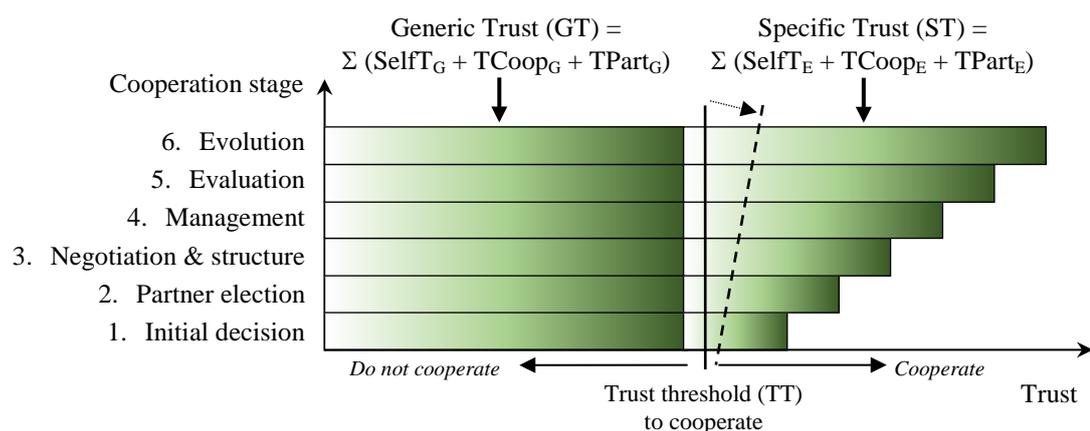


Figure 5. Organizational levels of analysis, trust and cooperation stage

That notwithstanding, trust is not a stock that has a different distribution along these stages. Interaction and information make trust evolve, so it is possible to increase or decrease trust along the cooperation experience. Additionally, trust exists prior to the cooperative relationship in the form of generic trust (GT). Thus, one firm has a level of generic trust in itself (SelfT_G), in its partners (TPart_G) and in cooperation (TCoop_G), independent of any particular situation. When encountering one cooperative relationship, specific trust (ST) can be developed over the generic basis of each trust type. Generic trust is akin to a starting point to develop specific trust. Trust building does not start from zero. Because cooperation requires each firm to place itself in a potentially vulnerable position, some level of trust is necessary to cope with the resulting perception of vulnerability. This threshold can be reached by combining different types of trust (i.e., generic and specific). Below this minimum trust level is very difficult to begin or maintain a relationship along the cooperation process (Figure 6).

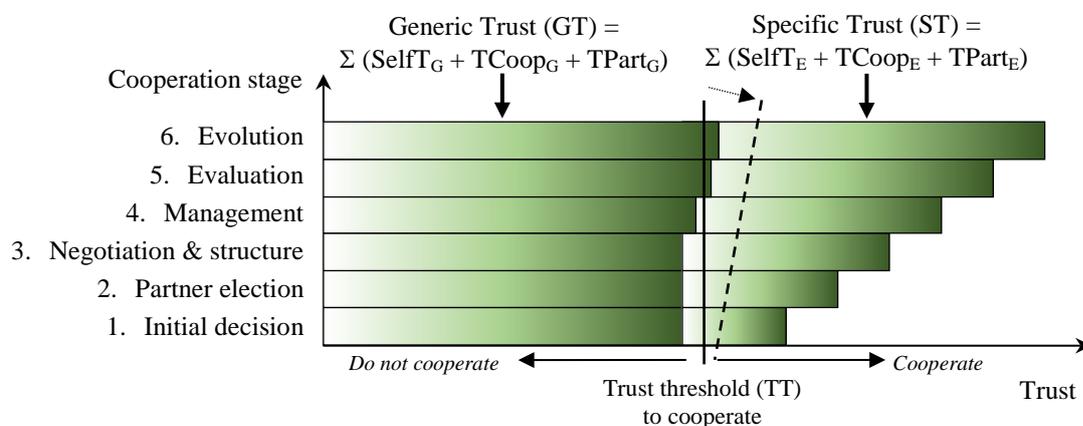


If at each stage ($i=1$ to 6), $\text{GT}_i + \text{ST}_i > \text{TT}_i \Leftrightarrow$ The partner chooses to cooperate
 If at any stage ($i=1$ to 6), $\text{GT}_i + \text{ST}_i < \text{TT}_i \Leftrightarrow$ The partner chooses not to cooperate

Figure 6. Cooperation stages, stable generic trust and increasing specific trust

The interaction and available information among partners during the relationship (Márquez-García & Bruque-Cámara, 2007) make it possible to increase (or decrease) specific trust. Perhaps trust types related to other partners and the cooperative relationship itself can be more affected by particular experiences. Each partner's trust in itself could be more stable because it is likely that generic self-trust would be more relevant, given that self-trust needs time to develop. A positive experience can increase specific trust, making the relationship more stable even if the trust threshold also increases (Figure 6).

Although a successful cooperative relationship could increase specific trust in some or all trust targets, it also can contribute to increasing generic trust, thus making the cooperative relationship more resilient to difficulties (Figure 7). It is even possible for generic trust to be enough to maintain the relationship.

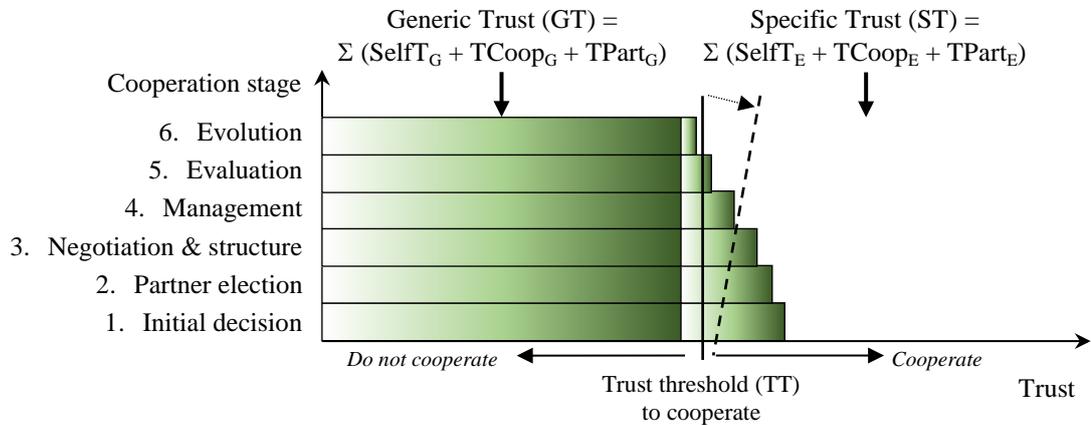


Positive experiences can increase Generic Trust, and GC can be enough to cooperate when $GT_i > TT_i$

Figure 7. Cooperation stages, increasing generic and specific trust

Nevertheless, specific trust can erode during the cooperation process, making it possible for the trust level to fall below the minimum threshold necessary to maintain the relationship. According to Lagerspetz (1992) and Baker (1987), trust is based on beliefs that can be highly resistant to evidence, perhaps because generic

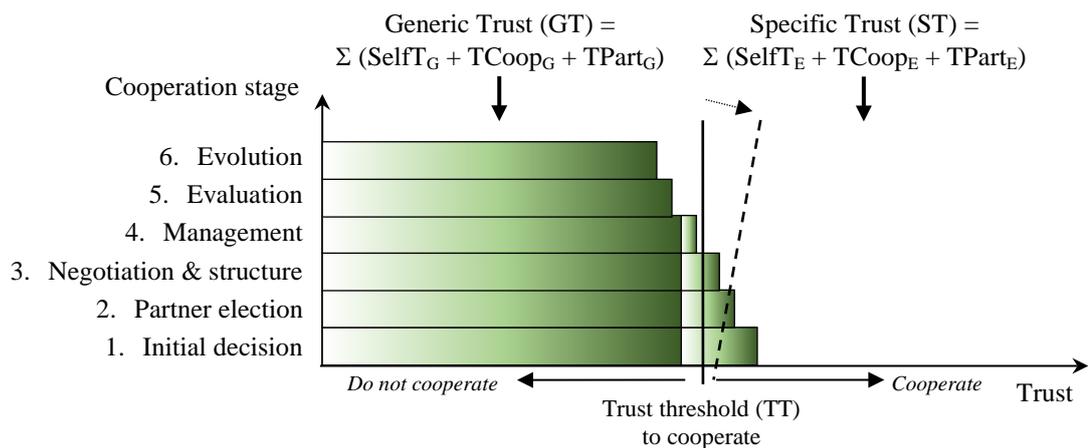
trust requires more accumulated information and experience and thus is more stable in the presence of disappointed expectations (Figure 8).



Negative experiences can affect Specific Trust, and cooperation will stop if $GT_i + ST_i < TT_i$

Figure 8. Cooperation stages, stable generic trust and decreasing specific trust

Therefore, generic and specific trust types are both complementary and accumulative. However, it is also possible that if specific trust is breached by a very bad experience, generic trust can be affected, thus reducing the overall trust capital (Figure 9) and influencing potential future cooperative relationships.



Negative experiences can even affect Generic Trust, and cooperation will stop if $GT_i + ST_i < TT_i$

Figure 9. Cooperation stages, decreasing generic and specific trust

This trust threshold can be different for each potential or current partner. Therefore, by exploring partners' general and specific trust types, it can be possible to assess whether cooperation is more or less difficult to achieve and maintain, given that each partner has its own perceptions and narrative about the meaning of this specific cooperative relationship. Therefore, to make cooperation possible, partners should encourage trust in the partners themselves, show themselves as trustworthy partners, and especially, trust in the cooperative relationship's potential competitive advantages. Before entering into a cooperative relationship, partners should work on building generic trust types because many times, a great deal is asked of a particular relationship, when the parties have no cultural basis of or previous experience with cooperation. In addition, the firm may not be self-confident, so it is very likely that it is afraid when sharing information with other firms—and even more so if they are potential or current competitors. Thus, this trust framework aids in understanding how to build trust and encourage stewardship behaviour in cooperative relationships as meta-organizations.

6. CONCLUSIONS AND FUTURE RESEARCH

Academics are interested in theoretical debates, but practitioners need a “how-to” guide for thinking, governing and managing cooperative relationships. Assuming a cooperative relationship is a meta-organization, much of what we know about governing and managing organizations can be applied to cooperative relationships. System, complexity and chaos theories can also contribute to explain both how to govern these new meta-organizations and how to address problems that are far outside the traditional paradigms.

Using a complex meta-organizational approach to cooperative relationships, partners' ins and outs are not a signal of failure; instead, they are a normal, possible consequence of the cooperative system's self-organization. According to Anderson (1999, p. 224), “organizations tend to replace their least efficient members.” McKelvey (1999) and Morel & Ramanujam (1999) call for more investigation into organizational systems that evolve through selecting out their weakest elements. Then, the cooperative relationship should prevail independent of the partners enrolled at any moment. The most difficult thing is not looking for and finding the right partners, nor is it signing a contract (more or less detailed), but instead, it is awakening a real will to become part of a common project in which all partners are necessary but none are important enough for the project to fail if a partner decides to quit. Therefore, to decide how to govern or manage a cooperative relationship, it is necessary to consider its design as a meta-organization that can survive partners' ins and outs.

Therefore, the unit of analysis is not the firm, the transaction or even the relationship, but the meta-organization, which emphasizes the long-term, open, flexible and complex character of cooperative relationships. From this perspective, the meta-organization has the possibility of connecting or disconnecting nodes to the relationship at any time that it is competitively convenient to do so. This way, the system can evolve and self-organize because potential and current partners can enter and exit; in other words, the nodes could be active or inactive, but they can be activated if the dynamic equilibrium needs them (Anderson, 1995). The prevalence of this meta-organization is guaranteed, and attractors cause partners to become either more or less close to the cooperative relationship.

Additionally, fractal theory introduces interesting aspects related to the non-uniqueness requirement of the mission and vision of cooperative relationships as fractal organizations. This observation also fits the second-order complexity caused by multiple narratives regarding the meta-organization, because each partner has its own narrative about what happens throughout the cooperation process. All of these narratives create a very high level of complexity that cannot be addressed using previous paradigms. Using Boulding's (1956) systems hierarchy scheme, we are attempting to govern and manage very complex systems, using tools and techniques that are designed for systems with lower complexity levels. The obvious consequence is a very high failure rate of cooperation initiatives, their limited scope and lifetime, and the constraints that are imposed to make them work by either reducing or ignoring their complexity such that the potential advantages do not present themselves as often as the disadvantages. Consequently, it is necessary to upgrade our level of thinking if we want to address organizations that are more complex.

Upon considering cooperative relationships as meta-organizations, agency theory analysis regains special interest for attempting to explain partners' behaviour, because those partners are both principals and agents. In this way, each firm plays a double role, attempting to pursue its own interest through its performance with the collaboration offered to and received from the other partners. Each partner experiences the conflict of being an agent of its own interests before those of the other partners. This perspective helps explain both opportunism and the need for supervision and control mechanisms. The meta-organization that emerges can be the

agent through which partners (as principals) aspire to achieve their particular objectives.

Stewardship theory offers interesting insights for understanding relationships in which partners’ interests are aligned. In that situation, partners are not agents of other partners in the relationship; instead, they are stewards of the meta-organization. Therefore, the meta-organization is a steward of each principal and at the same time, the principals should be stewards of the meta-organization. If enough trust is present throughout the cooperation process, the intra- and inter-organizational agency relationships can evolve into stewardship relationships.

Considering the usefulness of the stewardship approach to understand and manage partners’ behaviours, it would be very interesting to develop methods and models to determine whether a particular cooperative relationship is based on agency or stewardship assumptions, analysing partners’ profiles and their behaviours as agents or stewards. Additionally, more research is necessary to better understand how to create and foster stewardship behaviours in all partners (e.g., by identifying different types and features of meta-organizational leadership and entrepreneurship).

Practitioners must abandon the idea of creating or governing fully planned, secure cooperative relationships. Leadership and trust should be emphasized in building a common identity among partners so that they consider themselves integrated parts of a meta-organization, to which they should provide their best efforts if they hope to achieve the objectives that led them to cooperate.

An excessive concern about possible problems that have not yet appeared (and that may not appear during the cooperative relationship’s lifetime) shows a short-term perspective and a focus on the potential disadvantages, not on the competitive advantages that partners can jointly achieve. With this worry about

having to face potential opportunistic behaviours from other partners, partners are not only speaking loudly about their lack of trust in the other partners but also (and more importantly) clearly showing their lack of self-trust and their lack of trust in the cooperative relationship that they are creating or joining. If partners do not have enough trust in themselves, it is very likely that they feel frightened when planning a joint business venture with other firms. Additionally, if partners do not trust in the cooperative relationship's potential advantages, it is very difficult for these advantages to come to fruition. Taking into account these trust targets, the relation between trust and cooperation acquires a new perspective that can offer interesting insights into improving the knowledge of the role that trust plays in cooperative relationships as an alternative or complementary coordination mechanism to control. An adequate knowledge of each partner and its resources and capabilities should be assessed before considering and entering into a cooperative relationship. Because a meta-organization is a complex system that is open and changing by nature, the only sources of certainty are each partner itself and the meta-organization that the partners are creating. Consequently, these two targets of trust should be encouraged. Some partners may have been known previously, but others can enter the meta-organization in the future. Therefore, trust in partners is difficult to assess in advance. Additionally, it is necessary to highlight that if a partner enters into a cooperative relationship attempting to hide its weakness and take advantage of its partners, that partner's lack of self-trust can handicap its ability to gain the necessary trust level to remain in the meta-organization. The partner-selection process can also be seen differently. This is not an issue that involves accepting or rejecting partners' entry into the meta-organization. Any firm can enter if it shares common goals and

can help the group. Moreover, it is not about what each firm can get from cooperating, but what all partners can contribute and receive from working as a meta-organization.

Therefore, the best option for building stable cooperative relationships results from identifying clear, common objectives among the firms that decide to cooperate and ensuring that each partner both identifies with the relationship and observes that its contributions to the relationship are the best way to achieve its particular organizational objectives. In fact, it should be suitable for firms to assume steward behaviours in the cooperative relationship. In this way, cooperative relationships could benefit when transitioning from the “hard control” approach based on ownership to a “soft control” approach through the use of trust. Within a stewardship framework, inter-organizational leadership and trust could become more effective mechanisms for governing cooperative relationships as complex meta-organizations because of the greater flexibility and ability to adjust to change that they facilitate.

In the process of providing the governance of cooperative relationships with flexibility, there has been an evolution. First, the primary concern was achieving accurate, formal and legal agreements memorialized in detailed contracts that specified firms’ rights and obligations. When this static approach revealed that it is practically impossible to prevent what can occur along the length of the cooperative relationship, the focus turned to the need for a governance mechanism embodied in the controlling boards of the people in charge of the relationship. This change provided more flexibility to the alliance (and perhaps it was the justification); however, it was primarily made because of the contracts’ incomplete coverage of all of the relevant issues that can affect partners’ competitiveness.

Both equity and full and detailed contracts are quite unlike the type of bond that is more suitable for linking partners in meta-organizations as complex systems. Because the best way to attract and retain employees is to create a challenging and attractive atmosphere that makes potential candidates either apply to work there or do their best when they are hired, the unique way to attract and bond partners in a collaboration relationship is to create and maintain attractiveness as part of the meta-organization. Accordingly, the primary role of those in charge of governing and managing should be to create the right conditions to attract and retain the best, most suitable partners to collaborate to improve their individual and collective competitiveness. This role is more closely related to what an entrepreneur and a leader do than it is to the job of a controller or a board of directors. The inter-entrepreneur or meta-entrepreneur role in meta-organizations should be an element of joint risk assumption and coordination, and it should lead the meta-organization to use its negotiation and persuasion abilities more than an authority ownership would typically allow. To some extent, this inter-entrepreneur role must be jointly developed by all of the partners in the cooperative relationship, so that their joint performance might present a greater possibility of success.

The challenge is to determine how to govern and manage cooperative relationships as meta-organizations and complex systems throughout their process, taking into account the second-order complexity coming from the different narratives of the relationship. Inter-organizational or meta-organizational entrepreneurship and leadership can be suitable answers in this quest for improving cooperative relationships' success possibilities (not probabilities). It is more feasible to create the underlying assumptions of stewardship in the context of a meta-organization. In

addition, the trust-targets approach also helps achieve the minimum trust threshold by encouraging partners’ self-trust, trust in other potential or current partners, and especially trust in the meta-organization. It is very important that partners trust in the cooperative relationship’s autopoietic features cooperative relationship of self-producing and maintaining both its attractiveness and its competitiveness-enhancing possibilities. The use of leadership and trust as “soft-control” mechanisms in cooperative relationships should not be seen as a signal of resignation caused by the impossibility of having a safer option; instead, they must be outlined as an opportunity to obtain greater advantages that are derived from every partner’s more fruitful and loyal cooperation.

More research is necessary on designing autopoietic cooperative relationships as complex meta-organizations (Cason & Gangadharan, 2015), which have the capacity of evolving from one equilibrium state to the next, answering the needs of their partners and partners’ customers. Consequently, it is more important to determine how to create and maintain partners’ interest in entering and remaining part of the cooperative relationship and engaging in cooperation acts (in Barnard’s approach) instead of controlling the relationship. It is necessary to find out how to get that a cooperative relationship becomes a new entity without creating a joint venture. In times when technology makes communication and information intense interchange easier, it is less necessary to create a new formal entity to achieve control and foster collaboration through partners’ directly observed and measured behaviour. The world’s growing competence and the increasing speed of changes show that there is no time to create joint ventures to obtain the advantages of those ventures; moreover, firms are confronted by both administrative and legal costs. In addition, for firms using an alliance strategy, the need to have multiple relationships with

different partners to achieve a variety of goals makes difficult to create as many joint ventures as there are joint activities to be pursued.

Therefore, it is necessary to design, govern and manage meta-organizations that stimulate partners' cooperative behaviour without using equity. The challenge is to get partners to work together using leadership, motivation, communication and trust as attractors to the meta-organization sphere. The meta-entrepreneur and meta-leader roles could be keys for delivering both an inter-organizational leadership and a shared mission and vision that could help to manage complexity and encourage partners' pro-meta-organizational behaviour within a stewardship framework.

Finally, it is necessary to take into account the design of interdependences among partners in the cooperative relationship. Depending on the relevance and intensity of these interdependences, there can be important differences among the mechanisms used to govern and manage the cooperative relationship. Thus, more research is necessary to understand the link among meta-organizations' design, which can deliver different types of meta-organizations (Gulati *et al.*, 2012), partners' interdependence and governance structures and mechanisms (Albers, 2010) for reducing and managing complexity.

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*Much of the best effort of human
thought must go, therefore, to delimit
the vagueness of words and eliminate
their ambiguity*

Morris R. Cohen and Ernest Nagel⁸

⁸ Cohen, M. R., and Nagel, E. (1934). *An Introduction to Logic and Scientific Method*. New York, NY: Harcourt, Brace & Co.

CHAPTER 2:

TRUST MULTIDIMENSIONALITY

1. INTRODUCTION

Whenever we deal with relationships it is necessary to consider trust (Deutsch, 1958) and, in fact, it is one of the basic variables in any human interaction (Gambetta, 1988). As Rotter (1967) indicates the efficiency, adjustment, and even the survival of any social group depends on the presence or absence of trust

In spite of the individual and personal origin of the trust concept, more studied in psychology (Deutsch, 1958; Erikson, 1968; Rotter, 1967, 1971, 1980; Couch, Adams & Jones, 1996; Couch & Jones, 1997) as a basic feature of all the social situations that require cooperation and interdependence, its applicability is more and more recognized to the organizational scope. Until recently trust has not been given enough relevance in economy and management (Blomqvist, 1997; Huemer, 1998).

This growing interest (Barber, 1983; Kramer, 1999) is easy to understand since trust is often pointed out as the key factor for business success (Drucker, 1993; Davidow & Malone, 1992; Sabel, 1993; Handy, 1995). But we could find theoretical precedents that recognize the generalization and relevance of the informal trust relationships for business, such as Macaulay (1963), Arrow (1974) and Lorenz (1988). In spite of the relevance that theoretically is given to the influence of trust in business management, they are scarce the empirical studies that try to contrast these hypotheses (Sako & Helper, 1998; Lane, 1998). Perhaps it is the difficulty to obtain a clear trust concept to develop empirical analysis on it the main reason of its shortage. Most of the studies on trust differ considerably in approaches, objectives,

methodologies and conclusions (Ruscio, 1997; Jones, 2002), although they agree in the enormous trust potential.

Trust always exists in any form of personal relationship (Argandoña, 1999) and it is a basic concept to describe social interactions and ways to act, including organizational behaviour (Couch & Jones, 1997). Trust has become not only an important coordination mechanism -even the most efficient government mechanism according to Arrow (1974)-, but more and more trust is considered as a precondition for a better performance and competitive success in the new business environment (Bradach & Eccles, 1989; Ring & Van de Ven, 1992; Sako, 1998). So, trust favours the creation and maintenance of competitive advantages (Jarillo, 1988; Barney & Hansen, 1994). The growing number and variety of interchange relationships, and the increasing complexity and uncertainty of business environment cannot be faced without interpersonal, intra-organizational and inter-organizational trust (Lane, 1998). In addition, considering that knowledge is turning into the main source of competitiveness and people should share sensible information, trust will become in a practically indispensable element (Lane, 1998).

2. BACKGROUND

Trust is currently a familiar term, of generalized use and abuse, that is applied without the sufficient precision and clarity (Auerbach, 1990; Huemer, 1994; Echevarría, 2000). A great diversity exists among trust definitions (Jones, 2002) since authors have used the concept of very different forms (Castelfranchi & Tan, 2001; McKnight & Chervany, 2002) and, in fact, often they are describing different things. Its extension to all imaginable fields and sectors (Huemer, 1998; Petermann,

1999) has caused a dispersed, theoretically disintegrated and incomplete research (Lewis & Weigert, 1985). Nowadays it is still suffering from a considerable confusion due to its conceptual complexity (Lewis & Weigert, 1985; Young & Wilkinson, 1989)

Most of the trust definitions tend to agree that trust concerns the “willingness of one person or group to relate to another in the belief that the other’s actions will be beneficial rather than detrimental, even though this cannot be guaranteed” (Child, 2001, pp. 275). Deutsch (1962) conceives trust as an observable behaviour that (a) increases the own vulnerability, (b) happens with respect to a person that is not subject to a personal control, (c) and that is chosen in a situation in which the possible damages that can arise when the other takes advantage of the own vulnerability are greater than the benefits than can be obtained from this behaviour.

Although there is no agreement on a trust definition (Hosmer, 1995) in most cases they share three common elements: (1) a degree of interdependence between trustor and trustee, (2) trust provide a way to cope with risk or uncertainty in exchange relationships; trust narrows the set of possible actions, thus reducing the uncertainty surrounding the partner’s actions (Luhmann, 1996), according to Burt & Knez (1996, pp. 70) “trust is anticipated cooperation”; (3) and the belief or expectation that the vulnerability resulting from the acceptance of risk will not be taken advantage of by the other party in the relationship (Lane, 1998). So, trust is associated with dependence and risk.

According to Lewicki and Bunker (1995) the study of trust can be framed attending to its consideration as an individual characteristic, as a characteristic of the interpersonal transactions or as an institutional phenomenon. So, when talking on trust we should consider not only the interpersonal approach. It is necessary to take

into account people's own perspective, their relationships and the context where trust should arise.

Specific disciplines exist associated to each perspective. The personality psychologists traditionally have considered trust as an individual characteristic (Rotter, 1971, 1980). The social psychologists have defined trust as an expectation on the behaviour of others in the transactions, focusing the contextual factors that foster or depress the development and maintenance of trust (Lewicki & Bunker, 1995). Finally, the economists and sociologists have been interested in how institutions and incentives are created to reduce anxiety and uncertainty (Goffman, 1971; Zucker, 1986). However, as Bhattacharya, Devinney & Pillutla (1998) indicate when concentrating in specific aspects of the trust concept, each one of the different perspectives and disciplines provides only a partial and incomplete description of trust.

Originally, the construct was defined in uni-dimensional terms, but inductively and deductively has been demonstrated its multidimensional nature. So, in the literature we find a varied typology (Gefen, Rao & Tractinsky, 2002; Castaldo, 2003) attending to the bases on which trust is founded and the targets where trust is placed. Focusing on the contents of expectations, Parsons (1969) distinguishes between trust in the integrity of, and trust in the competence of the trustee. Chun & Campbell (1974) obtain four factors from Rotter's (1967) survey. Wright & Tedeschi (1975) get three factors in a long term study. Barber (1983) identifies three expectations as the basis for trust: expectations of the persistence and fulfilment of the natural and moral social order; expectation of "technically competent role performance" from those we interact with in social relationships and systems; and

expectations that partners in interaction will “carry out their fiduciary obligations and responsibilities, that is, their duties in certain situations to place others’ interests before their own”.

Lewis & Weigert (1985) talk about cognitive trust and value- or emotion-based trust. They introduce a typology based on the different weight of the cognitive and the emotional dimension: ideological, cognitive, behavioural and routine trust. Moorman, Zaltman & Deshpandé (1992) argue that only the co-presence of cognitive and behavioural dimensions produces “real” trust. The types of trust given by Shapiro, Sheppard & Cheraskin (1992) are based on the nature of trust antecedents and include: deterrence-based trust (or rational or calculative trust), which is based on the threat of punishment if consistent behaviour is not maintained; knowledge based trust (or cognitive trust), which occurs when each party has enough information about the other to accurately predict the other's behaviour; and identification-based trust (or normative or goodwill trust), which results when each party has fully internalized the other's preferences, so that one party may serve as the other's agent, with the other being confident that her interests will be fully protected.

Williamson (1993) in his analysis of the calculative trust links the lack of continuous calculation to a control absence. But, an element of calculation may be present in most trusting behaviour (Zucker, 1986) and the calculations weigh the cost and benefits to either the trustor or the trustee. So, trust usually is associated to a periodic and intense mutual observation (Sabel, 1993), although this not necessarily implies that all people are always calculating the benefits and costs of each action that carry out.

Other typologies associate expectations with the antecedents of trust, such as competence or ability, honesty or integrity and goodwill or benevolence of the

trustee (Barber, 1983; Blomqvist, 1997, Mayer, Davis & Schoorman, 1995). Sako's (1992, 1998) trust typology, developed for business cooperation relationships differentiates between contractual trust (will the other party carry out its commitments?), competence trust (is the other party capable of doing what it says it will do?) and goodwill trust (will the other party make an open-ended commitment to take initiatives for mutual benefit while refraining from unfair advantage taking?). Sako (1998) indicates that these three trust types can be observed as a trust hierarchy, in which to fulfil a minimum of obligations can suppose contractual trust, and observing a greater set gives rise to goodwill trust. To advance from contractual trust to goodwill trust entails a gradual expansion of the congruence on which what is an acceptable behaviour. Rethinking this typology in the intra-organizational scope could give us good insights to analyze the role of trust within the firm

3. A TYPOLOGY BASED ON TRUST TARGETS WITHIN AN ORGANIZATION

The study of any situation in an organization can be approached from three levels of analysis: the individual level, the group level and the organizational level. Different kinds of trust can arise at work using this analytic perspective based on organizational behaviour. As a result we get a trust typology (Márquez-García, 2003) differencing three possible targets in which trust can be placed: people themselves, their workmates, colleagues and managers, and the firm. This organizational and analytic perspective agrees with Lewicki and Bunker's (1995) consideration of trust as an individual characteristic, as a characteristic of the interpersonal transactions or

as an institutional phenomenon. Within each trust target we can observe a contractual, competence or goodwill basis.

3.1. Trust in oneself

From a psychological perspective it is considered that the decision of an individual to trust another one, like a voluntary option, needs a minimum level of oneself trust on the part of the implied subjects. This trust in oneself allows them to bear the potential situation of vulnerability in which they decide to incur. Therefore, previously to the decision of trusting another one, the subject that considers to trust or not to trust should decide if he/she can face that situation in which voluntarily he/she is placed.

The link between trust in others and trust in oneself is pointed out by Luhmann (1996) when argues that "men are willing to trust when they have an inner security, that is to say, when they have inherent a kind of security in themselves that enables them await with serenity possible disappointments of trust." So, trust in oneself would be a condition that would promote trust. From this perspective, trust in oneself is related to other concepts such as confidence, understood as a perception or a sign of sufficiency or security in oneself and his/her own capacity. This way, the acceptance of this potential vulnerability is not only a consequence of trusting others, but is the result of trusting oneself.

Self-trust influences the perception of personal vulnerability. Thus, the decision to trust another one can be influenced by the trust that has in himself/herself the one that decides to trust, so that the valuation of that vulnerability does not have the component of inevitability and weakness sensation or inferiority. This way, trust in oneself can be one of the conditions on which trust in others is based.

People's self-trust can be very beneficial for a firm, if each person believes in his/her own capacity, considers that he/she has much to contribute to the firm, and wishes to do it. If employees trust themselves it could reduce uncertainty associated to their work, and also it could foster cooperation among them due to their self-trust could encourage them to interact, not only among employees, but also with customers, other organizations, etc. Self-trust is relevant not only for employees, but also for managers at all levels in the organization. As much responsibility has somebody within a firm, more important could be self-trust to better managing uncertainty and to encourage cooperation.

Even more, within self-trust we can talk about contractual-based trust when people trust they can fulfil the objectives they are committed to and keep their word. Trust also could be competence-based when people trust their own abilities to still being important and competitive employees for the organization. Finally, trust could have a goodwill basis when people trust they can contribute usefully to the organization more than the firm could demand them with open and wide commitment, dedication, empathy, creativity, good work atmosphere, etc.

However, self-trust can also be detrimental for the firm. Thus, an excessive self-trust probably will separate people from the firm, when considering that he/she could get better his/her goals without the firm. But, a deficit of self-trust can limit their contribution to the firm.

3.2. Trust in others

Within the organization, according to Boss (1978) workers who trust their fellows share important information, control them rarely but, nevertheless, they let be

influenced by others. Thus, the predisposition to trust, either through an intensified cooperative behaviour, or by the tendency to accept others' decisions, takes to more effective work relationships. Also, when someone trust you it is more likely that you correspond with a more responsible behaviour

To trust other people has a motivating and positive effect both for the person who trusts in other and the person who receives this trust (Petermann, 1999). When trusting somebody one provides him/her with a greater potential and capacity to make things that without this trust deposit he/she had perhaps not considered to develop, due to a lack of own initiative or an inadequate valuation of him/her real possibilities.

Within an organization we can differentiate among relationships that take place horizontally between employees of similar level (among workers, among managers) and those vertical between managers and workers. It is necessary that trust in others takes place so much in intra-groups and inter-groups relationships. In the intra-groups relationships the greater proximity and the higher interaction possibilities can stimulate trust among their members, although competition can result in opportunistic behaviours. In the inter-groups relationships the division and gap between managers and workers can make difficult trust creation in both directions. For the firm it is very important that workers trust their workmates and also trust the management staff. Likewise, the latter should trust the others managers at different areas and responsibility levels, and also trust in workers to fulfil each one own responsibilities.

Trust can have a contractual foundation, so each party should fulfil the obligations to which it has committed to. It is necessary that workers and managers can rely on their workmates and colleagues to behave according committed terms

and conditions. It is also necessary that workers trust in managers' competence to manage the organization and that managers can trust in the employees' ability to carry out the duties that are entrusted to them. Within each group, it is also important that each manager trust in the competence of others managers in charge of different responsibility areas in the firm, and that workers trust in their work mates' competence to carry out their tasks.

Since the employees habitually do not have all the necessary information or the ability to interpret it, the decision making process must count on the trust of the employees in the goodwill of managers to make the most of market opportunities and getting the maximum profits for the firm. Equally it would be necessary among the different managerial areas in the organization. Also, it is especially recommendable that managers can trust in employees' goodwill to make an effort beyond which they could be required to benefit the organization. In the same way, it is recommended that employees' can trust their colleagues will help them beyond the agreed commitment.

To project an excessive trust in others can imply an increase of the risk of undergoing opportunistic attitudes, although also it is possible that a favourable behaviour is generated in answer to this deposit of received trust. Also, a deficit of trust towards others can avoid the consequences of an eventual opportunism, although also it can generate a less favourable behaviour.

3.3. Trust in the firm

The firm, as an artificial being created by the common will of working jointly for achieving some objectives is itself a trust outcome. An organization should be the

living proof of trust in cooperation. But trust could erode and the joint action would lose its creative and transformational potential.

When talking about trust in the firm, we can also structure it attending to its foundations. So, we can trust in the firm with a contractual, competence and goodwill basis. It is important that employees trust the organization to fulfil its commitments, such as legal, fiscal, etc., as the ones acquired with the others concerned stakeholders, so that the firm can maintain its activity. Particularly, employees and managers should trust the firm will not unilaterally rescind their contracts without enough and fair justification. Also it is important that people at the organization trust in the firm's competence as the synergic addition of everyone's individual capacities to satisfy customers' needs, to be competitive and to stay in the market. Finally, it is also recommendable that employees and managers trust that the firm is able to go beyond where it is and being more than what it is (also with a social responsibility orientation). They also should trust in the firm goodwill to maintain them as competitive and even more as they were.

If employees and managers do not trust in the firm they would diminish their commitment with the organization, and their contribution to the firm, although differently according to the trust type that is not satisfied. In this way, the absence of contractual trust in the firm will motivate the employees to actively look for a job in another firm. If they do not trust in firm's competence to stay in the market, it is very likely too that employees and managers look for more competitive companies that could offer them more guarantees of job maintenance and improvement. When they do not trust in the firm's goodwill to produce social responsibility results, it could jeopardize the presence of those more socially concerned. In any case, the smaller

trust in the firm will reduce the collaboration of employees and managers, taken them to do less than what really they could.

4. FUTURE TRENDS

From a systemic perspective and in a growing global environment, the inter-organizational analysis becomes increasingly relevant. Since the borders of organizations are more and more blurred and permeable, trust building as a task for human resource management does not have to be limited only to the own firm and the own employees, but all those that potentially could work with us in the future. The new work relationships go beyond what has been in the past. With the increase of inter-organizational relationships (strategic alliances, outsourcing, etc.) both among competitors and non-competitors, trust becomes a more relevant issue to manage these relationships where people works together but belong to different organizations. Thus, they should be no longer seen as other firms' people, but as valuable partners and colleagues. Where authority does not work, trust, leadership and power could be the more suitable tools for co-managing people within and among organizations.

In this context IT could facilitate individual work, interaction among people and all business areas operation (such as production, market research, economic and financial management, human resources management, etc.). IT allow firms to have more and better information possibilities and also facilitate interaction within relationships. Both should result in greater levels of trust and cooperation. So, further research should be advisable about the role of IT on trust, since IT do not eliminate

the need to trust because trust is oriented towards the future⁹ (Luhmann, 1996), on which the complete information is not possible. The evolution of IT and firms would go deeply into the workplace decentralization. In this new scenario trust becomes essential to manage the new organization of the future.

5. CONCLUSION

According to the literature trust plays an essential role for the success of relationships. Uncertainty reduction and cooperation are some of its desirable effects, both in the intra-organizational and inter-organizational scope. However, the variety of definitions and fields in which trust has been investigated has contributed to generate great conceptual confusion. In an attempt to clarify the trust concept some trust typologies have been proposed attending to different criteria that have allowed to advance in the knowledge of how to build trust within and among organizations.

Any organizational behaviour can be analyzed from an individual, interpersonal and organizational perspective, so the study of trust can be oriented in these three complementary views. Thus, we present a trust typology that differentiates among each person's trust in himself/herself, trust in others and trust in the organization. We think that this typology can contribute to a greater trust level within an organization, when not being exclusively focused in the interpersonal trust. Also it recognizes the relevance of trust in oneself both as a powerful auto-motivation element and as an antecedent of trust in others. Finally, also it shows the need to trust in the organization each one works for.

⁹ Trust talks about future behaviours of others, that elude the own control and therefore imply uncertainty and risk (Schlenker, Helm & Tedeschi, 1973).

This multidimensional perspective can contribute to know better the role that trust plays within an organization. This knowledge could lead to facilitate trust creation and as a result it could reduce the uncertainty and stimulate cooperation within an organization. Both total trust absence and full trust are non-real and extreme situations. The effort must go directed to stimulate the optimal level of each trust type that is appropriated for each organization in each situation, since as much a trust deficit as an excess can be detrimental.

In order to briefly analyze trust in oneself, trust in others and trust in the firm we have used their possible contractual, competence and goodwill foundations. A typology developed for inter-organizational relationships has been used to study trust within an organization to show the necessity and possibility of linking the intra and inter-organizational perspectives to improve our understanding on trust.

A more detailed analysis would have to be focused in the relationship among these three trust types and also among their foundations (Gefen, 2002) since, for instance a greater trust in oneself can favour a greater trust in others and trust in the firm. Thus, Zaltman and Moorman (1988) consider that trust in others is influenced by the personal confidence and self-esteem of the person who trusts. Also, self-trust together with distrust towards others will take more to the rupture than to the consolidation of relationships and could be detrimental for the organization. Also, among trust foundations a hierarchy could be found that advances from contractual trust to goodwill trust (Sako, 1998).

IT also could play a key role in this framework, both positive and negative. IT can rise or diminish trust due to their increasing effect of the available information and the interaction among people in the organization. The greater information

availability should affect more the rational basis of trust and the greater interaction should affect to the construction of trust with emotional basis. So, trust in oneself, trust in others, trust in the firm, and their contractual, competence and goodwill basis can be affected by the information and the interaction that IT facilitate. Anyway, trust will be reduced if the use of IT is seen as only a mean to keep people under surveillance. This way, we should rethink trust and IT in practice, considering this multidimensional view.

Summing up, the new global context requires trust (Fukuyama, 1995), but at the same time it makes more difficult trust development and maintenance within and among organizations. So, trust investment could be a more risky one, due to the increasing possibility that new relationships emerge and disappear. This result in a permanent need of internal reorganization, where trust in changing others could be complemented with greater trust in oneself and trust in the organization we work for.

Anyway, in spite of its importance and the growing literature on it, trust remains an undertheorized, under-researched, and therefore poorly understood phenomenon (Child, 2001). It remains as the magical ingredient always present in succesful relationships within and among organizations. Theories about trust could be considered easy or complex, but the practice of building trust is the real challenge for individuals, managers and firms. Success is the reward that winners will get.

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TERMS AND DEFINITIONS

Calculative trust. The trust we have as a result of the valuation of the benefits and expected costs from trust (Williamson, 1993).

Competence trust. The trust we have in others to do what they say they can do.

Confidence. The feeling by which the mind embarks on great and honourable courses with a sure hope and trust in itself (Cicero, 106-43 BC). A perception or a sign of sufficiency or security in oneself and own capacity

Contractual trust. The trust we have in others to carry out their verbal or written commitments.

Deterrence-based trust. Trust based on the threat of punishment if consistent behaviour is not maintained

Goodwill trust. The trust we have in others to make an open-ended commitment to take initiatives for mutual benefit while refraining from unfair advantage taking.

Identification-based trust (or normative trust). Trust that arises when each party has fully internalized the other's preferences, so that one party may serve as the other's agent, with the other being confident that her interests will be fully protected.

Knowledge-based trust (or cognitive trust). Trust based on enough information about the other to accurately predict the other's behaviour.

Opportunism. To make the most of a particular situation without considering others' fair interests could be damaged.

Trust. The willingness of one person or group to relate to another in the belief that the other's actions will be beneficial rather than detrimental, even though this cannot be guaranteed. (Child, 2001). Trust definitions share three common elements (Hosmer, 1995): a degree of interdependence between trustor and trustee; trust

provide a way to cope with risk or uncertainty in exchange relationships; and the belief or expectation that the vulnerability resulting from the acceptance of risk will not be taken advantage of by the other party in the relationship.

Trust building. The use of mechanisms to assure others of their capabilities, their interest in accommodating others' needs, and their willingness to fulfil promises made to others (Long, Sitkin, & Cardinal, 2003).

Trust in oneself. An inner security that enables to await with serenity possible disappointments of trust.

It is the part of a wise man to believe them no farther than right reason makes that which they say appear credible

Thomas Hobbes¹⁰

¹⁰ Hobbes, T. 1651. *Leviathan, or the Matter, Forme, & Power of a Common-wealth Ecclesiastical and Civil*, Chapter 2. Of Imagination. London: Andrew Crooke. Available at <https://archive.org/details/hobbessleviathan00hobbuoft>

CHAPTER 3:

TRUST AND COOPERATION RELATIONSHIPS:

EVIDENCE OF TRUST

MULTIDIMENSIONALITY AT INTER-

ORGANIZATIONAL AND INTERPERSONAL

RELATIONSHIPS

1. INTRODUCTION

In spite of the individual and personal origin of the trust concept, more studied in psychology as a basic feature of all the social situations that require cooperation and interdependence (Johnson-George and Swap, 1982), its applicability is recognized more and more to the organizational scope, and even to the inter-organizational one to cooperation relationships.

Habitually the literature on cooperation relationships stresses the key role of trust to favour the maintenance and success of relationships, strategic alliances and networks of small firms (Thorelli, 1986; Contractor and Lorange, 1988; Håkansson and Snehota, 1989; Smitka, 1991; Lorange and Roos, 1992; Powell, 1996; Jarillo, 1998; Sako, 1998).

This idea is attractive as much at theoretical level as practitioner (Sako, 1998, 88), since as Rotter (1967, 651) indicates in the case of interpersonal relationships, the efficiency, adjustment, and even the survival of any social group depends on the presence or absence of trust. However, it is recognized that empirically a greater investigating effort is still necessary to state this linking between trust and cooperation success¹¹.

In the case of cooperation relationships among competing firms in the market, trust existence seems more difficult to assume. Therefore, if a cooperation relationship among competitors is successful it would be possible to question what

¹¹ The valuation of the success or failure of a cooperation relationship can be highly subjective beyond the maintenance of the relationship or a greater or smaller level of fulfillment of the pre-selected targets. We also have to consider the comparison between the perception that each firm has of the own effort and the applied one by the other firms and the perception of the results that, in its particular opinion, has generated the relation for its own firm and the rest.

part of this success is due to trust, if it exists in this type of relations, or if cooperation success is possible without trust.

In this sense, through preliminary approaches to the reality of firms engaged in cooperation relationships we found that sometimes they openly declare their distrust towards part or the whole members of the relationship. In spite of it, some of these relationships stay in operation, offering outcomes that partners consider acceptable or, at least, enough so that advantages from cooperating surpass to the disadvantages.

Therefore, if according to the literature, trust is essential for the duration and success of relationships, and it is possible to find cases in which distrust between the partners is declared and, in spite of it, the relation stays, is advisable to reframe some questions. This way, if we accept the existence of lack of trust or distrust towards some firms in the agreement, we should question if it is possible to cooperate without trust, or if there is a functional equivalent that replaces it, or although other forms of trust exist which are not usually considered and that justify the maintenance of the relationship. So, first of all, it is necessary to determine exactly what we are talking about when we speak about trust at relationships between firms, if diverse types of trust exist and the possible complementary relation among them.

The use of the concept of trust, characteristic of interpersonal relations, to relationships among firms raises the doubt on its direct applicability by analogy. Auebarch (1990, p. 3) makes no difference between relations among individuals or companies when he indicates that in both cases it is necessary that each part values the probability of breach of the other partners. In this sense, according to Echeverria (2000, p. 123), one of the great contributions of Luhmann (1996) to the

understanding of trust has consisted of not to have restricted it at a personal level and to show its importance for every social systems.

According to Williamson (1993) the term trust would have to be restricted solely to the personal scope, in which control or supervision does not exist. In his analysis of the calculative trust -defined like a valuation of the benefits and expected for costs from cooperation-, he links the lack of continuous calculation to a control absence. However, Sako and Helper (1998, p. 389) indicate that at inter-organizational trust -just as it happens in the scope of the personal relations-, trust usually is associated to a periodic and intense mutual observation (Sabel, 1993), although this not necessarily implies that all firms are always calculating the benefits and costs of each action that carry out concerning the rest of partners.

So, accepting the possibility of trust in the organizational scope, sometimes the distinction between inter-organizational and intra-organizational relationships becomes so subtle that Cummings and Bromiley (1996, p. 302) talk about organizational trust as the trust degree that exists between units of an organization, or among organizations.

It seems there is an evident difference between intra-organizational and inter-organizational trust, since the first takes place between units of a same organization, and the second among organizations. Nevertheless, if we consider that a cooperation relationship is in fact a new organization¹², no longer would be possible to speak of inter-organizational trust, but of intra-organizational trust between the units of the

¹² A human group with a set of tangible and intangible resources to get a common objective. As Hobbes indicated "... there is a person when the will of many is contained in one's will". In many cooperation relationships among SMEs the decisions of the firm are strongly conditioned to the decisions of their owners who, frequently, also manage them.

new organization, with the proviso that the new organization is composed by previously independent existing organizations¹³.

Here we present a typology of trust applied to the inter-organizational and interpersonal scope to observe the multidimensional character of trust and to analyze if we could find differences in the hierarchy of these types of trust according to the scope of the relationship.

2. APPROACH TO A TYPOLOGY OF TRUST

Since we have observed previously the literature has analyzed the role of trust in cooperation relationships between companies emphasizing its positive influence to favour its development and evolution. However, the approaches habitually do not consider certain aspects which can help us to have a better understanding of the concept of trust and the role that trust plays in a cooperation relationship.

Habitually, when talking about trust it is restricted to trust that each part projects on the rest of partners of the relation (Deutsch, 1958; Rotter, 1967, 1971; Couch, 1996, 1997). Thus, definitions of trust and different typologies that we have found in the literature only consider trust that exists among the organizations that form the cooperation relationship.

However, we understand that this approach that focus trust among partners can be complemented if we extended the object on which trust to other also present elements can be projected in the interpersonal and inter-organizational relation.

¹³ According to Barber (1983, p. 22) what is true for individual subjects is also true for social systems.

According to Lewicki and Bunker (1995) the study of the trust can be framed attending to its consideration as an individual characteristic, as a characteristic of the interpersonal transactions or as an institutional phenomenon.

Associated to each perspective specific disciplines exist. The personality psychologists traditionally have considered trust as an individual characteristic (Rotter, 1971, 1980). The social psychologists have defined trust as an expectation on the behaviour of others in the transactions, focusing the contextual factors that foster or depress the development and maintenance of trust (Lewicki and Bunker, 1995). Finally, the economists and sociologists have been interested in how institutions and incentives are created to reduce anxiety and uncertainty (and this way, to increase the trust) that are associated with transactions between strangers (Goffman, 1971; Zucker, 1986).

However, as Bhattacharya *et al.* (1998, p. 460) indicate when concentrating in specific aspects of the trust concept, each one of the different perspectives and disciplines provides only a partial and incomplete description of trust.

By analogy between interpersonal and inter-organizational relations it is possible to apply each one of the three previous perspectives to the relations among organizations. Thus, the first one would consider trust from the individual perspective of each organization, that is to say, trust that it has in itself as organization. The second perspective makes reference to trust in the relations with third parties, that is to say, trust in the partners of the relation. Finally, the institutional perspective can be associated to trust in the cooperation, like institution, as a set of norms.

The aim is, therefore, to consider the context, subjects and object, in which trust arises observing from a wider perspective the elements that can contribute to

generate a greater trust capital, or to condition its appearance and utility to collaborate in improving the quality of the relationship. So, to understand the phenomenon of trust in cooperation relationships we think useful to try to include these three perspectives, giving rise to the multidimensional concept of trust that we propose. This way, we consider three possible targets in which trust can be placed: oneself (that is to say, the own firm), the cooperation relationship, and the partners of the relationship.

2.1. Trust in oneself

According to the literature, the decision to trust another supposes the acceptance of a potential situation of vulnerability in the belief that the other part will not use this fact to behave in an opportunistic form. From a psychological perspective it is considered that this decision of an individual to trust another one, like a voluntary option, needs a minimum level of oneself trust on the part of the implied subjects. This allows them to bear the potential situation of vulnerability in which they decide to incur. Therefore, previously to the decision of trusting another one, the subject that considers to trust or not to trust should itself if it can face that situation in which voluntarily it is placed¹⁴

In this sense, Petermann (1999, p. 14) shows that, in spite of the multiple concepts of trust which we can find in the literature, an important aspect that only appears expressed in the Luhmann's trust definition is the union of trust with trust in oneself. Luhmann (1973, p. 77) argues that "men are willing to trust when they have

¹⁴ We say that it must be voluntarily because there is occasions in which there is no option than to trust as a result of a situation in which there is not another election and it is inevitable to trust because there are no control possibilities. Thus, although the result is trust appearance, the way in which it arises makes it very different from trust that arises at cooperation relationships voluntarily chosen between people and independent organizations.

an inner security, that is to say, when they have inherent a kind of security in themselves that enables them to await with serenity possible disappointments of trust...". So, trust in oneself would be a condition that would promote trust. From this perspective, trust in oneself is related to other concepts such as confidence, understood as a perception or a sign of sufficiency or security in oneself and its own capacity¹⁵. Also, Zaltman and Moorman (1988, p. 17) consider that trust in others is influenced by the personal confidence and self-esteem of the person or organization who trusts. This way, the acceptance of this potential vulnerability is not only a consequence of trusting partners, but is the result of trusting oneself.

Self-trust influences the perception of personal vulnerability. Thus, the decision to trust another one can be influenced by the trust that has in itself the one that decides to trust, so that the valuation of that vulnerability does not have the component of inevitability and weakness sensation or inferiority. This way, trust in oneself can be one of the conditions on which trust in other relationship partners is based.

Keeping in mind the interpersonal origin of the trust concept, we understand that it is possible to extend the previous reasoning to the inter-organizational scope, and that can be interesting and useful to observe each firm self-trust for the analysis of their cooperation relationships. This way, we have another type of potentially relevant trust for the establishment and maintenance of relationships, distinguishing between interpersonal trust (inter-organizational, in another one) and personal trust (organizational, in oneself) applied to the relationship.

¹⁵ Confidence is that feeling by which the mind embarks on great and honourable courses with a sure hope and trust in itself. Cicero (106-43 BC.)

Transferring the concept of trust of the individual in itself to the organizational scope we understand it as the trust that the own organization has in itself, in its capacity, abilities, resources, in its own possibilities to face the evolution of the competitive environment, as well as to manage new strategies and structures. This way, and the same it happens in the individual scope, the trust level that an organization is able to declare towards another one will depend to a great extent on the trust that it has in itself to face the results of its decisions. In special it is necessary to consider the abilities to get objectives through negotiation, since in a cooperation relationship the firms must manage it without the possibility of resorting to the authority that comes from hierarchy or property.

In the case of firms without workers in which the same person is the owner, manager and worker, the extension of the concept of self-trust from the personal scope to the organizational one is more evident and less problematic. However, given the non single-member character of many firms, firm's self-trust also can be understood as trust that it has in the people, resources and capacities that compose the firm.

The trust that a firm has in itself as organization could also depend on the trust in itself of the entrepreneur/manager, as a result of his/her experience, knowledge, abilities, optimism, etc.; on the trust in the usefulness of the resources and abilities which a firm has; and on the trust in its workers, as a result of its good relation with them, their preparation, professionalism, experience, etc.

Among the key factors to decide if cooperating could be a good option Menguzzato (1992, p. 48) makes reference to "management risk" related to the availability of enough human resources, not only in number, but fundamentally in

capacities, to manage the cooperation relationship effectively. Thus, each firm must have trust in itself to face a cooperation relationship. This self-trust will not only be able to reduce the perceived uncertainty due to the cooperation environment, but also will allow each firm to advance in the consideration and respect of the rest of partners. In this sense, it is possible that each firm's self-trust would generate an "attraction effect" for other companies interested in cooperating.

Therefore, the same as it happens in the interpersonal scope, the first thing we should keep in mind to consider if the firm trusts itself, it is if really it knows itself, and has made a real inventory of the resources and capacities on which it really counts. But it is not enough with the will to make things¹⁶, but it is also necessary to take in consideration the capacity and aptitudes that hoards to do what it says it is able to do and that really it wants to do. Beyond this knowledge, self-trust can be excessive inasmuch as it is not based on objective bases.

In addition to the emotional component of trust in the own possibilities, its rational face can be found through some aspects of the organization that can be related to a greater level of trust in the capacity of the firm to face the challenges of the competitive environment. Thus, the availability of resources, necessary and suitable facilities, equipment, etc. for the development of the activity competitively appears as another basis on which to construct the trust in itself of the organization. Finally, a more intangible element to observe the level of self trust of the firms is their disposition to compete against themselves, to innovate constantly and to reformulate the basis of their competitive advantages. In general, everything what contributes to a more effective and efficient management of the organization will collaborate to increase the trust of the firm in itself.

¹⁶ They can because they think they can. Virgil (70-19 BC.)

Self-trust can be very beneficial for a relationship, if each partner believes in its own capacity, considers that it has much to contribute to the relationship, and wishes to do it, so that the cooperation relationship would be more fruitful for it as for the rest of partners.

However, self-trust can be beneficial or detrimental for the cooperation relationship. Thus, an excessive self-trust probably will separate the subject from the relationship, or it will not initiate it, when considering that it could individually get the results that obtain through cooperation, or that will not be able to get more advantages and benefits of those than at the moment enjoy. On the other hand, a deficit of self-trust can limit their adhesion to the relation due to fear of being object of opportunistic behaviours, or not considering themselves sufficiently enabled to face the management of their firms in a coordinated way with others partners, particularly in the case of competitors firms, in the new context that arises with the cooperation relationship.

Thus, it is possible that distrust among the partners comes together with a high self-trust in their own capacity to contribute with valuable resources for the relationship. So this distrust towards partners could make them value more positively the possibility of obtaining better results if they operate individually. Therefore, in a situation of relative distrust towards the partners and high self-trust of the partners it seems that it would not be possible to maintain a cooperation relationship. However, we actually find relationships that defy this logic, when continuing operating jointly in spite of that.

2.2. Trust in cooperation.

If, according to the literature, cooperation relationships that are successful and prosper in time are those in which trust exists, and considering that in some of them we can find distrust among partners, we should question which is the reason that they stay? Self-trust together with distrust towards partners will take more to the rupture than to the consolidation of the relationship. Thus, it either does not explain the maintenance of these relationships.

According to Axelrod (1986, p. 172) “the true base of cooperation is not trust, but an enduring relationship”, this permanence contributes to develop a social memory, that is to say, the capacity of each firm to remember what firm has been flexible in the past and which has been irrationally egoistic (Ouchi, 1986, p. 8).

The existence of relationships in which distrust between partners exists along with theoretical contributions like the previous one, makes suppose that it must have some additional elements that justify the maintenance of the relationship. In the search of this “ingredient” we observe that in addition to the partners in a cooperation relationship another element exists that has passed unnoticed and that we should consider in the analysis of trust in cooperation relationships.

Given that the base of cooperation resides in an enduring relationship, a form to get it is through a reliable behaviour of the partners, but fundamentally by the expectation of mutually advantageous future transactions (Axelrod, 1986).

Thus, we think that it is also necessary to consider not only the subjects in a cooperation relationship but the context in which trust arises and the object on which it is projected. This way, we think that the element that has been transparent in previous studies on trust and cooperation is the own cooperation relationship.

When two or more firms decide to establish a cooperation relationship really they are giving life to a new organization, independently it acquires or not own legal personality, a differentiated formal structure, etc.

Therefore, the projection of trust that carry out the firms in the agreement is not only on themselves and on the rest of partners, but also on the own relationship. So, trust in cooperation, in the viability and utility of the joint project for its members can be revealed like the “ingredient” that lacked to understand the role that trust plays in cooperation relationships.

According to Lane (1998, p. 2) to understand in all its amplitude the trust concept it is precise to consider trust relationships inside and among organizations. Considering a cooperation relationship as a new organization, the inter-organizational trust approaches to the intra-organizational, so that trust that workers have in their firm in the case of simple organizations can be similar to trust that partners deposit in the cooperation relationships which they are engaged.

This way, trust in the cooperation relationship can justify the maintenance of the relationship, although certain distrust exists among the partners and also appears an excessive level of self-trust that discourage them to participate in the relationship. Thus, the cooperation relationship stays because the partners trust in its utility, in its benefits and possibilities in the medium or long term, in its capacity to help them to improve collectively and individually to all the members of the agreement.

On the contrary, if they are not convinced of the potentialities of cooperation to improve their competitiveness, this lack of trust will do that the firms do not apply their better and greater effort to the relationship. Thus, it will be necessary to reframe the utility of the cooperation relationship to the partners which do not trust that it will

help them and, therefore, that are dissuaded and do not contribute of full open form with their better resources and capacities.

Among the elements on which will depend the level of trust of each firm in cooperation as an alternative of competitiveness improvement, we could find the own experience in previous cooperation relationships, and the knowledge of other firms' relationships. This way, the positive experiences will fortify trust in the possibilities of cooperation, opposed to the negative experiences, that can dissuade or it even causes desists of the idea to establish cooperation relationships.

Likewise, it also will be necessary to consider the cases in which exist absence of own or other firms' experience, like cooperation inhibitors in some cases and, in others, as responsible of the appearance of what we can call "expectations inflation" deposited in the cooperation relationship. However, cooperation will stay stable if it is superior to other alternative forms and options, like fusions, internal growth or free access to the market (Fernández, 1991, p. 37). Thus, trust in cooperation is not only relevant for its establishment, but also for its maintenance and success.

Really, trust in cooperation is really trust in the new organization which arises as a result of the agreement by which several firms decide to act jointly to obtain certain common or individual objectives

2.3. Trust in partners

Finally, it is necessary to consider trust from the habitual perspective in the economic and organizational studies, oriented to the partner of the cooperation relationship.

According to Parsons (1969, p. 128), Lane (1998, p. 4) considers that trust in the qualities that one hopes the partner has is possible to divide it in two categories that jointly determine the trust level that will be deposited in each partner individually. This way, it is possible to distinguish between the trust in the integrity of the partner and the trust in the competence of the partner¹⁷. On the other hand, Mishra (1996) introduces four different dimensions of trust: competence, openness, concern and reliability.

In any case, when talking of trust among firms it is necessary to explain previously if we are making reference to trust between organizations or trust between the individuals that compose these organizations. The organization, as an artificial being created by the common will of working jointly for achieving some objectives, can solely be committed through the legal entity that itself constitutes and which shows the legal representation of the group. This way, to commit the organization it would be precise to establish a contract between the related firms, in which the obligations and rights of each partner are detailed. However, organizations in last instance are formed by individuals and inter-organizational relationships could be seen as a set of interpersonal relationships within a context of negotiation among organizations.

Trust in partners will be influenced by the existence of a previous knowledge of the partners, either through the own experience in a previous relation, or by means of other people's experience that know the partners, or through the reputation that potential partners show in their sector.

Thus, it turns out essential to be particularly careful in the election of the partner with whom we are thinking to establish the relation, since this measurement

¹⁷ Barber (1983) later would define as fiduciary trust and competence trust.

of prevention will be one of the best forms to avoid greater problems in the future.

Fernández (1991, p. 34) indicates that one of the disadvantages that the management of the cooperation must face is the distrust among the partners, which does not seem necessary to maximize the caution in the coordination and execution of the joint activities. Cultural differences prevent, sometimes, the achievement of a minimum trust level, and are an important source of difficulties in cooperation relationships among firms, and one of the reasons that explains their high failure rate. According to Fernández (1991, p. 36) a correct selection of the members of the cooperation relationship, as well as long term relationships increase trust.

The atmosphere of mutual distrust and the dominion on the part of some partners seriously jeopardize the stability of cooperation (Perlmutter and Heenan, 1987, p. 54). The dominion takes place, for example, when for a partner the cooperation relationship is secondary, whereas for another one it is vital. So, this effort and interest asymmetry favour the possibility that a relationship fails, since as soon as one or another partner begins to feel that the situation is unjust or unequal, cooperation disappears (Ohmae, 1989, p. 106).

In the case of the trust towards another agent (person or firm) the risk for the cooperation relationship is focused in the possibility of breach in case that some of them betray the received trust. Thus, to project an excessive trust in the other partners can imply an increase of the risk of undergoing opportunistic attitudes, although also it is possible that a favourable behaviour is generated in answer to this deposit of received trust. Also, a deficit of trust towards the other partners can avoid the consequences of an eventual opportunism, although also it can generate a less favourable answer of the possible one.

As a summary, we consider that the role of trust in cooperation relationships through these three trust types:

- Trust of each firm in partners. It is the traditional trust approach transferred from the interpersonal scope to the inter-organizational one. In general, if each firm trusts the partners of the cooperation relationship it would be easier to get and develop a more successful relationship for all partners.
- Trust of each firm in itself, in its own possibilities, abilities and capacity. We can consider that, as in the personal sphere, self-trust influences trust in relations with third, in the organizational scope each firm self-trust can affect its relations with partners of cooperation relationships. This self-trust influence on the relationship can be double, one positive (I believe that it is important that my firm belongs to the relationship so that the relationship could get better its objectives) and another negative (I believe that I can get the same or doing it better individually).
- Trust in cooperation. If organizations think that cooperation can help them to really improve their competitiveness and are convinced that it is better to cooperate to get better their own objectives, we can say that trust in cooperation exists. When this trust in cooperation is sufficiently important is more probable that the relationship obtains its objectives, surpassing more easily the problems than can arise throughout the cooperation process.

3. DESCRIPTION OF THE STUDY

The aim we approached the multivariate analysis of the data obtained through questionnaires is to get evidence, using quantitative methods, of the

multidimensional character of the trust concept in the scope of cooperation relationships among firms. The primary target is to try to determine if it is possible to distinguish in three cooperation relationships the three proposed types of trust, applying quantitative methods to identify them. Thus, we will use exploratory, confirmatory factor analyses and models of structural equations using SPSS and LISREL. These techniques allow us to define constructs, to design underlying structures that try to establish relations between variables and to generate theoretical contributions from elements and relations in an incipient research phase in a given field, as well as to make classifications or taxonomies of relevant variables (Garcia *et al.*, 2000, p. 13).

Likewise, since the origin in the study of the trust comes from the interpersonal scope and its application to cooperation relationships among firms takes place like extension of the concept to the organizational sphere, and considering that we propose to replace the concept by a multidimensional construct, we think convenient to verify if in the sphere of the interpersonal relations also we can find the dimensions of the proposed typology.

In order to describe trust in the interpersonal scope, and to observe the existence or not of differences with the obtained results at the inter-organizational level, a questionnaire has been developed destined to discover the existence of the three proposed types of trust, its relation and hierarchical structuring in the sphere of the interpersonal relations. With this information we will use identical multivariate methods that in the inter-organizational case (exploratory and confirmatory factor analyses, and models of structural equations) to determine if it is possible to identify the proposed dimensions of trust as constructs and their relation, observing if differences exist according to the considered relationship.

Considering the newness of the proposed typology the reliability of the scales and subscales will be verified of several forms. First, through the study of its internal consistency, provided by the Cronbach's alpha for the items, calculated for the subscales of each type of trust and for the joint scale. Second, using the results of the factor analysis and calculating the Carmines' reliability coefficient as an approach to the Cronbach's alpha, although it tends to overestimate it. The third form in which the reliability of the scales and subscales will be evaluated will be through the composed construct reliability and its extracted variance from the parameters considered in the confirmatory and structural models, and from the loadings of the indicators and the variances of the measurement errors.

Relating to the validity, we intend to get the external validity through the complementary character of the qualitative study joint with the multivariate analysis, also with the proposal of trust multidimensionality, as well as with the extension possibilities of the multidimensional character of the proposed trust construct from the inter-organizational scope to the interpersonal one.

We can divide the internal validity in content, apparent, criterion and construct validity, and this last one in convergent and discriminant validity. We will observe if the inclusion of items representative of the dimensions of trust in the firm in itself and trust of the firm in the cooperation contributes to satisfy the validity with content of the joint scale. As far as the subscales, by means of exploratory and confirmatory factor analyses it is tried to observe and to verify the unidimensionality of the constructs that represent the proposed types of trust. For the joint scale, the analysis of their dimensionality by means of the same techniques also allows us to

state their validity of content, in the measurement in which items of the scale trust is representative sample of the elements of construct.

Relating to the apparent validity, the construction of items from theoretical reflection, consultation to experts, the personal administration of the questionnaire by ourselves improving its understanding and reducing as far as possible the distance between which it is asked and what understands who has to respond, along with the results of the cases study allow us to justify enough the apparent validity of the items included in the different scales.

With respect to the criterion validity, we understand that it will be satisfied if we obtain similar conclusions when applying qualitative and quantitative methods of study, finding in both cases evidence of the multidimensional character of the trust construct and identifying the three proposed dimensions of trust: self-trust of each firm, trust in cooperation, and trust in partners.

The construct validity will be evaluated through the study of convergent and discriminant validity. For each one of the subscales, its structure will be analyzed and its unidimensionality will be verified by means of exploratory and confirmatory factor analyses, looking for to justify its convergent validity. With respect to the joint scale, we will verify if items really represent a same general construct by means of the adjustment of a second order confirmatory model (structural). Discriminant validity will be evaluated by means of factor analysis of the joint scales if a multidimensional structure is detected, differentiating the three constructs that represent the proposed types of trust. In the same way, we will look for additional evidence by means of confirmatory factor analyses, analysing the global adjustment of the model and the adjustment of the measurement model, within a competitive models strategy.

Therefore, in the following paragraphs we present, for trust at cooperation relationships among firms as for trust in interpersonal relationships, exploratory factor analyses of the items of the subscales that group the indicators of each type of trust, and also of the joint scale to give evidence of its multidimensional character. Also, to value the adjustment of the factor model and the existence of the factors identified in the exploratory factor analyses, we made confirmatory factor analyses to verify the unidimensionality of the subscales and to corroborate the multidimensional character of the joint scale and the relation between the dimensions. In the joint scales and looking for verifying the multidimensional character of the constructs a strategy of competitive modelling is developed in which the adjustment of multidimensional models is compared to unidimensional ones for the same indicators.

In order to determine if the constructs measured by the indicators of the subscales can be considered as indicators of trust understood as multidimensional construct we develop, for the inter-organizational case as for interpersonal one, the corresponding structural models in which it is valued if it is possible to identify factors of second order that are the causes of the first order constructs as dimensions of a wider construct.

Considering we have a limited number of observations, an exhaustive analysis of the different proposed models has been made. In the confirmatory factor analyses of first and second order we use as input matrix the polychoric correlations matrix, specially indicated for the analysis of ordinal data, and the matrix of variances-covariances, more appropriated to validate causal relations from the original observations.

In order to verify the results stability we will use alternative methods of estimation (maximum likelihood –ML¹⁸–, weighed least squares –WLS- and unweighted least squares –ULS–), verifying previously the fulfilment of the necessary hypotheses of bivariate underlying normality and multivariate normality. To value the adjustment of the different proposed models it is necessary to consider that all the indices of adjustment are dependent of the sample size¹⁹, tending to be increased to the extent that sample size is greater²⁰.

Looking for an additional evidence of the multidimensional character of trust it has been asked the people interviewed for a hierarchical structuring of three representative reasons of each type of trust in its contribution to a relationship success. In case of not being different trust types, the results should have to show equality in their arrangement more than a declared hierarchy. Also, we can observe if differences in ordering exist according to the inter-organizational or interpersonal scope of the relationships.

4. ANALYSIS OF INTER-ORGANIZATIONAL TRUST

The items that integrate the questionnaire have been constructed from two different and complementary sources. First, the literature on trust in cooperation relationships,

¹⁸ It has been demonstrated that the ML method of estimation offers valid results with samples of only 50 observations (Hair *et al.*, 1999, 632).

¹⁹ In an analysis of more than thirty indices of adjustment Marsh *et al* (1988, 39) concluded that the Tucker-Lewis's index is the only one relatively independent of the sample size. Similar results obtained Bentler (1990), Bollen (1990), Fan, Thompson & Wang (1999), Fan, Wang & Thompson (1997), Hoelter (1983) and Mulaik *et al.* (1989).

²⁰ Tanguma (2001) verifies the effect of different sizes samples on the following adjustment: GFI, AGFI, CFI, NFI and chi-square, verifying that all are affected by the sample size, especially chi-square. However, CFI is most stable, followed of NFI, especially from a size of sample equal or higher to 50 observations.

organization, psychology and marketing, as well as the analysis of previous scales²¹ that look for apprehending trust as a construct from different indicators and dimensions. Second, reflection from the direct observation and the evidence obtained in the cases studies of the analyzed cooperation relationships. Given the novelty of the proposed multidimensional construct that is proposed, the cases study has been a key source of reference to elaborate the indicators.

We have developed items to measure the trust of the firm in itself (23), trust in cooperation (20) and trust in partners (24), trying to locate to the interviewee at different temporary moments of the evolution of the cooperation relationship, so much with the text of the question as with the ad hoc comments of the interviewer in each case.

This way, we counted on a total of 67 items that offers a join Cronbach's alpha of 0.8121. The 23 initial items of trust of the firms in themselves have an alpha of 0.6760, the 20 of trust in cooperation 0.7661, and the 24 of trust in partners 0.6960, enough for an exploratory study (Hair *et al.*, 1999, p. 105-106). The variables have been measured by means of 4 points Likert's scales, to avoid non-informative intermediate positioning, and avoiding increase the dimension of the scale given the size of the questionnaire and the limited number of available observations (the firms integrated in the analyzed cases of cooperation). However, in the analysis and valuation of the results it will be necessary to consider that the reduction of the rank of answers affects the factor analysis, so that a set of variables with few categories tends to obtain correlations lower than if the number of categories is elevated (Garcia *et al.*, 2000, p. 25).

²¹ Deutsch (1958), Rotter (1967, 1971, 1980), Rempel *et al.* (1985), Moorman *et al.* (1993), Morgan and Hunt (1994), Couch *et al.* (1996), Cummings and Bromiley (1996), Nyhan and Marlowe (1997), Couch and Jones (1997), Sako (1992, 1998), Sako and Helper (1998).

Considering the reduced number of cases that compose our sample we cannot face a multivariate analysis in which the number of possible variables (67) surpasses to the number of available data (59). Therefore, for each type of trust the items with a smaller correlation with the rest have not been considered, reason why once gathered the data it was come to purify the proposed measures in the theoretical model. So, the reliability of the scales (joint and subscales) has been evaluated by means of the Cronbach's alpha observing its variation when eliminating items. Complementarily to the analysis of the reliability of the scales composed by items that remain there after purifying, these items have been analyzed combining exploratory factor analyses and item-total correlations of the scale, eliminating those with low factor loadings or item-total correlations specially reduced²². This elimination of items is normal if we consider the novelty of the proposed typology, and necessary considering the number of observations.

So we get a scale of 9 items with a Cronbach's alpha of 0.7654, that can be divided in three 3 items subscales for each type of trust—the minimum size for grouping in a single factor (Garcia *et al.*, 2000, p. 22)— with the following values of the Cronbach's alpha: OST (0.7167), COOPT (0.7340) and PART (0.7252) that surpass the standard of 0.7. Therefore, we can consider reliable so much the joint scale as the subscales that compose it, since the obtained values of the Cronbach's alpha would be reduced in the case of eliminating anyone of the included variables.

The selected items for each type of proposed trust are:

OST1: To what extent do you think that it is important for the other partners
that your firm participate in the cooperation relation?

²² This procedure for purifying the scales is used by John and Reve (1982).

OST2: So that in the next years the cooperation relationship can obtain all its objectives, my firm can contribute.....

OST3: To belong to the cooperation relationship has helped you to trust more in which you and your firm is able to do?

COOPT1: Do you believe that with the cooperation relationship more advantages for the partners will be able to be obtained that the ones that it offers now?

COOPT2: Do you think that the cooperation relationship will disappear long term?

COOPT3: Do you think that in the future it is possible that the cooperation relationship obtains all the objectives that were planned?

PART1: In general, do you trust the rest of firms that form the cooperation relationship?

PART2: Do you believe that most of your partners will fulfil the commitments that imply to belong to the cooperation relationship?

PART3: Do you believe that the rest of partners would do what would be necessary in benefit of the cooperation relationship, although were not forced?

Next, and verified its applicability²³, exploratory factor analyses with items are made corresponding to each type of trust, verifying the unidimensionality of the three subscales when grouping items in a single factor, and also the multidimensionality of the joint one. Thus we verify the convergent validity of the subscales since all items is grouped in the same factor.

²³ By means of the analysis of the correlation matrix, the Kaiser-Meyer-Olkin's sample adjustment measurement and the Bartlett's sphericity test.

In the analysis of the joint scale we find that the factor of trust in cooperation is the one that explains greater proportion of variance, followed of the one which groups to items of trust of the firm in itself and, finally, by the factor of trust in partners (Table 3).

Table 3. Exploratory Factor Analysis (EFA). Factors according to its contribution to the explained total variance

1°	COOPT
2°	OST
3°	PART

The varimax rotation guarantees the discriminant validity when grouping in three factors the items corresponding to each dimension²⁴. The oblimin rotation discovers the relation between these dimensions, being the most important correlation between trust in cooperation and trust in partners (0.402), also existing between trust in cooperation and trust of the firm in itself (0.219). However, there is no evidence of correlation between the factors of trust of the firm in itself and trust in partners (Table 4).

Table 4. Exploratory Factor Analysis (EFA). Relation between factors

1 ^a	COOPT – PART
2 ^a	OST – COOPT
3 ^a	OST – PART (No evidence)

In order to corroborate these results a confirmatory factor analysis has been carried out, with the subscales and with the joint scale, using as input matrix the polychoric correlations matrix and the variances-covariances one, estimating the parameters through maximum likelihood (ML), weighted least squares (WLS) and

²⁴ We get other additional evidence of the discriminant validity of the subscales that represent each dimension when verifying that correlations between the factors which group to items of each dimension are not as high as their Cronbach's alpha (Hair *et al.*, 1999, p. 700).

unweighted least squares (ULS), verifying if the hypotheses of bivariate underlying normality and multivariate normality are adequately verified.

The models for subscales are causal saturated and recursive since the causal effects on the dependent variables go in a single direction and all the possible effects between the dependent and independent variables are introduced. In this case, in each subscale we carry out a confirmatory factor analysis with 3 observed variables (dependent) considered reflective indicators of each exogenous latent variable (independent) that represent the constructs of trust of the firm in itself (Figure 10), trust in the cooperation relationship (Figure 11) and trust in partners (Figure 12). The models for each dimension of the trust satisfy the necessary and sufficient conditions of identification.

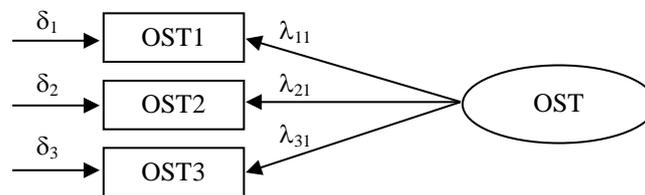


Figure 10. Confirmatory Factor Analysis (CFA). Trust of the firm in itself

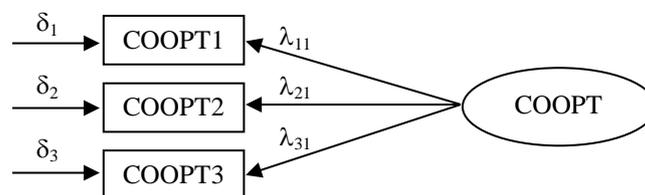


Figure 11. Confirmatory Factor Analysis (CFA). Trust in cooperation

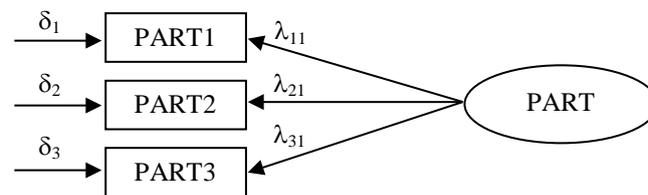


Figure 12. Confirmatory Factor Analysis (CFA). Trust in partners

In all the subscales we found good global adjustment, as well as of the measurement model, upon being relevant and significant all the loadings considered between the indicators and the respective latent variables, confirming the convergent validity. Also we get new evidence of its reliability when observing a high internal consistency, shown through suitable values of the construct composed reliability and the extracted variance, showing how the indicators measure the respective latent variables suitably.

In the case of the joint scale, the exposition of a strategy of competitive modelling allows us to confirm its multidimensionality and to obtain an additional evidence of the discriminant validity.

The multidimensional confirmatory model (Figure 13) is made up of nine observed variables (dependent) that are reflective indicators of three exogenous latent variables (independent), not predicted by any other variable, that represent the constructs of the typology of trust proposed: trust of the firm in itself (OST), trust in cooperation (COOPT) and trust in partners (PART). In model 2 (Figure 14) all the items are considered as indicators of trust construct understood as unidimensional. Comparing the adjustment of both models we determine which of them represents better the reality of our data.

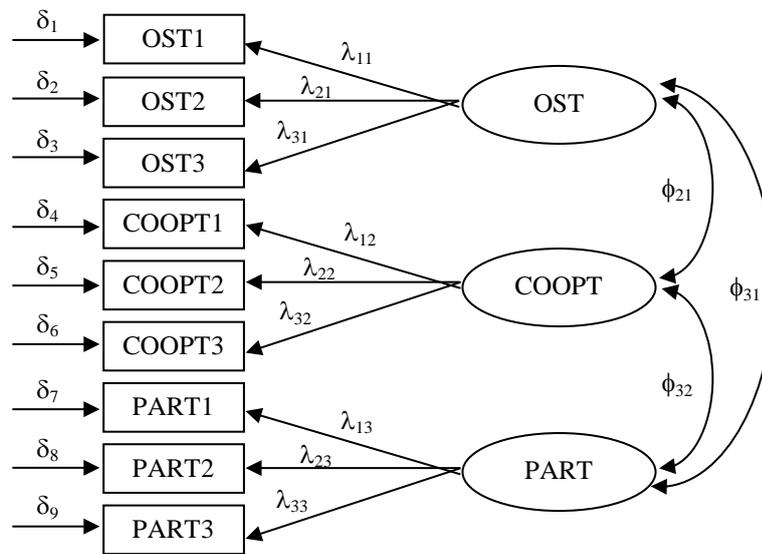


Figure 13. Confirmatory Factor Analysis (CFA). Model 1. Multidimensional trust

The model of three dimensions presents good indicators of global adjustment and significant loadings between the indicators and the latent variables, guaranteeing the convergent validity. Also the high internal consistency of the indicators is verified by means of the composed reliability and the extracted variance for each construct. For the unidimensional model the results reject the null hypothesis of good global adjustment, all the loadings are not significant and the reliability of the indicators is reduced. In any case are preferable the results of the model that considers to the indicators like manifestation of three constructs, confirming the multidimensional structure of the trust construct in the analyzed cooperation relationships.

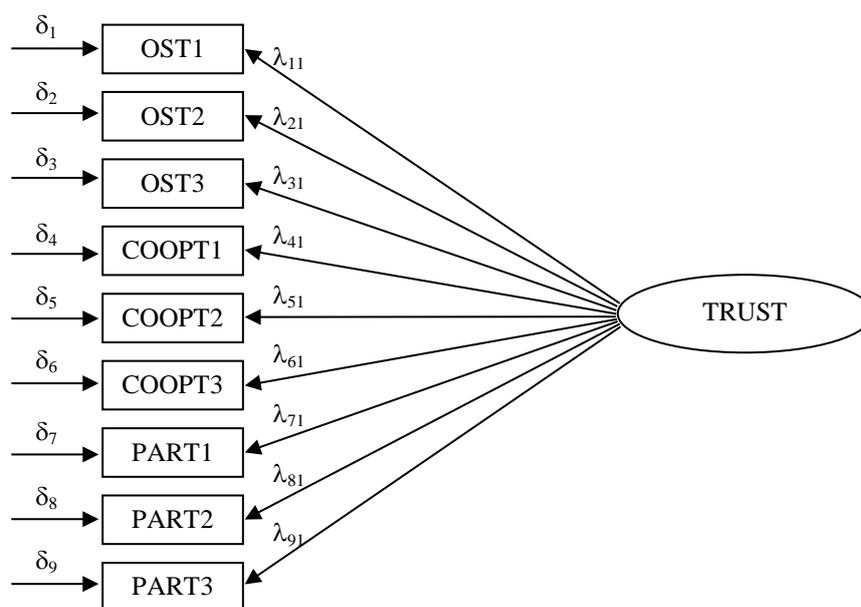


Figure 14. Confirmatory Factor Analysis (CFA). Model 2. Unidimensional Trust

Also, the estimation of the multidimensional model shows the relation between the constructs that represent the different trust dimensions. Consistently with the results of the exploratory factor analysis, and using as input matrix the polychoric correlations matrix and arranging in order the intensity of the relations based on its covariances, we find in the ML estimation the existence of significant relation between trust in cooperation and trust of the firm in itself and between trust in cooperation and trust in partners cannot be rejected, whereas between trust of the firm in itself and trust in partners it is solely relatively significant. However, in WLS estimation we find evidence of significant relation between all the constructs that represent the proposed dimensions of trust and the most intense relation takes place between trust in cooperation and trust in partners, just like in the ML estimation from the matrix of variances-covariances (Table 5).

Table 5. Confirmatory Factor Analysis (CFA). Relation among latent variables, dimensions or constructs

	ML (polychoric correlations)	WLS (polychoric correlations)	ML (variances-covariances)
1 ^a	OST – COOPT	COOPT – PART	COOPT – PART
2 ^a	COOPT – PART	OST – COOPT	OST – COOPT
3 ^a	OST – PART (relatively significant)	OST – PART	OST – PART (relatively significant)

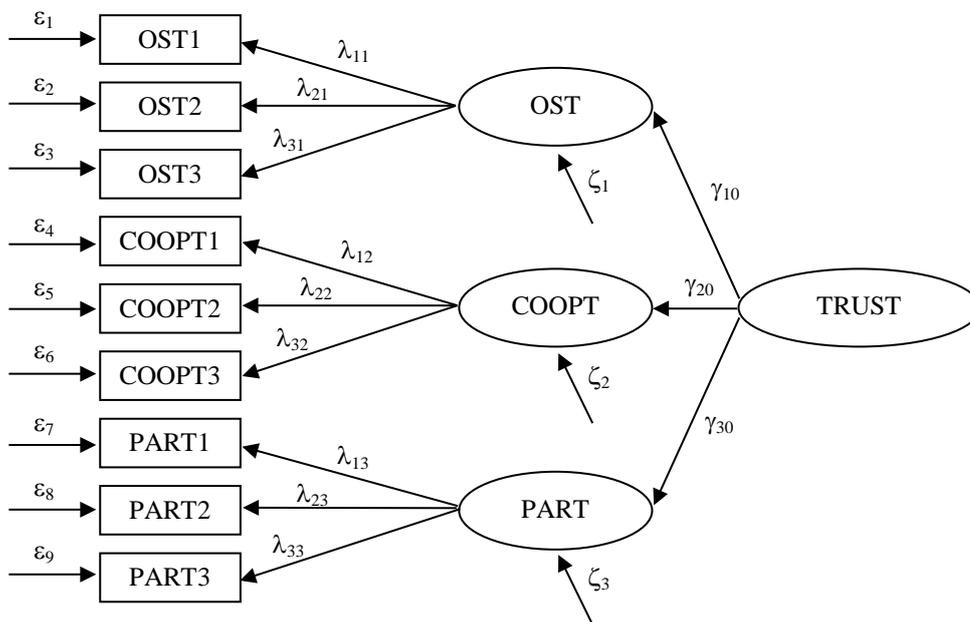


Figure 15. Structural Inter-organizational Trust Model

The structural model of trust (Figure 15) looks for verifying if the three dimensions of trust can be considered caused by a construct of superior order. Thus, we present the 9 items as indicators of 3 endogenous latent variables that represent the proposed dimensions of trust and that, as well, are indicators of trust like exogenous latent variable.

The global indicators of adjustment provide evidence of which the structural model adjusts well to the data. Evaluating the measurement model we find that all

the loadings between the latent indicators and variables are significant, as well as the parameters of the structural model²⁵.

The results indicate that trust in cooperation is the one that shares a greater covariance with the construct of second order. In the ML estimation from the matrix of polychoric correlations the dimension of the trust that follows is trust of the firm in itself and finally trust in partners, both with very similar results. However, in WLS estimation using the same input matrix and applying ML from the matrix of variances-covariances, trust in cooperation again shares the greater covariance with the construct of second order, although it is trust in partners the second dimension in importance and, finally, trust of the firm in itself (Table 6).

Table 6. Structural Analysis. Contribution to explain the construct of second order

	ML (polyc. corr.)	WLS (polyc. corr.)	ML (var-covar)
1°	COOPT	COOPT	COOPT
2°	OST	PART	PART
3°	PART	OST	OST

Among the constructs of first order, and applying ML with the matrix of polychoric correlations, the more strong relation is observed between trust of the firm in itself and trust in cooperation, with an almost identical covariance to the registered between trust in cooperation and trust in partners. The smaller relation is observed between trust of the firm in itself and trust in partners.

Using WLS from the matrix of polychoric correlations and ML with the one of variances-covariances, the most intense relation among the dimensions is observed between trust in cooperation and trust in partners, followed of the relation between

²⁵ In the ML estimation from the polychoric correlations matrix they are relatively significant. In the rest of estimations they are significant.

trust of the firm in itself and trust in cooperation and, finally, between trust of the firm in itself and trust in partners (Table 7).

Table 7. Structural Analysis. Relation between the latent variables, dimensions or constructs

	ML (polyc. corr.)	WLS (polyc. corr.)	ML (var-covar)
1 ^a	OST – COOPT	COOPT – PART	COOPT – PART
2 ^a	COOPT – PART	OST – COOPT	OST – COOPT
3 ^a	OST – PART	OST – PART	OST – PART

Therefore, we find enough evidence of the existence of the second order trust construct, being trust in cooperation the most significant dimension and the one that contributes more to the explanation of the second order construct. The analysis of the internal consistency through the composed construct reliability and the extracted variance, as much for the endogenous latent variables like for the exogenous latent variable, is sufficient to consider that the indicators measure of sufficient form the respective constructs.

5. ANALYSIS OF THE INTERPERSONAL TRUST

In order to describe trust in the interpersonal scope and to observe the existence or not of differences with the obtained results in the inter-organizational sphere, we have developed a questionnaire destined to discover the existence of the three types of trust proposed and its hierarchical structuring in the field of the interpersonal relations. Since we look for observing trust in general we do not establish restrictions or conditions to try to observe it. Thus we have selected a sample among the students of the University of Jaén (Spain) due to the possibility of having a bigger sample, administering the questionnaire during the months of June and July of 2001. We

have 552 questionnaires that represent 3.61% of the population of students at the University of Jaén during course 2000/2001.

Unlike which it happened in the case of the cooperation relationships among firms, in which was had a clear frame of reference on which to express opinions, in the sample of individuals that conform this experiment on trust in the interpersonal scope was not possible to have such common reference, reason why the questions are approached from a general perspective.

We focus this limitation, together with the possibility of having a big sample, like an opportunity to describe the proposed trust typology in its general dimension, without making reference to a special a personal situation, to a relation or concrete person, alluding solely to trust in one same one with general character (oneself trust), trust in the possibilities that the joint operation offers to reach better the own objectives (cooperation trust) and trust in possible partners of relations (partner trust).

With the same aim of observing if the multidimensionality of the trust construct is characteristic and exclusive of the analyzed cooperation relationships among firms or, on the contrary, it is possible to extend it to other relations, a set of items has been developed destined to characterize trust in the interpersonal relations differentiating the three proposed dimensions: trust of the person in himself/herself, trust in cooperation and trust in others.

Using these items as indicators we apply multivariate methods: exploratory, confirmatory factor analyses and models of structural equations looking for confirming the existence of the constructs that represent each one of the proposed dimensions of trust. This way, we could have an additional evidence to validate the multidimensional character of trust construct and the proposed typology, when

observing it as much in the inter-organizational scope as in the interpersonal one. It also allows us, to a certain extent, to avoid the limitations derived from the possible lack of representativeness of the analyzed cooperation relationships as a suitable sample of the real cooperating firm population, with the aim of extending the results.

Items have been measured by means of 7 points Likert's scales. In this case, relating to the inter-organizational one, the possibility of having a greater number of observations has allowed us to extend the size of the scale. In order to carry out the analysis a joint scale of 9 items has been developed composed by three 3 items subscales each one, through which we try to catch the proposed dimensions of the trust construct in the scope of the interpersonal relations. So we must verify that these are reliable and valid instruments. One first evaluation of the reliability we obtain it by means of the analysis of the internal consistency measured by the Cronbach's alpha, as much for each subscale as for the joint scale.

The items selected for each type of proposed trust are:

OST1: Value the trust level that you have in yourself

OST2: Do you think you have self-confidence?

OST3: I believe that I can do everything what I want if I propose it myself

COOPT1: Do you think that it is necessary to act jointly to get better your objectives?

COOPT2: Most of the times it is better to make things oneself without having to resort to anybody (inverse)?

COOPT3: Most of the times that things are carry out in common, is obtained less or more than what it is expected?

PART1: Do you think that it is possible to trust most of people?

PART2: To what extent you would trust an acquaintance?

PART3: In general do you consider yourself a trusted or distrustful person?

The subscale of trust of the person in himself/herself is the one that presents the better results with values of the Cronbach's alpha and inter-item correlation superior to the minimums standard and greater than those of the rest of subscales and the one of the joint scale. The justification of the low values in the other scales we can find it in the lack of definition of the object on which the evaluation is asked for. In the case of the scale of trust of the person in himself/herself, this frame of reference is defined for each one of the interviewees. However, in the scale of trust in cooperation this one appears in a generic way, without determining, since it was not tried to evaluate a concrete relation, but cooperation in general. Therefore, we use the items of this scale in our study from the conviction that they are indicators of trust in cooperation, as later we observe when verifying its validity, although the nature of the sample influences the reliability.

This vagueness of the reference frame that affects the reliability we also found when we evaluate the scale of trust in others, although in this case the acceptable minimum is reached for studies of exploratory character. Also we consider the reliability of the joint scale sufficient, considering in any case that the reduced number of items of the scales affects its internal consistency, since the Cronbach's alpha tends to rise as it increases the number of items. The design of a short sufficiently questionnaire as to be able to be administered to a big sample, collecting at the same time complementary data on other typologies of inter-organizational trust transferred to the interpersonal scope, did not advise us to increase the number of items of the scales.

Jointly with the analysis of reliability of the items, as much grouped as for each one of the proposed types of trust, a factor analysis of the items included in each scale has been made, in order to explore the unidimensionality of the subscales like an indicator of their convergent validity. Finally, by means of a factor analysis on the complete scale we look for if it is possible to identify the three propose dimensions, so that the concept of trust like construct can be considered formed by three dimensions. In both cases, we obtain that the identified structure agrees with the looked for one.

In the joint scale the factor that greater proportion of variance explains is the one formed by the items of trust of the person in himself/herself, followed by the one of trust in others and, finally, by the one of trust in cooperation (Table 8).

Table 8. Exploratory Factor Analysis (EFA). Factors according to its contribution to the explained total variance

1°	OST
2°	PART
3°	COOPT

Since at theoretical level we cannot reject the possible existence of correlation between the dimensions of trust of the person in himself/herself, trust in cooperation and trust in others that, according to our proposal, constitute the trust construct, we use an oblimin rotation of the factors found by means of principal components analysis to determine if relation among them exists. The more elevated correlation takes place between the factors trust in cooperation and trust in others. Also are correlated, although more weakly, the factors trust of the person in himself/herself and trust in others. We do not find evidence of correlation between the factors trust of the person in himself/herself and trust in cooperation. Looking for to state the existence of

discriminant validity also we carry out a varimax rotation obtaining orthogonal factors, not correlated, that constitute constructs with own entity (Table 9).

Table 9. Exploratory Factor Analysis (EFA). Relation between factors

1 ^a	COOPT – PART
2 ^a	OST – PART
3 ^a	OST – COOPT (No evidence)

By means of a confirmatory factor analysis as much for the subscales as for the joint scale we look for verifying the previous results. For that we use as input matrix the one of polychoric correlations as the one of variances-covariances, estimating the parameters through maximum likelihood (ML) and weighted least squares (WLS), verifying previously if the underlying bivariate normality and multivariate normality hypotheses are fulfilled.

For the subscales of trust of the person in himself/herself (Figure 16), trust in cooperation (Figure 17) and trust in others (Figure 18) we find adequate global adjustments, being also relevant and significant all the loadings between the indicators and the respective latent variables, guaranteeing the convergent validity. For the trust of the person in himself/herself, the indicators have a suitable internal consistency, measured through the composed construct reliability and the extracted variance, reason why we can consider that they measure the corresponding latent variable suitably. In the case of the trust in cooperation and in others the lack of definition of the relation of reference and those involved in the relation affects the internal consistency of the indicators again.

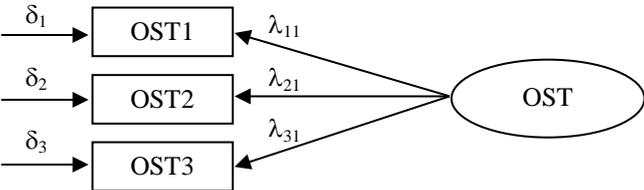


Figure 16. Confirmatory Factor Analysis (CFA). Trust of the person in himself/herself

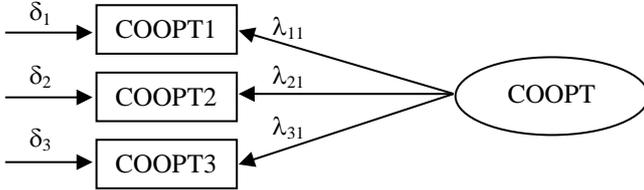


Figure 17. Confirmatory Factor Analysis (CFA). Trust in cooperation

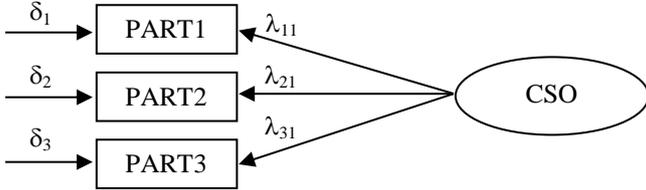


Figure 18. Confirmatory Factor Analysis (CFA). Trust in others

In order to confirm the multidimensionality of trust construct and the discriminant validity of the scale we follow a competitive modelling strategy comparing the adjustment of the proposed model of three dimensions (Figure 19) with another unidimensional (Figure 20) to observe which one represents better the reality of the analyzed data.

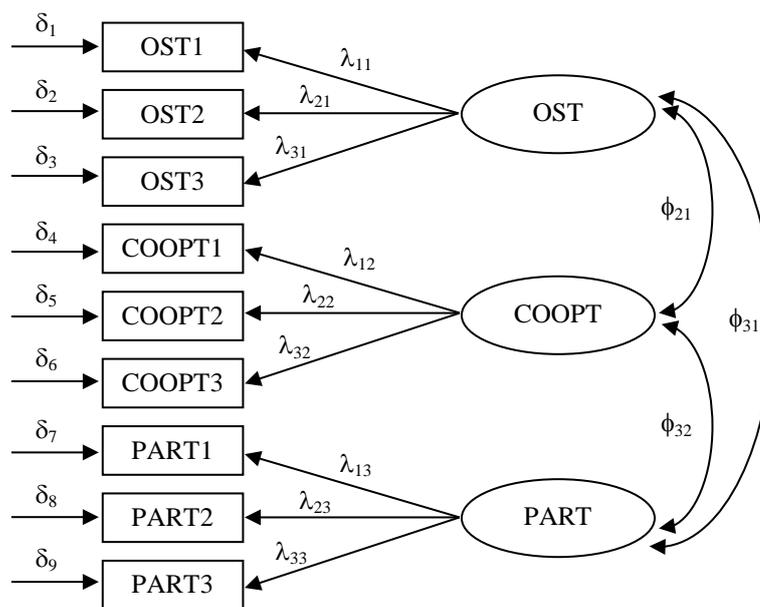


Figure 19. Confirmatory Factor Analysis (CFA). Model 1. Multidimensional Trust

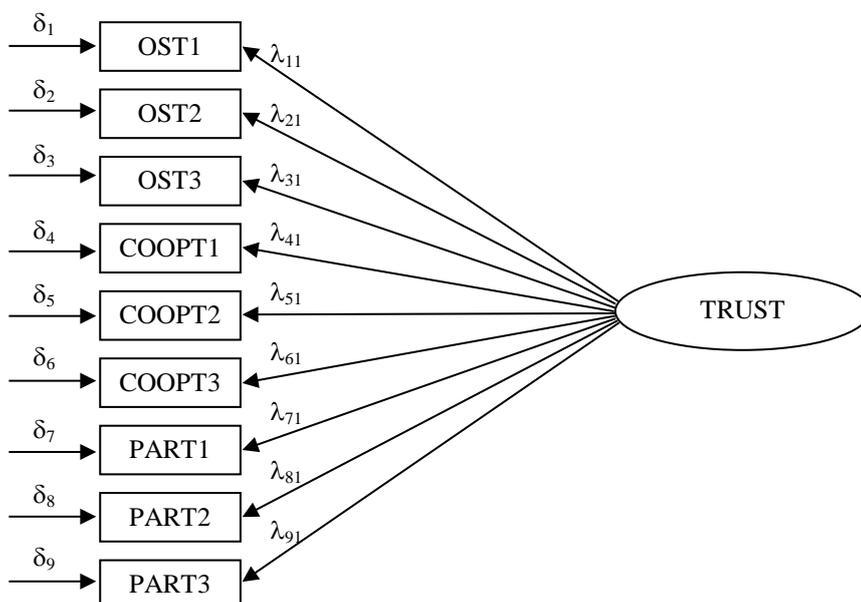


Figure 20. Confirmatory Factor Analysis (CFA). Model 2. Unidimensional Trust

Both models are recursive, not saturated the multidimensional one, and saturated the unidimensional, and fulfil the conditions necessary and sufficient to be

identified. The results do not allow us to reject the null hypothesis that the multidimensional model adjusts to the available data, confirming the proposed structure in three dimensions, since the indicators of global adjustment and the model of measurement present suitable values, unlike the results obtained from the unidimensional model.

In the ML estimations and WLS from the matrix of polychoric correlations (Table 10) we find that the existence of positive and significant relation cannot be rejected between trust in cooperation and trust in others and something less important between trust of the person in himself/herself and trust in cooperation, whereas between trust in himself/herself and trust in others it only is relatively significant.

Table 10. Confirmatory Factor Analysis (CFA). Relation between the latent variables, dimensions or constructs

	ML and WLS (polyc. corr.)
1 ^a	COOPT – PART
2 ^a	OST – COOPT
3 ^a	OST – PART (relat. signif.)

Since the subscales of trust in cooperation and trust in others present an inferior internal consistency to the recommended minimum to be a valid measurement of the respective constructs, the convergent validity has been verified additionally analysing its level of correlation with other variables with which they would have to be correlated if they really measure what it assumes that they are wanting to measure. For the subscale of trust in cooperation the more or less individualistic character of the interviewee is used as testing variable, considering that it must to be an inverse relation with trust in cooperation. The coefficient of correlation by ranks of Spearman confirms this negative and significant correlation at

level 0.01. In the case of the scale of trust in others we verify its validity observing if an inverse relation with the perception of others opportunism exists, obtaining a negative and significant correlation.

Subsequently, we present a structural model of interpersonal trust to verify if the three proposed dimensions of trust can be considered caused by a construct of superior order that represents the interpersonal trust (Figure 21).

As much by means of ML as WLS, the global indicators of adjustment show that the structural model adjusts well to the data and the parameters are significant, in the model of measurement like in the structural model. Trust in cooperation is the one that shares a greater covariance with the construct of second order, followed of trust in others and trust of the person in himself/herself (Table 11).

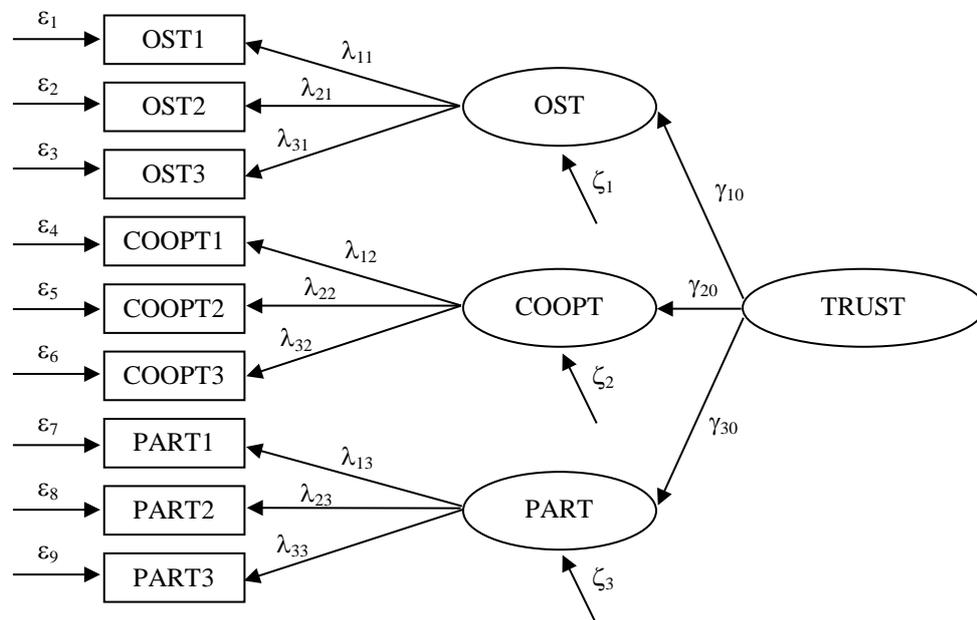


Figure 21. Structural Model of Interpersonal Trust

Table 11. Structural Analysis. Contribution to explain the second order construct

	ML and WLS (polyc. corr.)
1°	COOPT
2°	PART
3°	OST

Between the constructs of first order, the strongest relation, of positive character, is observed between trust in cooperation and trust in others (Table 12). Also it exists, although weaker, between trust of the person in himself/herself and trust in cooperation, being practically inestimable between trust in itself and trust in others.

Table 12. Structural Analysis. Relation between the latent variables, dimensions or constructs

	ML and WLS (polyc. corr.)
1°	COOPT – PART
2°	OST – COOPT
3°	OST – PART

So, we find evidence of the multidimensional character of trust in the interpersonal relations as a second order construct, being trust in cooperation the dimension that more contributes to explain it. The analysis of the internal consistency and the extracted variance for the exogenous latent variable of second order show that the indicators measure of sufficient form this construct, although both measures must improve for the endogenous latent variables trust in cooperation and trust in partners.

In general, we find evidence of the existence of the second order construct “interpersonal trust” and, in any case, it is possible to differentiate at least the three proposed dimensions.

6. ADDITIONAL EVIDENCE: HIERARCHICAL

STRUCTURING OF THE TRUST DIMENSIONS

Since our main objective is to determine if it is possible to differentiate between the three proposed types of trust (trust in oneself, trust in cooperation and trust in others), and with the intention to obtain an additional evidence of the proposed typology to analyze relations, as much in the personal scope as in the organizational one, a hierarchical structuring of three representative reasons of each dimension of trust in its contribution to the success of a relation has set out.

The questions are the following for the inter-organizational and interpersonal relationships:

Value by importance order how do you think that the following aspects influence so that a cooperation relationship could get better its objectives (indicate with 1 the most important one, with 2 the second, and with 3 the less important one).

- That each firm has trust in itself (in which it can help so that all win)
- To be convinced that with the cooperation relationship all firms can improve
- To be able to trust the partners

So that a relation could be successful, what can be more important? (Please, fill it for love, friendship and work relations, indicating with 1 the reason that you think more important, with 2 the following one and 3 the less important one)

- To believe that one can contribute something good to the relation
- To be convinced that it is good to establish that relation
- To be able to trust the other part of the relation

In a first stage we interviewed 198 individuals mentioning exclusively the term relation, without specifying if it should be a personal or professional relation and, finally, to 354 people differentiating between personal love and friendship relations and work relations. All the possible arrangements of the reasons in the formulation of the question have been combined, verifying that this one does not influence the hierarchical structuring that we get.

The results in the interpersonal scope (Table 13) differ from the obtained ones in the inter-organizational scope (Table 14) and suggest the determining factor in the great majority of the cases is trust in the other part of the relation (PART), followed of the conviction of which, personally, something good can be contributed to the relation (OST).

Table 13. Relevance of trust types in interpersonal relationships

Interpersonal relationships	OST	COOPT	PART	N
Without specifying	The second most important 61,62%	The less important 58,59%	The most important 74,75%	198
Love	The second most important 51,13%	The less important 49,44%	The most important 70,06%	354
Friendship	The second most important 45,76%	The less important 45,76%	The most important 57,91%	354
Work	The most important 38,98%	The second most important 35,03%	The less important 37,01%	354

Table 14. Relevance of trust types in inter-organizational relationships

Inter-organizational relationships	OST	COOPT	PART	N
	The second most important 41,38%	The most important 63,79%	The less important 56,90%	59

The comparison among the proportions that consider more important trust of the firm in itself, trust in cooperation and trust in partners in each one of the analyzed cooperation relationships does not allow reject the equality of proportions. Therefore, the hierarchical structuring remains stable independently of the considered cooperation relationship.

Summarizing the arrangement of reasons that favour the success of a relation, we compare which is considered more important for each type of relation, which is second in importance and less important, in personal relations without specifying its character (PR), personal relations of love (LPR), personal relations of friendship (FPR), personal relations of work (WPR) and cooperation relationships among firms (CR).

Graphically we observe how in the scope of relationships among firms the arrangement is different from which takes place in the land of the personal relations. Thus, among firms the most important trust (Figure 22) for the success of its relation is trust in the common project, followed by self-trust of the firms and, finally, by trust in the other parts of the relationship.

On the contrary, in personal relations trust in the other part is the determining element for the success of the relation, except in the relations of work in which trust in oneself is considered most important, although barely differentiated from trust in the relation and trust in the other part.

Contrasting with what we have just observed, when analysing the second reason that is considered more important for the success of a relation (Figure 23), it exists greater homogeneity between the different types of relations. Thus, as much in the relations among firms, like in the interpersonal ones, trust in oneself occupies the second place in consideration. This difference is not observed clearly only for work relations, in which great homogeneity in the hierarchical structuring of the three

reasons exists. However, as we saw in the previous graph, trust in oneself is the element that is considered key for this type of relations.

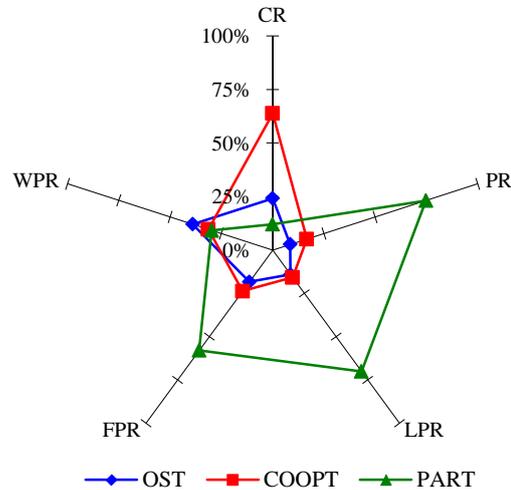


Figure 23. The most important trust type for a relation success is...

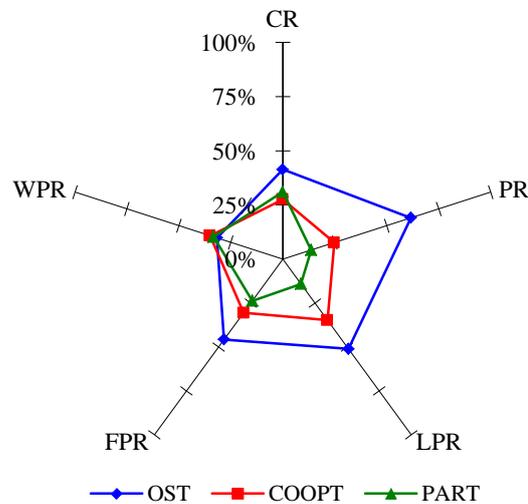


Figure 24. The second most important trust type for a relation success is...

Finally, we observe what reasons have been placed last in importance for the success of each one of the considered relations (Figure 24). Thus, we find again the difference between relations among firms and people, since in the first the less

important element is trust in the other part, whereas in the personal relations field it is trust in the utility of the relation the one that is considered less important for its success.

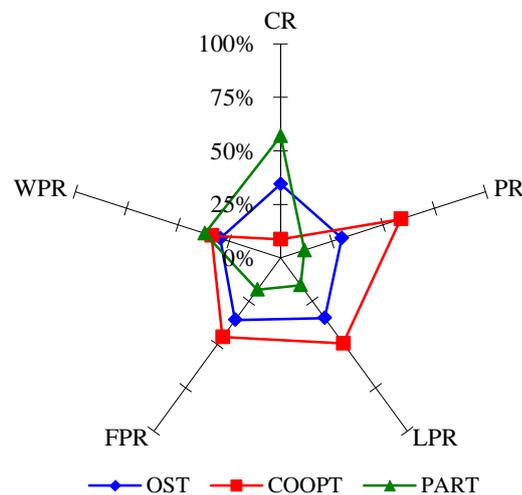


Figure 25. The less important trust type for a relation success is...

Again in the interpersonal relations of work it is where we find greater answer homogeneity in the hierarchical structuring. It could be explained by the lack of direct habitual work experience of most of the interviewees, giving rise to little differences in the arrangement of the three types of trust. This result also allows us to guarantee the differentiated hierarchical structuring that is observed in the rest of interpersonal relations, in which the interviewees have a direct personal experience.

In any case, this proposal of hierarchical structuring of representative reasons of each type of trust shows evidence of the existence of the proposed trust dimensions, since in case of not representing different aspects its distribution would be more homogenous and uniform.

7. RESULTS AND CONCLUSIONS

Our objective has been focused in identifying trust in cooperation relationships as a multidimensional construct, differentiating three basic dimensions: trust of the firm in itself, trust of the firm in the cooperation relationship and trust in the partners of the relationship. Also, and given the interpersonal origin of the trust concept, we have looked for evidence in these relations of this multidimensionality.

For it, based on the literature, the theoretical reasoning and the study of cases, we have developed items that try to observe the proposed dimensions constructing subscales for each one and a joint scale adding all items. The reliability and validity of these scales and subscales have been verified.

In order to use modelling techniques such as confirmatory factor analyses and structural equations models a big number of observations is demanded, being recommended at least 200, or ten times the number of parameters to estimate. The confirmatory analyses of the subscales are within this second limit when having almost sixty observations and considering six parameters by each one of them.

In order to facilitate the application of the multivariate techniques in the case of analysing a reduced number of observations, the dimension of the scales in the inter-organizational questionnaire has been limited to avoid the dispersion of the answers.

This limitation derived from the reduced number of observations for the application of some multivariate techniques has been tried to palliate by means of complementary analyses and the use of multiple methods of estimation that give coherence to the results. In any case, we understand that the applied techniques (exploratory and confirmatory factor analyses for the joint scale and subscales, using

competitive modelling strategies and confirmatory second order models) provide sufficient evidence of the multidimensional character of trust and the relations between these dimensions at inter-organizational and interpersonal relationships.

In spite of having a small sample, inferior to the habitually recommended minimum to apply techniques based on models of structural equations, we obtain sufficiently suitable results. The reduction of the dimension of the scales, the process of selection of variables from the initial set, as well as the existence of common reference frameworks in the answers when analysing to all the members of the cooperation relationships, can justify the viability of the applied techniques, as well as they help to explain the good adjustment obtained in the proposed models.

In scope of cooperation relationships among firms the exploratory factor analysis identifies that trust in cooperation is the more relevant, followed of trust of each firm in itself, whereas trust in partners is the one that smaller proportion of total variance explains, as much in the oblimin and varimax rotation.

The oblimin rotation indicates that the factors of trust in cooperation and trust in partners present the higher –positive- correlation, followed of the positive relation between trust of the firm in itself and trust in cooperation. However, evidence of relation between trust of the firm in itself and trust in partners is not obtained.

The confirmatory factor analysis of the joint scale for the proposed multidimensional model corroborates the previous relations between the dimensions. In the case of the estimation using WLS evidence of positive and significant relation between all the types of trust is obtained, whereas using ML the relation between trust of the firm in itself and trust in the partners is only relatively significant.

The structural model confirms that the construct of first order trust in cooperation is the one that more contributes to explain the inter-organizational trust

as construct of second order, followed of trust in partners and in the firm itself²⁶. The relation between the constructs of first order shows the same results that the obtained ones with the multidimensional confirmatory model. Thus, the greater relation is observed between the constructs trust in cooperation and trust in partners, followed of the relation between trust of the firm in itself and trust in cooperation. The smaller relation is between trust of the firm in itself and trust in the partners²⁷.

Analysing the results of the study in the interpersonal scope we find differences with respect to the observed in the inter-organizational one. Thus, the factor that more total variance explains is trust of the person in himself/herself, whereas at inter-organizational level it is trust in cooperation. As much in the oblimin as in varimax rotation is trust in partners the second factor that more variance explains.

When analysing the relation between the factors we find that the relation between trust in cooperation and trust in others in the interpersonal model agrees as the more relevant relation with the one of the inter-organizational model. In the interpersonal scope the following relation in importance is obtained between self-trust and trust in others, whereas evidence of relation between the self-trust and trust in cooperation is not obtained.

By means of confirmatory factor analysis we find again the same similarities commented previously in the inter-organizational model. The relation between the

²⁶ Only in the ML estimation from the matrix of polychoric correlations the previous arrangement changes, being the trust of the firm in itself the second in contributing to the explanation of the second order construct.

²⁷ Again in the ML estimation with the matrix of polychoric correlations it changes the hierarchy of the relations, being first the existing between trust of the firm in itself and trust in cooperation, followed of the relation between trust in cooperation and trust in partners and, finally, of the relation between trust of the firm in itself and trust in partners.

constructs of first order of the structural model reveals the same hierarchy in their arrangement that the obtained one in the multidimensional confirmatory analysis.

So, we get evidence of the proposed trust typology through suitable quantitative techniques that allow us to understand better the role of trust in cooperation relationships. Therefore, trust in partners is not the only relevant trust form, but it seems to be trust in cooperation the key factor for getting a successful relationship, and it is also necessary to keep in mind the role of each firm self-trust.

The focus on trust in partners in the analysis of trust in cooperation relationships should be a consequence of the interpersonal origin of trust concept, where we can observe that it is more relevant. However, we find differences in the arranging in order of trust types between the interpersonal and inter-organizational relationships suggesting that what really matters in a cooperation relationship is mainly trust in cooperation. If partners do not trust their common project trusting in partners will not be so relevant. Considering a cooperation relationship as an organization it needs that its members have compatible goals that could be achieved jointly, so partners should first trust in cooperation for improving their own competitiveness. After that, trust in partners is also very important to define the governance and control mechanisms, and self-trust to value the own contribution to the relationship.

More research is needed to avoid the limitations of this research and to get additional evidence of the existence and usefulness of this trust typology in the inter-organizational and in the interpersonal scope. Thus, we could get another evidence to observe the relations between trust types and their hierarchy in both spheres. Also we think very interesting to use this typology to observe which type of trust is more

relevant at each stage of the cooperation process, so we could foster it in order to promote the cooperation success.

Theoretically, the origin of the proposed types of trust is justified if we consider that trust in partners comes from specific literature on trust in cooperation relationships, as an extension of the concept from the interpersonal scope to the inter-organizational one. In the same way, trust of the organization in itself also comes, by analogy, from literature on psychology that considers it applied to the individual subject, transferring it to the organizational subject, to each one of the organizations that participate in the relationship.

Finally, trust in cooperation comes from the observation of the real evidence of cooperation relationships in which trust between the partners does not exist, and even exists distrust and, in spite of it, the relationship stays. The answer can be the trust in the common project, in cooperation. Also, it is possible to base trust in cooperation keeping in mind that a cooperation relationship is a new organization which needs the conviction of all its members in relation to the possibility and necessity to obtain the planned objectives for the cooperation relationship. This way, trust in cooperation could be understood like an extension of trust of the organization in itself, justified in psychology, at the organizational scope considering the cooperation relationship like a meta-organization.

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The advantage to mankind of being able to trust one another penetrates into every crevice and cranny of human life: the economical is perhaps the smallest part of it, yet even this is incalculable.

John Stuart Mill²⁸

²⁸ Mill, J. S. (1848). *Principles of Political Economy with some of their Applications to Social Philosophy*. Book I, Chapter VII. On what depends the degree of productiveness of productive agents. London: Longman, Green, Longman, Roberts & Green. Available at <https://archive.org/details/principlesocial01mill>

CHAPTER 4:

TRUST TYPES AND IT IN THE PROCESS OF

BUSINESS COOPERATION

1. INTRODUCTION

Theoretically it is stressed the importance of trust as a basic feature of all the social situations that require cooperation and interdependence (Deutsch, 1958; Blau, 1964; Lewis & Weigert, 1985; Zucker, 1986; Gambetta, 1988) and, therefore, as a key variable for business cooperation, even as the most efficient governance mechanism (Arrow, 1974). Nevertheless, reference is usually made to the relationship between both concepts considered in a global way, so that the existence of trust among members is observed in successful relationships and it lacks in those relationships that do not get success (Nielsen, 2004).

We intend to contribute to the knowledge of this matter from an analytic perspective breaking down both concepts. First, we consider business cooperation from a dynamic point of view, analysing its process, from the initial decision to cooperate, members' election, the agreement negotiation and its structure, the management of the relationship, the outcomes evaluation and the possible evolution of the relationship. Therefore, when we analyse the effect of trust on cooperation we will analyse its role throughout each one of the cooperation stages. Nevertheless, it is also necessary to break down the trust concept. In fact, in the literature we find a varied typology attending to the bases on which trust is founded and the targets where trust is placed.

Considering cooperation as a dynamic process and trust in its different types, the analysis of the relation between trust and cooperation acquires a new perspective that can offer interesting insights to improve the knowledge of the role that trust plays in cooperation relationships (Nielsen, 2004) as an alternative or complementary

coordination mechanism to control. Using this analytic and dynamic focus we intend to analyze the role that information technology (IT) can play in the stages of the cooperation process and its influence on the different types of trust.

Since IT can facilitate to access better information and increase interaction possibilities, its previous or ad hoc adoption on the part of the companies that decide to establish a cooperation relationship modifies the context in which its process is developed and the role that trust can play. This way, we wonder if IT reduces the need of trust increasing the possibilities to control the cooperation, what types of trust can be more affected for IT, if IT can generate trust that favour the relationship, what it is necessary so that members trust in IT, etc. We will also analyze the possible slowing down effect of IT in the construction of some types of trust. In this sense, we consider that it is possible the appearance of “electronic barriers” that could hinder the strengthening of some types of trust from a certain level of IT adoption. This effect can be bigger as the cooperation relationship is sustained in an exclusive way in the usage of IT. As prior research has elicited, deep trust relationships are easier to build up when there is a face-to-face interaction between the subjects involved in the relationship. Even in the most bureaucratic, impersonal environments, human interaction may help to establish a deep-rooted trust relationship. In this case, a strict electronic interaction may prevent to achieve the critical mass of face-to-face contacts that allow trust building. In sum, it could be worthy to analyse the relationship that arises between the mix of the face-to-face vs. electronic interaction and the type and level of trust that may be developed. In this relationship several contingent factors may play a specific role, such as personality traits (flaming), power balance among interlocutors, the non-virtual social network in

which the individual is embedded, the type of technology being used and even national cultural differences.

2. BACKGROUND

2.1. Business cooperation as a dynamic process

Cooperation is considered as a key element for business management success and it is achieving an increasing importance nowadays within the increasing complexity in which business are immersed (Piore & Sabel, 1984; Powell, 1991; Ring & Van de Ven, 1992; Smith, Carroll & Ashford, 1995; Sydow, 1996; Lane, 1998; Márquez & Hernández, 1998). In spite of the literature that exists on the matter it is still stressed the necessity to go more deeply into this topic study and understanding. In this sense, it is considered that a dynamic perspective of the cooperation process is necessary to contribute to a deeper knowledge of the factors that influence in the success and failure of a cooperation relation.

As Smith, Carroll & Ashford (1995) point up cooperation relationships develop through a number of stages that according to Parkhe (1998) determine its life cycle. According to Doz (1996), cooperation can be defined as an interactive and iterative cycle of learning, reappraisal and fit. In general, this process is divided into three phases: formation, implementation, and evolution (Lorange & Roos, 1992; Child, 1998). Formation stage includes the initial decision about forming an alliance, potential partners' selection, negotiation and agreement (contract).

Although cooperation relationships are reported when the firms involved sign the agreement, the cooperation process extends before and after this moment (Menguzzato, 1992; Márquez-García, Fuentes-Lombardo, & Bruque-Cámara, 2006).

Previously it is necessary that each potentially involved company in the agreement decides if it is advisable or it does not for each one to establish a collaboration relation to better achieve its own objectives.

Also, it is necessary to determine the profile of the partner or partners more suitable to collaborate in the attainment of the objectives through the cooperation relationship. Also, potential partners interchange mutual expectations in order to achieve their objectives through cooperation. Partners also define the formal or informal cooperation structure, according to their respective needs and expectations. In spite of the importance that has been granted to the cooperation structure, Gomes-Casseres (1998) considers that it is less important that the initial decision to cooperate and the partner selection²⁹.

There is some experimental evidence that knowing others' preferences can help coordination. Experimental economists have also reported the robust finding that preplay communication leads to greater cooperation, even in situations where game theory suggests that such communication is no more than cheap talk (Ledyard, 1995). One reason for this may be that preplay communication facilitates the formation of a group identity.

But it is not enough to fix some objectives and design strategies to achieve them but the way of managing the relationship is a key point to achieve better results. To maintain firms' motivation to cooperate and to develop some type of leadership that contributes to group efforts are important aspects to consider. Communication channels should be kept open along the whole cooperation's life and along all the organizational levels involved in the cooperation agreement.

²⁹ The strategy (the initial decision to cooperate) determines partner selection, and following the partners determine the structure of the cooperation relationship.

As time passes, cooperation outcomes are compared with the expectations placed in it, as well as the relation between the contribution and the results obtained by each firm is evaluated. As a consequence of the cooperation management and evaluation, the partners will decide about probable next steps regarding maintenance, transforming or ending up the cooperation agreement. According to Ring & Van de Ven (1994) there are feedbacks loops in this process whereby the partners evaluate their experience and decide whether to continue their cooperation and, if so, in what form.

Menguzzato (1992) indicates that a quite common error in cooperation management is to expect short term results, in spite of fixing objectives in the long term. This dissonance can lead some partner to consider that the cooperation will not be as beneficial as hoped, thus dissuading partners for next contributions, jeopardizing the real possibilities of cooperation success.

According to Axelrod (1984), the foundation of cooperation resides in the relationship's durability. A form to achieve an enduring relation depends on a reliable behaviour of the implied parts, but basically on the expectation of mutually advantageous future transactions. Therefore cooperation evolution must be seen as a necessary element to understand the cooperative behaviour.

2.2. Trust concept and types

Most of the trust definitions tend to agree that trust concerns the willingness of one person or group to relate to another in the belief that the other's actions will be beneficial rather than detrimental, even though this cannot be guaranteed. In the interpersonal scope, Deutsch (1962) conceives trust as an observable behaviour that

(a) increases the own vulnerability, (b) happens with respect to a person that is not subject to a personal control, (c) and that is chosen in a situation in which the possible damages that can arise when the other takes advantage of the own vulnerability are greater than the benefits than can be obtained from this behaviour.

Sabel (1993) indicates that trust is the mutual confidence that no party to an exchange will exploit another's vulnerabilities. According to Sako (1998, p. 89) "trust is an expectation held by an agent that its trading partner will behave in a mutually acceptable manner (including an expectation that neither party will exploit the other's vulnerabilities)". This expectation narrows the set of possible actions, thus reducing the uncertainty surrounding the partner's actions (Luhmann, 1996). Although according to Hosmer (1995) there is no agreement on a trust definition, in most cases they share three common elements: a degree of interdependence between trustor and trustee, trust provide a way to cope with risk or uncertainty in exchange relationships, and the belief or expectation that the vulnerability resulting from the acceptance of risk will not be taken advantage of by the other party in the relationship (Lane, 1998). Maybe, one of the simplest definitions considers that "trust is anticipated cooperation" (Burt & Knez, 1996, p. 70). However, in spite of its importance trust remains an undertheorized, under-researched, and therefore poorly understood phenomenon (Child, 2001).

2.3. Trust relevance in cooperation relationships

According to Lane (1998, p. 1) "...both the steep increase in the number and variety of exchange relations and the increased complexity and uncertainty of the business environment cannot be handled without the presence of interpersonal and/or

interorganizational trust". Thus, literature on cooperation usually reports the importance of trust both to favour the success of relationships, strategic alliances and networks companies and to make its maintenance possible, to such an extent that affirms that "the key ingredient in a successful alliance is trust" (Thorelli, 1986; Contractor & Lorange, 1988; Håkansson & Snehota, 1989; Smitka, 1991; Lorange & Roos, 1992; Kramer & Tyler, 1996; Powell, 1996; Jarillo, 1998; Ostrom, 1998; Sako, 1998; Child, 2001; Márquez & Casani, 2001).

Given that the association between trust and cooperation success, authors are exhorting increasingly firms to create trust as a mean to improve business management (Macaulay, 1963; Arrow, 1974; Sako, 1998), to obtain competitive advantages (Barney & Hansen, 1994; Jarillo, 1988; Mohr & Spekman, 1994), and as an essential component to make eventual successful relationships (Hosmer, 1995; Blomqvist, 1997). Also trust gives rise to more rapid innovation and learning (Sabel, 1994).

However, when establishing a causal relationship between trust and a successful cooperation relationship comes up the problem of trying to delimit which of both is the cause and which is the effect. This way, it is possible to consider that trust is the cause of a good atmosphere in the relationship that facilitates cooperative behaviour and objectives attainment (then, trust is a determinant of the quality of cooperation relationships) (Anderson & Weitz, 1989; Anderson & Narus, 1990; Mohr & Nevin, 1990). Nevertheless, it can also be argued that trust among members is a consequence of the cooperative behaviour that can arise without an apparent previous trust exists among members (then, trust is a feature of good cooperation relationships) (Dwyer & Oh, 1988; Crosby, Evans & Cowles, 1990; Anderson,

Lodish & Weitz, 1987). Child (1998) eludes the problem proposing a virtuous cycle which reinforces both trust and the cooperation which it nurtures.

Along with trust, control is pointed out (Dekker, 2004; Das, 2001; Das & Teng, 1998; Nooteboom, 1996) as a key factor in the success of alliances between companies, although it is not clear if trust and control can act jointly or they are alternative mechanisms (Faulkner, 1999). On the one hand, it is stated that the existence of good control systems increases trust and they are necessary to obtain good results. On the other hand, it is indicated that if trust exists control systems are less necessary, reducing the cost to watch the partners and making more probable that the alliance produces competitive advantages. According to Williamson (1993) extensive control and monitoring procedures may reduce the need for trust, but they hardly eliminate it. In addition, if we consider that control talks about the past and trust refers to the future³⁰ (Luhmann, 1996), the impossibility to have perfect information on the future makes trust necessary. From an integrated perspective, Faulkner (1999) considers that some combinations of trust and control support effective and efficient cooperation, while other combinations will limit the successfulness of cooperations. This ambiguous relation between trust and control seems to reveal the multidimensional character of both constructs, so the analysis focusing on their different dimensions is more relevant.

According to Faulkner (1999) control can be analyzed throughout three dimensions: its magnitude or level, its approach and its mechanisms, providing a scheme to analyze control in an alliance³¹. Considering trust and control as

³⁰ Trust talks about future behaviours of others, that elude the own control and therefore imply uncertainty and risk (Schlenker, Helm & Tedeschi, 1973).

³¹ Based on the four dimensions of Geringer & Hébert (1989): control level, control scope, control type and control mechanisms.

functional equivalents we can analyze trust from this multidimensional perspective (Figure 25).

It is often argued the existence or not of trust, as if it was a decision between two discreet values (0 = trust absence), (1 = total trust), when in fact they are extreme ideals of a continuum. In the same way, reference is made to trust without specifying its object, without specifying what it trusts, when a same agent can trust another one in a certain subject and not do it in another one, based on its relevance or on the damage that can suffer in case of seeing broken his/her trust. Finally, to complement trust analysis also it is necessary to consider the mechanisms that sustain it, which are the bases on which it settles down and it develops.

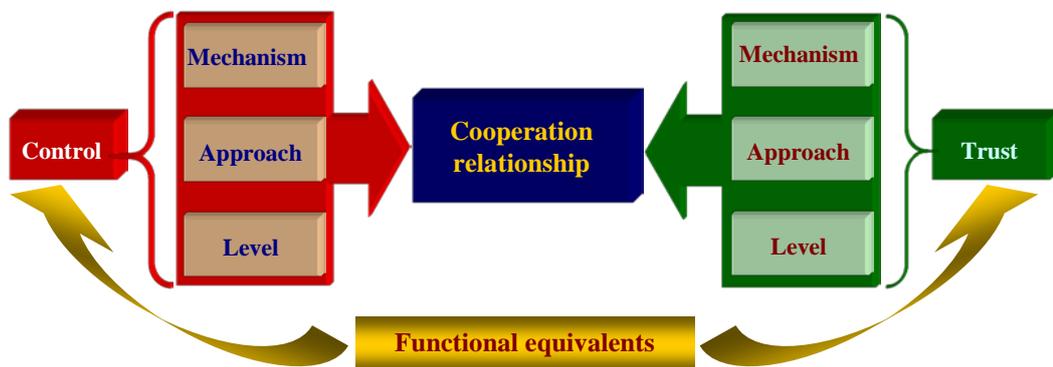


Figure 26. Relationship between control and trust as functional equivalents

2.4. Trust mechanisms

Personality psychologists traditionally have considered trust as an individual characteristic (Rotter, 1971, 1980). Social psychologists have defined trust as an expectation on the behaviour of others in the transactions, with special attention to the contextual factors that foment or depress the development and maintenance of trust (Lewicki & Bunker, 1995). Finally, economists and sociologists have been

interested in how institutions and incentives are created to reduce anxiety and uncertainty (and in this way, to increase trust) associated with transactions between strangers (Goffman, 1971; Zucker, 1986). However, as Bhattacharya, Devinney & Pillutla (1998) point out when concentrating in specific aspects of the concept, each one of the different perspectives and disciplines provides only one partial and incomplete description of trust.

Trust can be considered from an interpersonal, institutional or systemic perspective, although any theoretical approach must consider it globally as a multidimensional social reality (Lewis & Weigert, 1985, p. 967) able to join these perspectives. Within this triple perspective we can fit Couch, Adams & Jones' (1996) classification when talking about global trust (systemic), partner trust (interpersonal) and network trust (institutional, the network is the institution that allows trust to emerge and stay). Although the interpersonal dimension is a key to understand trust, to take into account the characteristics of the organizations and the present business setting is essential to understand how trust is constructed within and between organizations.

The study of interpersonal trust has a long history within psychology (Deutsch, 1958; Rotter, 1967). To trust, as it is observed from social psychology, implies to stand oneself voluntarily in a potentially vulnerable position in relation to another one, having some knowledge of that other that inspires us trust in his/her goodwill, or his/her good intentions (Luhmann, 1979). When the interpersonal transactions are reduced, or when the personal communication is not possible, trust will take the form of institutional agreements (Granovetter, 1985; Zucker, 1986; Shapiro, 1987; Huemer, 1994, p. 693).

Unlike the interpersonal trust, the institutional trust (Zucker, 1986) and the systemic one (Simmel, 1950; Luhmann, 1979, 1988; Barber, 1983; Giddens, 1990) talk about an impersonal trust, considering the context in which it is developed. Between both last trust types, Lane (1998) indicates as the main difference the fact that systemic trust is trust in an abstract system, whereas institutional trust talks about to certain institutions as trust sources. According to Zucker (1986) institutional trust does not represent so much a different level of analysis as a different mechanism to produce trust. It is a type of trust that does not depend on the interpersonal familiarity and a common history, but on that the fact to count on formal structures socially generated and legitimized. It is likely to emerge when there is exchange across group boundaries and hence significant social distance between groups, when there is exchange across geographical distance, and when there is exchange involving a large number of interdependent, non-separable transactions. For both Luhmann and Zucker, structural properties or institutions form the basis or provide support for trust production in more complex societies, and according to Zucker (1986) institutional mechanisms to develop trust can be bought on the market. Luhmann (1979) defines system trust as trust in the reliable functioning of certain systems, which no longer refers to a personally known reality. System trust is built up by continual affirmative experiences with using the system. Trust in abstract systems refers to abstract societal properties which make a society appear more or less stable and predictable. Fukuyama (1995, p. 7) considers that trust has a cultural basis that includes the system as a whole: “a nations’s ability to compete is conditioned by a single, pervasive cultural characteristic: The level of trust inherent in a society.”

2.5. Trust approach

Breaking down the trust concept, in the literature we find a varied typology attending to the bases on which trust is founded and the targets where trust is placed. Focusing on the contents of expectations, Parsons (1969) distinguishes between trust in the integrity of, and trust in the competence of the trustee. Barber (1983) identifies three expectations as the basis for trust: expectations of the persistence and fulfilment of the natural and moral social order; expectation of technically competent role performance from those we interact with in social relationships and systems; and expectations that partners in interaction will carry out their fiduciary obligations and responsibilities, that is, their duties in certain situations to place others' interests before their own.

Lewis and Weigert (1985) talk about cognitive trust and value- or emotion-based trust. The types of trust given by Shapiro *et al.* (1992) in the field of personal relationships include: deterrence-based trust, which is based on the threat of punishment if consistent behaviour is not maintained (rational trust); knowledge based trust, which occurs when each party has enough information about the other to accurately predict the other's behaviour; and identification-based trust, which results when each party has fully internalized the other's preferences, so that one party may serve as the other's agent, with the other being confident that her interests will be fully protected.

In the organizational scope Dasgupta (1988) and Chiles & McMackin (1996) differentiate calculative trust and cognitive or morally-based trust. Mishra (1996) introduces four dimensions: competence, openness, concern and reliability. Sheppard

& Tuchinsky (1996) adopt Shapiro, Sheppard & Cheraskin's (1992) trust types applying them to the organizational field: deterrence, knowledge and identification-based trust. According to Lane (1998) these types of trust roughly approximate to calculative, value-based and cognition-based trust.

The dimensions of trust more used when referring to business cooperation relationships are Sako's ones (1992, 1998), who differentiates between contractual trust (will the other party carry out its contractual agreements?), competence trust (is the other party capable of doing what it says it will do?) and goodwill trust (will the other party make an open-ended commitment to take initiatives for mutual benefit while refraining from unfair advantage taking?). Sako (1998) indicates that these three trust types can be observed as a trust hierarchy, in which to fulfil a minimum of obligations can suppose contractual trust, and observing a greater set gives rise to goodwill trust. To advance from contractual trust to goodwill trust entails a gradual expansion of the congruence on which what is an acceptable behaviour.

Considering elements from the interpersonal trust literature Faulkner (1999) distinguishes among calculative trust, predictive trust and friendship trust in business alliances. Calculative trust: one partner calculates that the other can help it and trusts the other in the hope that matters will work out well. An element of calculation may be present in most trusting behaviour (Zucker, 1986) and the calculations weigh the cost and benefits to either the trustor or the trustee. Predictive trust: one partner comes to believe that the other will behave as it says it will, since it has been as good as its word in the past. Friendship trust: here the partners get to like each other as people, and trust takes on a more personal aspect. Successful alliances do not need

friendship trust to be successful but if it exists alliances are likely to be more robust and flexible when problems arise.

As Sako (1998) indicates in his hierarchical structuring of the trust types and it is also deduced of the Faulkner's (1999) classification, the greater knowledge of the partners allows trust to evolve from a type to another one. In this sense Child (1998, 2001) for the case of the international collaboration considers that trust evolves through three phases: calculation (being prepared to work with you), understanding (getting to know you) and bonding (coming to identify with you as a person). But bonding cannot sustain trust if partners consider that the calculative or cognitive basis of their cooperation has disappeared.

2.6. Trust level

According to Gambetta (1988) trust can be defined as a particular level of the subjective probability with which an agent assesses that another agent or group of agents will perform a particular action, both before he can monitor such action (or independently of his capacity ever to be able to monitor it) and in a context in which it affects his own action. So, trust can be measured using a range from 0 to 1, where 0 represents complete distrust and 1 represents complete trust. Blind trust is an example of complete trust where one agent has complete trust in another no matter what. The higher the level of trust the higher the likelihood of cooperation, but cooperative behaviour does not depend on trust alone, and the optimal threshold of trust will vary according to the occasion. Thus, the trust level depends on the implied parts and on what each firm is betting. When little risks is easier to trust and vice versa.

Attending to the trust level, Barney & Hansen (1994) differentiate among “weak form”, “semi-strong form” and “strong form” trust. The weak form of trust appears because there are limited opportunities for being opportunist. It arises not because contracts nor partners’ commitments exist to be trustworthy, but because there are little possibilities of behaving opportunistically.

The semi-strong form of trust arises when the organizations are protected of the possibility that some partners behave opportunistically to make the most of the others’ vulnerability (due to adverse selection, moral risk, cheating, etc.), through certain control mechanisms. Thus, in the presence of the appropriate control mechanisms, if the cost of the opportunistic behaviour is greater than its profits, it will be rational for the partners’ own interest to behave in a reliable form. This type of trust is, according to Hill (1990), the more used in most of the interchange models.

The strong form of trust appears due to a set of norms and internalized principles that guide partners’ behaviour. Thus, opportunistic behaviour would violate values, principles and standards of behaviour that have been internalized by the partners in a relationship. This type of trust arises independently from important or not important vulnerabilities exist and regardless of these vulnerabilities can or not to be protected through certain control mechanisms.

Barney & Hansen (1994) indicate that only the strong form of trust can be source of competitive advantage, since it is more difficult to imitate than the weak form or the semi-strong one. In addition, the strong form is less expensive for firms since in this case it is necessary less protection throughout government structures.

An excessive trust in the other part can imply an increase of the risk of undergoing opportunistic attitudes, although also it is possible that a favourable

behaviour is generated in answer to this received trust. In a similar way, a deficit of trust towards the other part can avoid the consequences of a possible opportunism, although also it can generate a less favourable answer.

3. IT AND TRUST IN THE PROCESS OF BUSINESS

COOPERATION

IT has become one of the motors of the economic and organizational change in the last decades. The weight of computer, robotic and telecommunications technologies in the developed countries during the last four decades has reached usually figures higher than 7% of the GDP. Also, it has been esteemed that in the last years of the 20th century IT has contributed to a 33% of the growth of the Western economies (Gual & Ricart, 2001).

Changes in technologies and market structures have shifted competition among organizations to a global level. This has resulted in the need for new organizational structures. Traditional organizational structures are not appropriate for the new business trends because they evolved in response to different and older competitive eras. In the information era, a responsive IT infrastructure is crucial to the flexibility and constantly changing needs of a business organization. This turbulent business environment is forcing organizations to re-evaluate totally their processes and structures, indicating an increasing need for networking and cooperative arrangements (Athanasios, 2003).

Although as a whole the impact of IT has been extensively studied, at organizational and even individual level, there still are many questions that arise or are related to the form of adopting, managing and renewing IT in organizations.

Among them, one is how IT influences the different levels and types of trust³² that arise in a business cooperation relationship and other is about IT role on the process of business cooperation.

Since it has been shown throughout the phases of the cooperation process, communication is essential from the initial decision to cooperate, the selection of potential partners, the negotiation and structure definition, management, evaluation and relationship evolution. IT allows increasing the possibilities of accessing to more and better information, when increasing its diffusion and favouring its accessibility, without substantial costs increasing. Also IT allows increasing the chances of interaction between the agents who use these technologies, reducing the response times and facilitating a more agile and dynamic communication. Altogether, IT use allows firms to manage in a globalized context, whereas blurring geographic barriers and facilitating the connection and collaboration with other agents.

On the other hand, trust globally considered has revealed as an active factor in the process of technology adoption and implantation that concurs to certain process of collaboration relationships. However, the researchers' aim on the effect of trust in IT settings has tried to identify this relation at a global level, without considering the components that make up trust. So, we will analyze separately the influence of IT on trust dimensions and their relation with the phases of the process of business cooperation (Figure 26).

³² "More knowledge-intensive products and a more information-based mode of production, necessitating more sharing of often sensitive information, have made trust a highly desirable property" (Lane, 1998, p. 1).

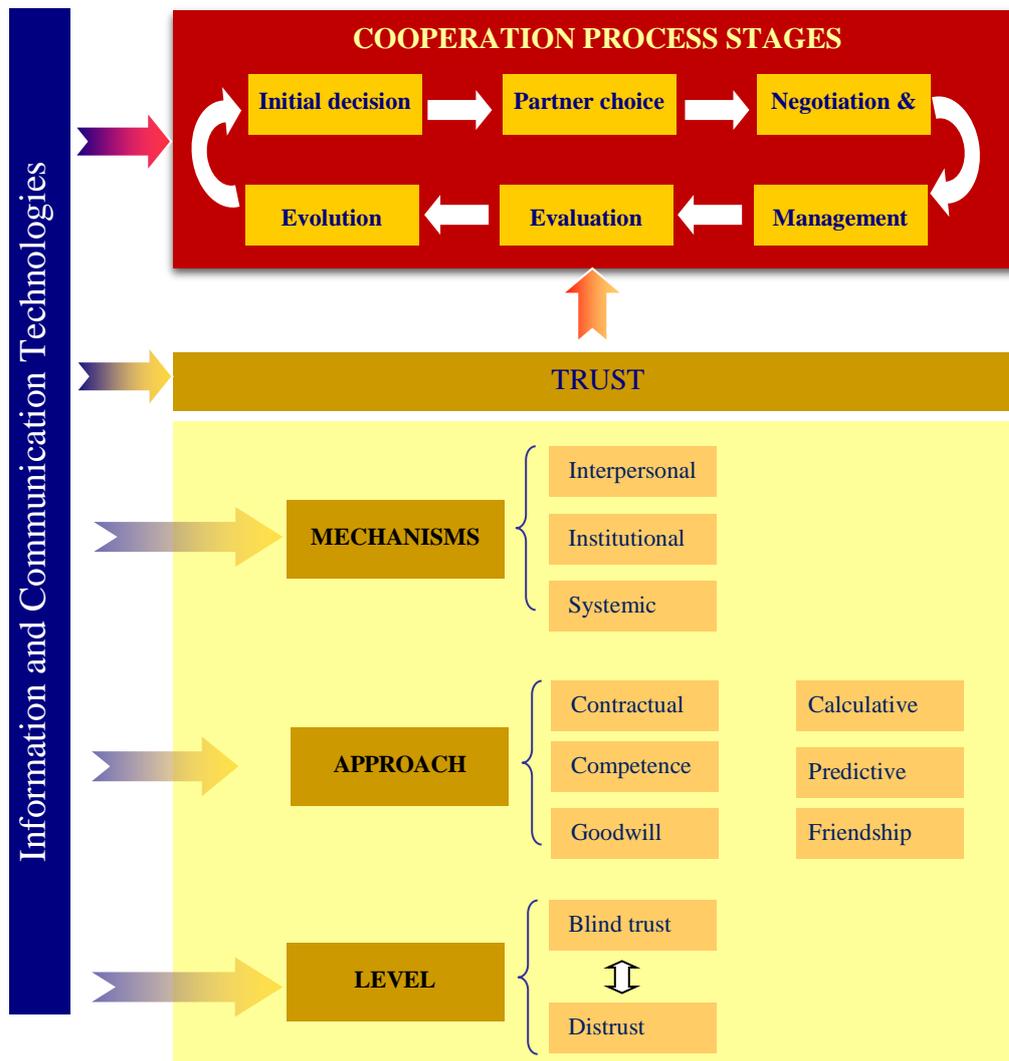


Figure 27. IT, cooperation process stages and trust dimension

3.1. IT role on trust

The analysis of the relationship between trust, generically considered, and IT has aroused researchers' interest during the last decades due to the positive relation that usually is recognized between trust and information (Fishmann & Khanna, 1998).

Burt & Knez (1996) study trust between individuals embedded in a broader social network and their results suggest that trust is increasing in the frequency of

interaction between the two parties involved. Therefore, the influence of IT on trust not only resides in the possibility of accessing to more and better information, but it facilitates the interaction with minimum time and place restrictions and without a significant cost increasing, such as contacts by email, messenger, Voice over IP (VoIP), videoconference, etc.

Information systems can offer complete information about the past and predictions and projections on the future, but the future behaviour of the agents to whom a company can be related to is still subject to uncertainty in spite of IT use. Therefore, always there will be margin for trust. In this sense, Lewis & Weigert (1985) consider trust as a function of incomplete information. According to Granovetter (1992) when we have complete knowledge about something trust is not necessary because it is replaced by rational calculation; and when nothing is known there are no rational bases on which to construct trust, reason why in conditions of total ignorance it is only possible to have faith. Therefore, trust will be able to arise in the continuum that represents the interval that goes from total ignorance to total knowledge. However, both extreme situations are utopian and unreal.

Although trust needs reliable history as background, trust is more than an inference from the past. Trust requires going beyond passed experience by going beyond the information that one receives (Luhmann, 1979; Rempel, Holmes & Zanna, 1985; Huemer, 1994). Trust begins where rational prediction ends³³ as trust bridges the information uncertainty (Arrow, 1974; Luhmann, 1979; Barber, 1983; Zucker, 1986; Gambetta, 1988; Lorenz, 1988; Nooteboom, 1993; Lane, 1998).

³³ Trust is a functional alternative to rational prediction to reduce complexity. Trust reduces complexity faster and economically than prediction. In fact, trust is successful where single rational prediction could fail, because to trust is to live as if certain possible rational futures will not go to happen. Without trust, the monstrous complexity that raises the contingent futures would paralyze the action (Lewis & Weigert, 1985).

Therefore, to trust supposes, in Simmel's (1950) words, to go beyond where the reason could only guarantee, and the disposition to make this type of commitment in conditions of imperfect knowledge does not only depend on situational elements, but also cultural ones (Fukuyama, 1995; Sako, 1998).

In this way, trust between two business partners (supplier and client, competitors pertaining to an alliance, technology vendor and client company) also has influence on the final adoption of IT on the part of the firms that take part in the relationship (Natovich, 2003; Jennex & Adalakum, 2003). Trust can perform an important function before and during the implantation process of a certain technology (Premkumar, Ramamurthy & Crum, 1997). Thus, diverse previous works aim at that a previous trust relationship among partners creates the appropriate climate so that these firms' managers that take part in a cooperation relationship decide to risk financial and human resources (besides the own reputation) in the investment in new technologies (Premkumar, Ramamurthy & Crum, 1997; Santos & Pfeffers, 1998; Teo & Pian, 2003).

In order to comment the relationship between IT and trust we will use the previously presented analysis scheme in which the approaches, mechanisms and levels can be distinguished in the study of trust.

3.2. IT and trust approaches

IT and interpersonal trust. Two elements are necessary so that interpersonal trust exists: risk and some information on the individual which one will trust on or the specific situation in which trust will appear³⁴. The greater communication that IT

³⁴ Luhmann (1979) defines personal trust as based on familiarity and taking things for granted.

make possible favours the access to more and better information on the other part of the relationship. Also, the greater interaction possibilities that IT allows, eliminating the geographic restrictions, increase the frequency of communication, thus reducing response time. In this way it is possible to contribute to the arising of trust personal relationships that serve as a basis to establish more solid relations among the firms to which each individual works for.

Some theoretical reasoning (Bolton, 1991) suggests that face to face communication allows parties to understand and empathize with one another, which affects the utility each places on the other's outcome and contributes to the building of idea th trust. Valley, Moag & Bazerman (1998) interpret their experimental results as providing evidence for the at face-to-face communication appears to contribute to trust-building by increasing the incentive for truth-telling. In their experiments, verbal exchanges emphasized the interpersonal aspect of communication in ways that other communication mechanisms did not. The theoretical reasoning and experimental evidence suggest that the act of information exchange through two-way communication media is more likely to be the source of an information-trust correlation than is information exchange through one-way communication media. So the arising of trust through electronic means depends on the degree in which users accept the use of electronic equipment in their work (Chen & Dhillon, 2003; Keat & Mohan, 2004; Kim & Prabhakar, 2004).

IT and institutional trust. According to organization theory it is considered that inter-organizational relationships go beyond the agents who create or break them (Barney & Hansen, 1994). Trust is institutionalized in the mechanisms of decision

making, and it is perpetuated by means of control systems that reward reliable behaviour. Trust types will be affected by the institutional environment in which they operate. In her study of trust production and destruction in the United States, Zucker (1986) discusses a number of institutions that facilitate trust production.

Online reputation mechanisms are emerging as a promising alternative to more established mechanisms for promoting trust and cooperative behaviour, such as legally enforceable contracts. As information technology dramatically reduces the cost of accumulating, processing and disseminating feedback, it is plausible to ask whether such mechanisms can provide an economically more efficient solution to a wide range of moral hazard settings where societies currently rely on the threat of litigation in order to induce cooperation. Comparing online reputation to legal enforcement as institutional mechanisms in terms of their ability to induce cooperative behaviour we find that although both mechanisms result in losses relative to the maximum possible social surplus, under certain conditions online reputation outperforms litigation in terms of maximizing the total surplus, and thus the resulting social welfare (Bakos & Dellarocas, 2003).

IT and system trust. Although to trust always supposes to face the problem of insufficient information on the trusted object, for Luhmann (1979) the knowledge acquisition on the structural properties that one shares with others surpasses the need for information and provides supports to construct trust. IT provide information on these structural properties to fortify the trust in the system, at the same time that represent an additional element of the structure that is shared with others. Among

others, problems of security and privacy that affect to the transactions in the electronic world represent a challenge for the construction of trust in the new virtual system.

3.3. IT and trust mechanisms

IT and contractual trust. The role of IT in the configuration of the contractual trust must be to facilitate both parts knowing the terms of the agreement, particularly other's obligations. For example, it is usual that office computer systems as well as intranets serve to spread own and partners' obligations among the members of the organization with greater capacity to judge the reliable will of the company with which it is desired to cooperate. Thus, it is possible to increase the trust in that partners which will fulfil the contractual agreements. IT may foster information spreading during the stages of the contractual relationship, improving information previous to signing, easing the conditions under which negotiation is developed and providing new forms of guaranteeing contractual terms (Amit & Zott, 2001; Águila, Bruque & Padilla, 2002).

IT and competence trust. More interesting is the relation that can appear between the use of IT and competence trust. Current inter-organizational networks as well as the Internet can serve as a basis to know with greater guarantees each potential partner trajectory, its organizational structure, its economic and financial achievements and its production structure. This information could be useful to know the real partners' competencies. In this sense, an important advance has taken place as a consequence of the progressive implantation of the denominated inter-organizational information systems, by means of which the internal flows of

information are linked with the ones of the commercial partners, suppliers, clients or technology providers. So, it is necessary that the partners involved in the cooperation agreement allow a transparent access to the own information systems as well as to the ones that are created ad hoc when cooperation starts.

IT and goodwill trust. This trust type has greater subjective connotations, due to the not strictly rational links that arise between cooperation partners. The role of IT in this links has been subject of controversy, because it is not yet clear if relationships mediated by electronic means facilitate, or inhibit, the positive responses related to the goodwill or the commitment among people or organizations. In any case, the effect of IT on partners' goodwill trust can depend to a great extent on the own psychological characteristics of the people who lead the cooperation relationship. In this sense, it turns out interesting to indicate that the intensive use of IT can be seen as a positive attribute, able to harmonize partners' visions and, therefore, to inspire the goodwill in the relationship; but also as a negative attribute, promoting distrust among agents who prefer face-to-face relationships and the use of means that allows direct verbal and nonverbal interactions (body-language, touching, etc.). The age, common values sharing (Cazier, Shao & St. Louis, 2006), the individual social environment (Bruque, Moyano & Eisenberg, 2006), the time of previous contact with the technology or personality traits tending to technological introversion can explain the presence or absence of goodwill as an element of trust in cooperation relationships (Kiesler, 1986; Bruque, 2002) in which electronic means are used.

IT and calculative trust. According to Williamson (1993, p. 463), calculative trust – defined as a valuation of the expected benefits and costs from cooperation is “a contradiction in terms” and the term trust should have to be restricted solely to the personal scope, in which control or supervision does not exist. Nevertheless, for Sako & Helper (1998, 389) inter-organizational trust –as it happens in the scope of personal relationships- usually is associated to a periodic and intense mutual observation (Sabel, 1993), although this not necessarily implies that all firms are always calculating the benefits and costs of each action that carry out with respect to the rest of firms. IT can play a notable role in the configuration of calculative trust, since they can increase the volume of available information. Thus, cooperation partners can increase their analysis capacity on the future behaviour of the other partners in the cooperation relationship, by means of the information available through electronic means, external data bases, inter-organizational information systems and interpersonal communication devices.

IT and predictive trust. Current information systems, both intra-organizational and inter-organizational, also allow to increasing the available information and the interaction among partners, so it facilitates the arising of predictive trust. As an example, tracking systems of the partners’ past economic and financial behaviour can serve as a valid precedent in the conformation of a solid predictive trust or, on the contrary, in the final rejection of the possibility of cooperating.

IT and friendship trust. The same what it happened with Sako’s goodwill trust, we find greater difficulties to explain IT role on friendship trust. The function that,

potentially, IT can develop can be limited by the own character of the friendship trust, focused in the informal relationship among the individuals that participate in the cooperation relationship. Again, the organizational psychologists and sociologists do not agree to conclude if the electronic intermediation favours, or makes difficult, the maintenance and development of friendship bonds that underlie friendship trust nor if information technology usage is favoured by a high orientation towards information technology within the individual's friendship network (Bruque, Moyano & Eisenberg, 2006). Research results suggest that the construction of friendship relationships through electronic means seems to be influenced by diverse contingencies (participants' personality, age, type of technology, previous image of the individuals with respect to the technological change, etc.). Moreover, diverse studies affirm that technological settings, under certain circumstances, can give rise to phenomena like the "*burnout syndrome*" and techno-stress, circumstances that do not help to establish a solid friendship bond (Salanova & Schaufeli, 2000).

Altogether, IT can increase or diminish trust due to their increasing effect of the available information and the interaction among partners. At first, it is expected that the greater information availability affects more the types of trust with rational basis (calculative and contractual) and the greater interaction affects to the construction of trust with emotional basis (goodwill and friendship). Both, competence trust and predictive trust can be affected by the information and the interaction that IT facilitates (Fig. 27).

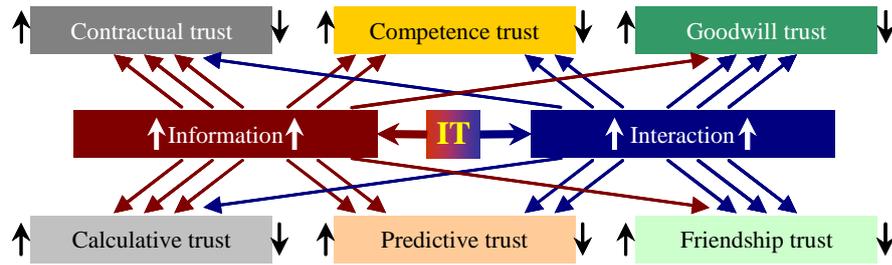


Figure 28. IT and trust mechanisms interaction

3.4. IT and trust levels

According to Granovetter (1985), Sako (1992) and Barney & Hansen (1994), a high level of trust removes the need for any contractual and monitoring devices, because personal obligation and/or value-consensus are seen to ensure against opportunism. A high level of trust between exchange partners is said to incline them towards expanding the amount of knowledge they make available to each other (Sako, 1998; Child, 1998). As Lane (1998) points up when trust exists information exchanged among partner may be more accurate, comprehensive and timely (Chiles & McMakin, 1996).

According to Burt & Knez (1996) trust is increasing the frequency of interaction among individuals embedded in a broader social network. So IT can increase trust levels by allowing more frequent communication and favouring the creation of strong-form trust. But interactions with third-parties (indirect connections) reinforce previously held beliefs about whether or not the other party will cooperate in future interactions, thus affecting trust intensity, not direction. Thus, some types of information flows reinforce distrust as well as trust.

4. THE ROLE OF TRUST AND IT IN THE PROCESS OF BUSINESS COOPERATION: DISCUSSION AND RECOMMENDATIONS

The analysis of the influence of each trust type on cooperation becomes rich if we considered a dynamic perspective in the analysis of the cooperative process. According to Lane (1998) many theorists hold that the nature of trust will vary with the stage of a relationship reached. Lewicki & Bunker (1996) propose a model of “the stagewise evolution of trust” in which trust develops gradually as the parties move from one stage to another. Cooperation relationships can develop over time and this development may be associated with the deepening of trust based on an evolution of its foundations (Child, 1998). The available information also evolves throughout the relationship life cycle, so IT can influence the way a trust relationship among partners in a cooperation relationship is created and maintained (Rodriguez, 2003).

From the outset, certain type and level of trust exist when creating the relationship and it must be sufficient so that the agreement could be negotiated without restrictions. Later, this climate should have to be maintained and reinforced so that the relationship could become successful and enduring (Mohr & Spekman, 1994; Barney & Hansen, 1994; Zaheer & Venkatraman, 1995).

The decision to start a cooperation relation implies a joint and coordinated bet to reach an objective more accessible collectively. In this phase, trust can have a contractual foundation if partners believe that everybody will behave according to which is expected considering the commitments they assume when establishing the relationship. Also trust can come from the competences, resources, abilities, etc., that each partner can contribute to the cooperation relationship. Also, a more exhaustive

knowledge of the partners can cause that they trust on each other's goodwill to do their best during the cooperation process.

According to Faulkner's typology, trust in the initial decision to cooperate can be calculative if trust is the result of an exhaustive valuation of its possible advantages and disadvantages; predictive, if trust is a result of previous successful relationships; and friendship, in case that personal relations of mutual affection exist among the potential partners in the agreement. Lewicki & Bunker (1996) argue that trust first develops on the basis of calculation. This is the stage at which people are prepared to take some risk in entering into dependence on others because they are aware of some institutional safeguards or deterrents against renegeing. For some relationships trust may remain of this kind and at this level.

In this phase IT can play a key role to obtain information about the cooperation advantages and disadvantages. Also, it is possible that the access to information on other experiences of success and failure serves to have a more real perspective of the possibilities and difficulties that imply to establish a cooperation relationship.

An element that facilitates or inhibits the interactions is distance and the decision to coordinate with another organizations is easier if the involved organizations are physically close (Schermerhorn, 1975) since proximity promotes familiarity (Hall, 1996). IT allows eliminate the physical distance by the virtual proximity, favouring the interchange. So, the intensive use of IT may lead to cooperation among firms even when they are distant. The interconnection possibilities IT offers cause that it is more likely to establish collaboration relationships or to receive a cooperation proposal from institutions that are not in the

same geographical area. Thus, managers should directly promote systematic implementation of IT-based tools in order to broaden their range of possible partnerships.

In the phase of **partners' selection** it is essential to find the best candidate³⁵ that adjust to the relationship needs, complementing weaknesses and harnessing strengths. Thus, the attention is centred in the valuation of the level of commitments fulfilment that are arranged to assume (contractual trust), the evaluation of the competences and abilities that potential partners say to have (competence trust), and their will to collaborate openly to benefit the relationship beyond their initial commitments (goodwill trust).

Trust also can have a calculative origin if it comes from an exhaustive knowledge and the corresponding valuation of advantages and disadvantages of trusting each one; predictive, if the fact to trust or not in them come from previous relationships; and friendship, when the origin of the trust in partners has a foundation in the friendship relation that can exist among the firms' representatives that can become partners of the cooperation relationship.

In the stage of partner selection IT also can provide to a suitable vehicle in looking for new partners. Among the electronic business models, vertical virtual communities may constitute a worthy source of potential partners. Vertical virtual communities usually include search engines that may be useful for partner finding and selection. The information and the interaction possibilities that IT allow facilitate a better knowledge of the potential partners. "However, information about prospective partners will be limited, especially that relating to their internal cultures,

³⁵ It is difficult to distinguish among partners who really are trustworthy from those that only affirm to be trustworthy (Barney & Hansen, 1994, 175; Arrow, 1974; Williamson, 1985).

competences, and values. This means that judgements will have to be made on the basis of the partners' reputations" (Child, 1998, p. 250).

In the **negotiation** stage firms show their mutual expectations with the aim of favouring their attainment through cooperation. If the possible partners do not trust that the motivations others declare fit the real ones and suspect that hidden agendas exist, the relationship will be more difficult to create and to maintain, in spite of using control mechanisms. In case of trust lack or distrust among partners the negotiation stage can be so complex and delicate that it can fatally disrupt the cooperation process.

If the cooperation process continues, negotiation will equip the relationship with a structure, more or less formal according to the partners' needs and desires. Trust level will be one of the determining factors of the cooperation structure. According to Hirsch (1978) the more the contracts are detailed, the less can be expected outside of them. In this way, a written detailed agreement seems incompatible with trust, although Barber (1983) insists on its complementary character³⁶.

In the negotiation stage trust can have a contractual foundation in case that partners trust the commitment that each one assumes in the negotiation and in the agreement formalization. Also competence trust represents each partner's trust to do what they say can do in the relationship. If there is a deeper and personal knowledge among partners it is possible that trust has a goodwill basis, so partners believe each one will contribute its real reasons to cooperate and will make available its resources

³⁶ Thus, he indicates that within organizations in which trust among members is always important, there are other alternatives and complements to trust.

and competences to favour the cooperation success, beyond the minimums to which they have committed formally.

In this stage trust partner will be calculative when it arises as a result of the valuation of declared and possible hidden expectations throughout the relationship negotiation and structuring. Whichever greater it is the commitment than each one assumes (e.g. investing in specific assets) a greater trust is more likely. According to Child (1998), the agreement to cooperate is an act of trust based primarily upon calculation. If some favourable information or own experience of previous successful negotiations with these partners exist, it is possible that trust can be described as predictive, and even as friendship if personal relations exist among the members of the firms that decide to cooperate and are carrying out this negotiation stage.

Within this negotiation phase IT can favour the interconnection of potential partners allowing a more flexible and frequent communication among them to settle dynamically any aspect of the relationship. The new cooperation structure should be equipped with a parallel IT infrastructure. During the negotiation process partners should consider the costs related to the creation and maintenance of the new common information system, considering that these costs could be higher for firms without suitable information systems to interconnect. They also have to take into account the time needed to start the system. The inter-connexion among partners should be made in two levels. The first level deals with management of communication by means of standard communication devices such as e-mail, video-conference, forums, etc. The second level is the operative one. This deals with the elements in the value chain that should become transparent to other partners. Transparent elements in the value chain should be connected (at a transactional level or at scorecard level) with the partners'

operational information systems. Other key issues that have to be addressed during negotiation are related to what information the partners are willing to share and the different access levels (open vs. limited access) for each type of partner. Virtual private networks (VPN) can be established through IP and must fulfil certain security requirements, such as tunnelling (security protocols), encryption, information integrity (integrity packet), firewalls, user and system authentication.

In the **daily cooperation management**, trust will facilitate information exchange and better decision making. However, the impact of trust on cooperation management will vary according to the foundation on which it is sustained.

In this way, if trust is contractual, trust will arise as a result of the established regulations in the cooperation agreement, in which partners includes dissuasive and punitive mechanisms to prevent possible opportunistic behaviours. If partners trust their experience, knowledge, resources, etc., to collaborate of valuable form to the relationship, the trust foundation would their competence. When the conviction exists about partners really want to collaborate to reach co-ordinately a common objective, and about they will contribute their better effort to get a successful relationship, trust can be described as goodwill trust.

If partners trust arises as a result of the calculation of advantages and disadvantages of trusting and the possibilities that this trust do not be betrayed by the existence of safeguard mechanisms, we can describe trust as calculative. If trust is based on information or previous experiences of successful cooperation management with these partners, the foundation of trust can be predictive and, friendly, if trust is the result of personal relationships among the members of the companies that are in charge of the relationship management.

In this relationship management stage information systems created ad hoc to cooperate should be started to make possible interaction and information exchange among partners. It is very likely that during the first steps of cooperation the ad hoc information system have performance, inconsistency or integrity problems. If the problems identified are relevant, it may appear a pessimistic feeling about the effectiveness of the information system. The change of transactions from the physical world to the electronic world produces a temporal and spatial separation that increases fears of opportunism³⁷, security and privacy. Besides, there is a concern about the reliability of the underlying technology and related infrastructure. This negative, pessimistic phase usually disappears when initial adjustment problems among the partners' systems are sorted out. It may be useful to interconnect the transactional systems as well as data bases involved in the cooperation agreement. The inter-connexion may be achieved based on a cooperative Extranet that eases partners' access to shared systems. If cooperation is channelled through a new organization and the partners are geographically distant, the creation of a liaison committee would be useful.

To evaluate cooperation relationship expectations about its outcomes and the real ones obtained are compared. The satisfaction level with the current results will influence the trust perception. Since no partner has a total and exact knowledge of the real advantages and disadvantages that it supposes to participate in the cooperation relationship, a lack of trust among partners, and especially distrust, can take them to overvalue the benefits that others receive and to minimize the costs and disadvantages which they incur.

³⁷ Castelfranchi & Tan (2001) asked how electronic transactions can mimic the trust-building elements of physical-world transactions.

In this stage trust can be based in the commitment they accepted when involving in the relationship and the belief that they will make a suitable evaluation of the cooperation outcomes as a result of the agreement structure (contractual trust). In the evaluation of the relationship also it is balanced if partners are doing what they said and its competence to suitably evaluate the results they are obtaining from cooperation. Goodwill trust implies the conviction that the evaluation of the own and other partners' results in the cooperation relationship, explicit and implicit, direct and indirect, will be made loyally and balanced, trying as far as possible not to overvalue partners' benefits and to hide the own ones as a justification to renegotiate the conditions of collaboration and for increasing the advantages that cooperation reports.

If trust comes from an exhaustive and rational valuation of all the results partners obtain from the cooperation, this trust has a calculative foundation. When the evaluation of the partners' behaviour in current or previous relationships has given favourable results trust can have a predictive base. When a personal relationship exists among partners or among the representatives in charge of the cooperation evaluation, it is possible that trust has a friendship base.

In this phase information is essential to contribute to generate trust, since if players are less able to monitor the action of others, there will be less cooperation (and hence increased opportunistic behaviour), since this makes it more difficult to ascertain whether or not cheating has occurred. The cooperative Extranet that is the basis for cooperation management may be also useful to create a joint balanced scorecard adapted to particular features of cooperation. Thus, firms could have a

global view about each partner's contributions (tangible and intangible) and results (present and future) achieved through the cooperation relationship.

As a result of the relationship management and evaluation partners will decide on their **evolution**. It is possible even that although the relationship has not been successful, the greater knowledge of some partners whom now can be trusted more or less than before serves to restructure the relationship, making it evolves. The expectation of mutually advantageous future transactions can end in a reliable behaviour. This expectation can have contractual, competence, goodwill, calculative, predictive or friendship foundations.

Trust in the fulfilment of future contractual obligations can help to maintain the cooperation relationship. Since partners' contributions to the relationship do not have to be simultaneous, it is likely that cooperation stays because they trust the other partners will maintain their collaboration in the terms they agreed and committed. Competence trust also helps to explain the evolution of the cooperation, since it makes more likely that the relationship stays in the future when cooperating with other firms that have valuable resources and capabilities to contribute to the relationship. Nevertheless, it is not only competence trust which can drive to maintain the relationship, but fundamentally trust in partners' willingness to cooperate. Thus, goodwill trust represents the conviction that partners will do what could be necessary in benefit of the relationship, beyond their commitments, when understanding them in ample sense not restricted to the possible detailed agreement specifications. Therefore, trust in the evolution of the relationship can mean to trust in partners will do what they must because they have committed to do it; partners will do what they say can do, because they have competence to do it; and partners

will want to do more than they say can do, because its cooperative will is real and not only formal.

From a calculative perspective, without more or less subjective ethical valuations, and following the theory of the rational man who looks for optimizing own benefits, the decision to trust in partners can be a suitable rational option if we consider it in the long term. If the decision to trust is within a context of arm's length contract, it is more likely that the reliable behaviour could be defrauded by partner's opportunism. Nevertheless, it is different when this decision is tackled from a process perspective. This way, an opportunistic behaviour that prevails of possible future collaborations will not be rational, since partners lose the possibility of benefiting from the advances that each firm could have achieved, in addition to the reputation loss of the opportunistic partner (Gulati, 1995; Ariño, Abramov, Skorobogatykh, Rykounina & Vilá, 1997), that constitutes an intangible asset that can be difficult to recover because it is based on perceptions. Thus, trust in the evolution of the relationship will have a calculative base when taking into account these aspects.

Also trust can have a predictive foundation in this stage. Thus, if the behaviour of partners throughout the previous cooperation experience has been honest, the decision to trust them in the future could have a predictive base. When a friendship relationship exists among partners trust in the cooperation evolution can be sustained on this base, beyond calculation and prediction. According to Child (1998, p. 252) as relationships develop over time with successful results "there is a natural tendency for those concerned to identify increasingly with another's interests

as well as for emotional ties to grow. In this way, “bonding” can form between partners.”

Also, IT may improve the information used in the evolution stage. Besides IT may also reduce the time needed to evaluate the relationship. Thanks to IT, firms involved in the cooperation agreement are in better conditions to decide about the future of cooperation. If cooperation is highly related to technology, managers should not be disappointed by negative results of IT implementation in the short term. If the change related to IT has been relevant, it is likely not to obtain positive results for a period of 6 months to 2 years after the implementation. If firms do not evaluate the cooperation results in the short-term, it is likely that cooperation evolves to fulfil each partner’s expectations in the long-term. According to Sako (1998) easy exchange of information makes exchange partners more open to each other and thus inclines them to explore new opportunities of collaboration.

Summing up, we can say that throughout the cooperation process IT produce an increase in the possibilities of obtaining information as well as of interaction among partners. It can lead so much to a trust increase and the maintenance of the cooperation, as to a smaller trust and the relationship breakdown, based on the content of the information, the result of the interactions and the cooperation stage. This way, if the greater information and interaction that IT allow provides incentives that stimulate trust, it could evolve from system trust to interpersonal trust as the relationship become stronger and more mature, using throughout the process the necessary mechanisms of institutional trust.

Although the initial conditions in cooperation relationships can be varied, when there is no previous relationships among potential partners it is more likely that

trust will be based on contractual and calculative basis, as much as on partners' competence evaluation and predictions about their possible behaviour.

As the relationship evolves calculation and legal mechanisms can give way to a greater competence trust and improve predictive trust. If the relationship implies a frequent interaction among partners and agreed decision making is likely that personal friendship bonds arise that stimulate the development of interpersonal trust, based on goodwill and friendship.

When the information that is acquired along the process and the interactions do not stimulate trust, we can witness a trust reduction throughout the cooperation process. Interpersonal trust is more difficult to appear and the institutional trust based in contracts and rational calculations is not enough to maintain the relationship.

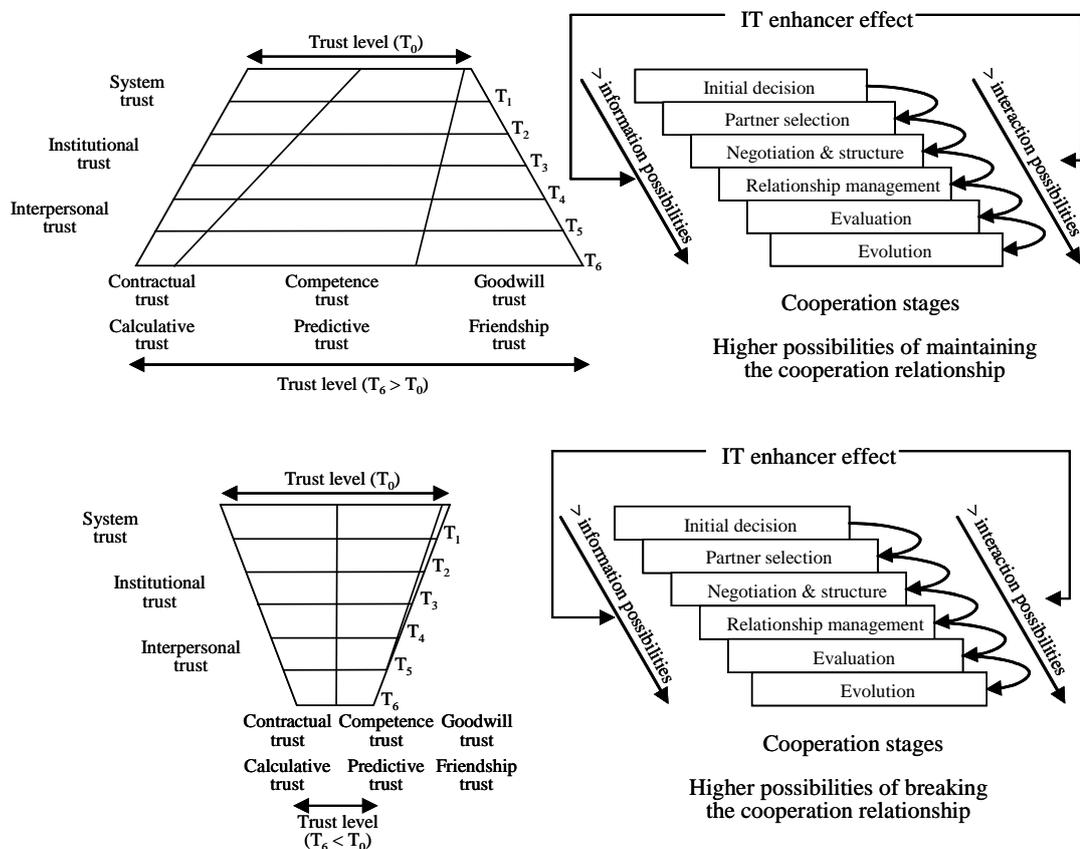


Figure 29. IT, trust and the cooperation process: summary

Graphically (Figure 28) we draw both situations, although the relevance of each trust type in each phase can adopt other forms based on the level of previous knowledge regarding the relationship, the disposition to cooperate, etc.

5. FUTURE TRENDS

Analysing IT evolution in the next years, it is possible that diverse elements appear affecting significantly the consolidation of trust relationships among organizations. After several decades in which the main firms' concern has been to equip their processes with basic computer infrastructures, in the last years we are witnessing a greater interest by efficiency in IT adoption and implementation, a greater investment rationalization and a search of integration as a mean to improve the electronic resources distributed at the different departments in the organization. Although this rationalization of the technological investment and integration are movements that have had a strictly technological origin, they will end up influencing clearly the way to manage and to organize firms. In addition, they are exerting an greater influence in the definition of the relationships that appear among members that share tasks in the organization, as well as between formal and informal work groups.

Changing the analysis from an internal point of view towards an inter-organizational one, the mentioned phenomena of rationalization and integration will have a series of interesting repercussions on trust. These implications can be seen strengthened if we consider, at the same time, the modifications that the labour mass (work force) of the developed countries is going through, as changing its social behaviour. The greater integration and resources virtualization derived from the

generalization of Grid technologies (Foster & Kesselman, 1999) and wireless technologies will surely allow a greater workers' autonomy. They also will increase the proportion of the working day that people remain isolated in interaction, practically exclusive, with electronic means of communication. The effect of physical isolation at a local level but of high connectivity at a global level will bring up new opportunities for some aspects of business management, as for example, the increase of contacts among potential partners from different geographic areas, circumstance that can give rise later to the formation of strategic alliances. Also, if companies develop an alliance strategy (Gomes-Casseres, 1996) instead of strategic alliances, it seems to be more likely the possibility of making the most of technological resources that can favour the establishment of successful cooperation relationships.

However, the great question to solve is the level of consolidation that reaches the interpersonal relationships that, after all, sustain the inter-organizational relationships. One of the parameters that will measure that consolidation level of the interpersonal relationships will be the level and type of trust able to be developed under these technological settings. According to current international sociological trends (Castells, 1998), the greater degree of technological formation, the globalized culture and the convergence of uses, customs and social and individual values can be indicators of that there are ways to maintain trust relationships based on stable and lasting electronic bonds among organizations. Nevertheless, we understand that these trust relationships will be favoured if the digital interaction go with traditional face-to-face interactions, based on personal interchange of information, values,

experiences and points of view. This circumstance would make certain trust types with a high subjective component arise (as goodwill trust, friendship trust, etc.).

Another very interesting issue that may be addressed through in the future regards to how new information technology infrastructure may affect deep psychological phenomena that eventually drive to new ways of trust (and distrust) construction. One of these phenomena has to do with the arising of new personality traits among the youths that rely almost exclusively on electronic media to maintain interpersonal interactions. In extreme cases, the very IT-orientated personality (*Hikikomoris*) may provoke the lack of some interpersonal skills that may lead to a disruption in the way individuals construct different types of trust. Whatever the psychological process involved in the *Hikikomori* way of life, it could be worthy to analyze if this extreme orientation towards IT in the personal, non-working life may have side effects on the way individuals interact to achieve work-related and firm-related purposes under different trust levels and types.

6. CONCLUSION

In this paper we have analyzed the dimensions that Nooteboom (2002) considers necessary when categorizing trust: subjects or trustors, objects or things that can be trusted, the limits or conditions of trust, the stakes involved, the basis or sources of trustworthiness and the mental, psychological sources of trust³⁸.

The greater information to which IT provide access does not reduce the need to trust, since on the one hand this information never will be complete and perfect, due to the dynamic and complex character of the reality, and on the other hand, the

³⁸ Márquez-García (2003) proposes a typology focused on trust targets considering partners and the relationship itself.

abundant information make it not possible to have all into account to make decisions, that would be delayed until being able to get processed all the available information. In addition, trust is oriented towards the future, on which the complete information is not possible. Therefore IT does not eliminate the need to trust.

Related to the role that IT carries out in the construction of trust, the conclusions of this paper indicate that IT effect on trust will depend on two basic dimensions: the trust type that is being considered and, the contingent variables to the relationship that come from the nature of the involved agents and the environment settings. Thus, we can say that IT can strength or reduce any trust type, depending on the information and interaction that IT facilitates would contribute with favourable or unfavourable evidences about partners.

IT affects to the interpersonal trust scope and also they influence the impersonal one (institutional and systemic), since IT provides a source of trustworthiness (institutional) when allowing a greater information access and diffusion. At the same time, IT generalization is generating a social trust (systemic) in the technological tools, so that what is made through computer or electronic means usually is not questioned and it is assumed optimally done.

Remaining constant the contingent variables, IT tends to favour trust types based on a rational view of cooperation, in which the detailed analysis of the information referring to the cooperation constitutes an essential element. We can say, therefore, that IT can be appropriate means to clear the doubts that can affect to the contractual trust or competence trust. In the same way, IT can be constituted as effective means to gather enough information that sustains a suitable calculative and predictive trust. The existence of online reputation mechanisms can improve

contractual trust as being easier the diffusion of opportunistic behaviours. At the same time, competence trust can also be favoured by IT when having more and better information on the partners, their past behaviour and the resources and capacities that they have and which they can contribute to the relationship.

Nevertheless, the influence of IT on other trust types based on subjective interaction and with a high personal component can more be limited. Moreover, there are evidences to think that, under certain conditions of electronic interaction rejection, IT can exert no influence on friendship and goodwill trust. In these cases, it is more likely that the use of IT would be the result (and not the cause) of these trust types existence. That is to say, the previous existence of friendship or goodwill trust can give rise to a greater use of IT, but not conversely.

Given that the multidimensional character of trust and its positive effect on cooperation, it is recommendable to construct all trust types. This way, as Menguzzato (1992) indicates when selecting what people of both companies will participate in the cooperation process it is fundamental the mutual knowledge, since this knowledge involves the possible existence of a mutual trust that will play an essential role along the process, mainly in cooperation management.

From a dynamic point of view IT can exert a significant role in practically all the cooperation stages. However, this influence will depend to a great extent on the trust type more relevant for the relationship development as well as of the contingent circumstances that affect the relationship. Considering the mentioned conditions, IT can be particularly valuable at the previous moments to the cooperation beginning, especially when the initial decision to cooperate is taken and the more suitable

partners are chosen³⁹, using systems of business intelligence and starting exchanging information directly (Child, 1998). During the cooperation process, IT can become effective means of information exchange and interaction, stimulating trust development.

The increase of the available information through IT can be crucial in the determination of the positive and negative aspects to evaluate the cooperation relationship. Here, the strategic information systems can be especially useful, currently included in ERP systems. In general, the electronic environments allow continuous information “refreshment”, so it is easier to readjust the parameters that affect trust types and level.

In any case, in the analysis of the influence of IT on trust and the cooperation process we should consider the level of partners’ IT implementation⁴⁰, as well as the experience level and familiarity with these technological tools⁴¹ that facilitate interaction and information access. A significant difference between the partners can represent an obstacle for the relationship and for trust development. Therefore, it is necessary to insist on sensitizing firms to advance in the use of IT. Also, firms must provide the necessary formation adapted to the people who should use IT. It should be informed to clients, suppliers and other agents to whom the firm is related to of the IT tools that are available to communicate with the company.

This chapter presents a series of limitations that can give rise to future research. First, it is a theoretical work, so it will be necessary to develop further

³⁹ Greater knowledge about partners not necessarily generates trust, but it also can make appear distrust. Previous interactions, or information obtained from third parties, cause that trust and distrust have more important rational bases, and even emotional in case of existing personal relationships.

⁴⁰ Literature differences between the following phases: office automation, information, interaction, transaction and digitalization.

⁴¹ The use of certain technological platforms is a tool that favours collaboration or limits it when not having access to them or knowledge to use them.

empirical analysis to confirm the conclusions. Secondly, the length of this chapter prevents to make an exhaustive revision of all the contingent variables that can influence the IT-trust-cooperation relationship. Also, it has not either been possible to consider the role of the different IT technologies that can be used in a cooperation relationship, nor the different cooperation relationship types (complementary, competitive⁴² and symbiotic; equity and non-equity; domestic and international; dyadic and multiple; etc.)

Diverse future research lines arise from the previous discussion as well as the exposed limitations. Among them, it would be necessary to analyze, from an empirical point of view, the relative influence of IT on trust and control, considering the crossed effects that can arise among these three variables. Secondly, it could be very interesting to establish an IT taxonomy based on the influence they exert on trust and control, considering the type of cooperation. Thirdly, research can be carried out to analyze the circumstances under which IT (or a certain group of IT) could behave as trust inhibitors.

⁴² Lewicki and Bunker (1996) believe that trust based on shared values and identification may be less common specially in business transactions where some difference of interest is usually inherent in the relationship.

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*“Natura agit semper per vias
simplices”*

Nature always acts by simple ways

Pierre-Louis Moreau de Maupertuis⁴³

⁴³ Maupertuis, P. L.M. (1751). *Système de la Nature. Essai sur la Formation des Corps Organisés*. Paris: Jean-Marie Bruyset.

In classical mechanics, Maupertuis' principle is that the path followed by a physical system is the one of least length (with a suitable interpretation of path and length). It is a special case of the more generally stated principle of least action.

CHAPTER 5:

A KINETIC APPROACH TO THE INTERPLAY

BETWEEN COOPERATION AND

COMPETITION IN A COMPLEX AND TRUST-

MEDIATED META-ORGANIZATIONAL

FRAMEWORK

1. INTRODUCTION

Cooperation and competition are interrelated concepts, but research aiming to gain a new understanding of their relationship needs a new framework and a new perspective to reconsider and re-analyze some business concepts from their roots⁴⁴. This does not imply renouncing or denying the utility of previous approaches (Axelrod, 1997; Khanna, Gulati, and Nohria, 1998; Porter, 1998, 2008; Bengtsson and Kock, 1999; Alt, Levi, and Ostrom, 1999; Inkpen, 2000; Hoffmann and Schlosser, 2001) but instead offers fresh possibilities to complement and challenge them as well as to upgrade our knowledge (both academics and practitioners) about the interplay between competition and cooperation (Chen, 2008) to improve business competitiveness. Research in strategic management has traditionally focused on the study of inter-firm competition, whereas inter-firm cooperation has been considered to be a form of collusion that mitigates competition. Barnard (1938: 289) early decried the lack of “an acceptable conceptual scheme by which executives could exchange ideas concerning their work.” This paper intends to contribute with a proposal for better understanding the interplay between cooperation and competition. Our aim is to deconstruct and to rebuild business cooperation and competition using insights from the social sciences, systems theory, complexity, autopoiesis, and fractals as well as a metaphor from physics.

We use strategic business units (SBUs) as the micro-unit of strategic analysis, meta-organizations (M-Os) as the most holistic and closest to the real world macro-unit of organizational analysis, and the interdependences among them as the field

⁴⁴ Einstein asked for new thinking when facing significant problems that could not be solved using the same type of thinking used when these problems were created.

where both cooperation and competition exist. M-Os are complex systems, and their members' narratives at different levels of organizational analysis add second-order complexity that needs to be managed (Hollen, Van Den Bosch, and Volberda, 2014). Metaphorically applying the kinetic theory (Bellomo, 2008) of matter, we obtain interesting insights for understanding cooperative and competitive interactions within and between M-Os. In this context, the theoretical and practical relevance of the stewardship approach and trust are stressed. A longitudinal collective case study shows how our proposal helps to gain a better understanding of the interplay between cooperation and competition and the role of trust in M-Os.

2. REBUILDING COOPERATION AND COMPETITION

To understand cooperation and competition among firms (or organizations in a wider sense), we must first clearly define what a firm (an organization) is. According to Barnard (1938), an organization is a temporary cooperative system created to compensate for the natural limitations of individuals and to help them reach their objectives. Cooperative systems are based on individuals cooperating to achieve a common purpose because an objective is more easily achieved through interactions among the members of the system than through any member's individual actions. An organization is thus defined by cooperation among its members. Upgrading the unit of analysis from individuals to organizations, cooperative relationships can also be defined as temporary cooperative systems created to compensate for the limitations of organizations as they try to address customer changing needs in an increasingly competitive environment, where the interactions among member organizations should generate better performance than each individual organization's actions.

Changing the focus, we find that competition can also be illustrated as a temporary cooperative system (unintended and spontaneously formed), where each firm contributes by trying to perform better than the other members of this competitive system. The shared purpose of all competitors in this “cooperative” system is to achieve the best performance by better meeting customer needs. Firms’ competitive will leads them to collaborate to waken and foster competitors’ best efforts to become the customers’ choice. A system is also present because all competitors interact while seeking to deliver the best experience to customers. They are independent firms, but they are also interdependent because their behaviour and results are affected by each other. All firms share a will to improve, but risk is higher in “cooperative” systems among competitors than among indirect competitors. Thus, firms that focus on similar or close customer groups, that are addressing similar, close, or complementary customer needs and that use similar or substitutable technologies are actually sharing a temporary cooperative system regardless of whether they are direct competitors. As a consequence, cooperation (intended or unintended) is present in interactions (both cooperative and competitive) between firms⁴⁵ because there are underlying interdependences between them.

Therefore, to better understand the relationship between cooperation and competition, the focus should be on the interactions generated by the interdependences between system elements. These interactions between the elements of a system and with elements from other systems can be both cooperative and competitive. Thus, we should focus on system elements, on their interdependences—both with other elements from the same system and with elements from other

⁴⁵ A “group process (...) emerges as a consequence of the co-operative or competitive social situation.” (Deutsch, 1949, p. 129)

systems—and on the cooperative systems resulting from these sets of interdependences.

2.1. Strategic business units (SBU) as micro-units of strategic analysis

Firms as systems can cooperate and/or compete as a whole or at a SBU level. Strategically, the basic units of analysis in diversified firms are SBUs. Thus, interdependences among firms, or among SBUs from different firms, can result in cooperation or competition. Abell (1980) outlines SBUs in terms of his three-dimensional business definition model. A SBU is focused on a particular scope of business as the result of the intersection of three decisions: selected customers (who), these customers' needs (what), and the technologies used (how). Each point in this three-dimensional space represents a combination of customers, needs, and technologies. This intersection defines the business scope and constitutes a SBU (Figure 29). A firm can work with one or more SBUs individually or by means of cooperation relationships. Thus, cooperation with other firms can enhance all partners' competitiveness. However, cooperation can also debilitate firms if they invest resources into a SBU with strong competitors, but the cooperative relationship does not achieve the critical mass needed to compete effectively within that business scope. Both invigoration and debilitation can be asymmetric among partners, particularly in cooperative relationships with many partners.

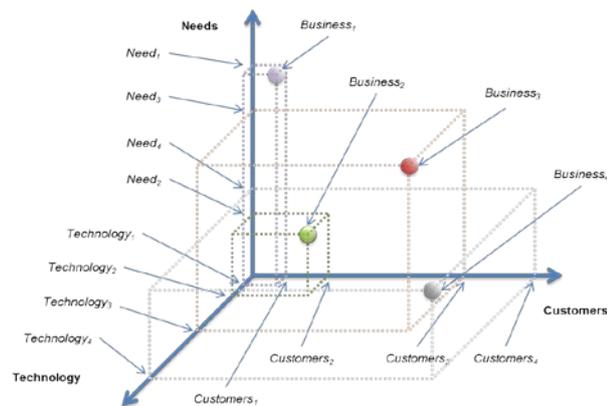


Figure 30. SBUs in non-diversified firms

Abell's (1980) model helps to explain the interplay between cooperation and competition and refocuses strategy on customer needs. Some customer needs can be better satisfied by means of cooperative relationships if any single firm has the necessary resources and/or the specialization to produce what the customer needs. Considering SBUs to be the micro-units of strategic analysis is also useful because it helps to explain how a firm can simultaneously cooperate and compete. Some SBUs can be involved in a cooperative relationship with other firms, while the remaining activities are managed under the control of partner firms. Therefore, focusing on the interdependences among SBUs from different firms represents a better framework for understanding cooperation and competition because the interdependences among these system elements (Figure 30) exist before they produce transactions, establish relationships, or form networks.

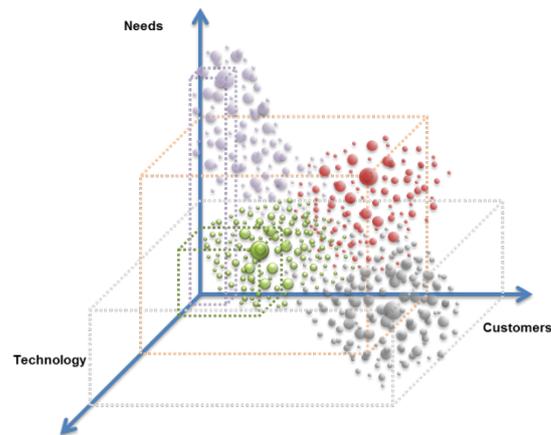


Figure 31. Interdependence among SBUs

2.2. Interdependence and interaction

Interdependence is one of the main and essential characteristics of systems. It is an underlying structure that links (directly or indirectly) elements within systems and between systems. In the field of social and behavioural sciences, interdependence theory (Lewin, 1948; Thibaut and Kelley, 1959; Kelly and Thibaut, 1978; Kelley *et al.*, 2003; Van Lange and Balliet, 2015) is a comprehensive theory of social interaction. Lewin (1948, p. 84-88) early noted that

“the essence of a group is not the similarity or dissimilarity of its members, but their interdependence (...) A change in the state of any subpart changes the state of any other subpart (...) Every move of one member will, relatively speaking, deeply affect the other members, and the state of the group.”

This approach can be applied to any firm as a system and to the interdependences among its elements as subsystems. Lewin’s (1948) definition also helps to highlight that the focus should not be on whether firms are similar or not (competitors or not) but on their interdependences. So, within a system of interdependences, any move by any member will affect other members and the

system as a whole. According to Van Lange and Balliet (2015, p. 65) “to fully comprehend human behaviour it is essential that one understand the nature and meaning of interpersonal interdependence,” which is defined as “the process by which interacting people influence one another’s experiences (i.e., the effects individuals have on other people’s thoughts, emotions, motives, behaviour, and outcomes).” Starting with the isomorphism that characterizes systems, to fully comprehend organizational behaviour, it is essential to understand the nature and meaning of inter-organizational interdependence, which exists before interactions take place.

Lewin (1948) was the first to define groups in terms of interdependence, and his work inspired developments on group productivity, cooperation, conflict, membership, leadership, etc. Deutsch’s (1949, 1973) theory of cooperation and competition uses promotive and contrient interdependence, based on situations in which there are, respectively, corresponding interests and conflicting interests. Thus, according to the correspondence or conflict among the partners’ interests, these interdependences can be performed in a cooperative (Aggarwal, Siggelkow, and Singh, 2011) or competitive manner. The partners should achieve better performance if their interdependences are designed and managed (Van der Vegt and Van de Vliert, 2002; Hui, Davis-Blake, and Broschak, 2008; Hambrick, Humphrey, and Gupta, 2015), even when decisions must be made to manage interdependences with other competing systems (e.g., who are the main competitors or the competitors we choose to compete against; the level of competition we establish; how the firm chooses to compete using technology, marketing, improving its people’s skills and abilities, etc.). Interdependence makes cooperation and competition regular functions

performed and managed by systems in both an intra-organizational and an inter-organizational context. Therefore, these interdependences can configure cooperative or competitive interactions across firm boundaries.

Interdependences can also be affected (increased or decreased) when modifying any of the parameters that define a SBU. According to Thompson (1967), three types of interdependence (pooled, sequential, and reciprocal) can be found in the organizational context. This framework is very useful for describing the intensity of interactions and behaviours within an organizational context because the interdependences among units determine how much the level of each unit's performance depends on the performance of others.

All of the possible combinations of customers (individually considered or grouped according to any segmentation criteria), customer needs (current and future), and technologies (also current and future) represent an expanding universe of possibilities, within which each firm should define its position. Within this expanding universe, the intersections with any firm (or with a few) represent the potential to develop a business activity because these particular customer needs are not satisfied using these technologies. These intersections represent blue oceans (Kim and Mauborgne, 2005), and firms will arrive there if these intersections offer attractive aspects (Lavie, Stettner, and Tushman, 2010; Zahavi and Lavie, 2013). Most attractive poles have many customers, highly profitable customer needs, and well-known technologies or new technologies. Those intersections served by many firms represent red oceans, in which firms must intensely compete to increase their market share. Any firm can develop differentiation strategies to discover blue oceans: a new SBU can be focused on serving different needs to a new segment of

customers using a particular technological arrangement. Some of these intersections may be small blue oceans if customers are not numerous, profit margins are not large enough, or firms do not control the new technology. Thus, the attractiveness of an opportunity depends on the economic and strategic benefits of positioning a new SBU in this intersection. A high concentration of SBUs from different firms in a close intersection of customers, needs, and technologies (thus, highly interdependent) can determine whether cooperative or competitive interactions exist between them. For non-diversified firms, this situation represents a red ocean, and they must compete to survive. Alternatively they can change any of the parameters that define their business scope and search for blue oceans by means of innovation. However, some firms may decide to cooperate to better confront the remaining competitors. When survival is at stake, firms will accept cooperation with competitors. For diversified firms, possible synergies among SBUs within a firm can provide opportunities to compete (Zahavi and Lavie, 2013), but a mix of cooperation and competition can be performed.

2.3. Meta-organizations (M-O) as macro-units of organizational analysis

Barnard (1948, p. viii) placed emphasis upon the organization as a set of coordinated activities rather than upon the individuals who are the actors:

“individuals (...) are often simultaneously “members” of several organizations, and their activities are not infrequently to be conceived as simultaneously functions of more than one organization. Moreover, the relationship of individuals to organization is frequently so ephemeral that they are not conveniently regarded as “members” of an organization, whereas, in my view, certain of their activities must clearly be regarded as a part of the “organized” activities associated with and, as I prefer to think, constituting organization.”

M-Os represent a higher aggregation level. Organizations are integrated by interacting individuals, while M-Os are formed by interdependent and interacting firms and/or SBUs. Using the concept of M-O, we emphasize the interaction among system elements because M-Os —as temporary cooperative systems— can accept the inflow or outflow of members at any time.

Barnard (1938, p. 111-112) defined a cooperative relationship as “a new complex organization embracing the two original organizations cooperating.” Thus, cooperative relationships can be defined as organizations composed of other organizations: as M-Os (Gulati, Puranam, and Tushman, 2012; Márquez-García, 2015), in which the integrating individuals are other organizations (Albers, 2010; Theurl, 2005). Therefore, M-Os can emerge from cooperation because some firms decide to explore synergistic possibilities to enhance their competitiveness by designing and managing their interdependences in some SBUs for mutual gain. But competition is also a temporary —and unintended— cooperative system in which members share their will to achieve the best performance to better address customer needs; each competitor thereby improves its best effort. Thus, competitors are also interdependent because each influences the others’ behaviour and results. Furthermore, competitor firms can cooperate in activities that are not directly focused on selling to final customers. Thus, M-Os can arise when there are cooperative or competitive interactions among interdependent SBUs from different firms because these interdependences cross individual firm boundaries. Thus, cooperation and competition are intrinsic functions that can be developed within and among M-Os (Bengtsson and Kock, 1999; Rowley *et al.*, 2004).

Using a meta-organizational approach, emphasis should be placed upon members' coordinated activities, that is, organizations' interactions, because organizations can be simultaneously members of several M-Os, and their activities can be simultaneously conceived as functions of more than one M-O. Moreover, organizations (or SBUs) can be ephemerally related to one or another M-O. It is thus necessary to focus on the interactions and the underlying interdependences designed by organizations to increase their competitiveness by better satisfying customer needs. Organizations can be part of more than one M-O, or they can change from one to another M-O. This means that M-Os are complex systems characterized by numerous elements that interact constantly and spontaneously, organizing and reorganizing themselves into increasingly elaborate structures (Williams, 1997). The complexity paradigm helps to understand that plurality, interconnection, instability, and uncertainty are implicit aspects of the complex world (Jantsch, 1980; Stacey, 1995; Waldrop, 1992). Therefore, complex systems cannot be fully understood, designed, controlled, or predicted (Goldstein, Allen, and Snowden, 2004). Instead, they should be managed by replacing probabilities with possibilities.

As M-Os can self-reorganize, Miller's (1978) theory of living systems also provides an interesting framework for analysing them (Bellomo, 2008), assuming that the concept of autopoiesis can be applied (Varela, Maturana, and Uribe, 1974). As autopoietic systems, M-Os can create or destroy their internal elements, adjusting themselves in response to environmental changes. Even if M-Os change structurally (with the entry and exit of organizations), they maintain the processes or operations that characterize them. As a result, M-Os can be self-produced and self-organized

(Luhmann, 1996; Stacey, 1995), but maintaining a self-organized state requires importing energy into the system (Prigogine and Stengers, 1984).

Updating Chandler's (1962) thesis that "structure follows strategy" to the field of business cooperation, an M-O is defined as a dynamic and changing organizational structure that "follows" current and potential attracted members' (firms or SBUs) strategies. However, updating Hall and Saias (1980), the changing M-O configuration also offers dynamic synergies that influence current and potential members' strategies. Focusing on transactions, relationships, networks, and constellations means that we cannot see the forest for the trees. Transactions and relationships are just parts of the living reality, network representations are just incomplete still-photographs of nodes and contractual links, and the constellation metaphor implies stable orbits and regular movement. Among all of these concepts, M-Os are the best representation of reality.

Barnard (1948) stated that the concept of an organization is a "field" concept, in which activities take place in and are governed by "forces," some human and social and some physical. Similarly, in M-Os, activities of cooperation and competition take place, and they are governed by stabilizing and destabilizing forces that can lead organizations to enter or exit the M-O. Positive narratives of experiences and expectations about the M-Os can stabilize them, while negative ones can lead to destabilization and even to breakup or disintegration. These interactions among members of M-Os "may conclude with the system moving off in a direction that is surprising." (Tsoukas and Hatch, 2001, p. 1007). M-Os are created initially by parent organizations to achieve specific purposes, but their self-producing feature

means that their actual shape and scope can be very different in terms of members and orientation.

Chaos theory predicts increasing complexity in systems, producing changes that are irreversible and evolutionary; even small changes can cause complex and unpredictable disorders (Smither, Houston, and McIntire, 1996). Therefore, M-Os can be considered from the perspective of chaos, moving in patterns on the edge of chaos and poised between order and disorder (Brown and Eisenhardt, 1998; Solansky, Beck, and Travis, 2014). A system can become chaotic when it modifies a parameter that represents its complexity; then, knowing its attractor, we can try to influence it (Anderson, 1999). Applying Dolan and García's (2002) chaotic business model to complex M-Os, skilful meta-leadership can take advantage of values, identity, history, a sense of purpose, etc., as chaotic attractors.

The attractors of chaos theory that lead to self-organization are fractals (Gallardo, 2002). M-Os can thus be considered to be equilibrium-seeking systems in which small but multiple forces and visions coexist, driving M-Os toward a new state of equilibrium. This also results in second-order complexity because each member of an M-O has its own narrative about the M-O, its particular motives for entering the M-O, its perception of the other members, the interaction dynamics, its assessment of pros and cons, and its perception of the evolution of the M-O. This means three levels of analysis: meta-organizational, group, and individual (each firm or SBU).

As a structure, the M-O only exists in the eyes of observers (potential and current members) who see particular interdependences and interactions as relevant for influencing their strategies. The structure may change from one moment to the next if anything relevant happens or something new is taken into account. For other

members, the configuration of the M-O is different because their perspective emphasizes other interdependences and interactions. Second-order complexity emerges when members' narratives are taken into account, and chaotic attractors help to define the particular "shape" of the M-O as a state of flux at a particular time. The roles of the meta-entrepreneur and meta-leader can be performed to create chaotic attractors as "magnetic fields" that help to handle second-order complexity in the M-O.

3. A METAPHOR FROM PHYSICS FOR META-ORGANIZATIONS: STATES OF MATTER AND KINETIC THEORY

Complex M-Os represent dynamic systems seeking homeostatic equilibrium in a context of interdependences among firms and SBUs, influenced by stabilizing and destabilizing forces that regulate entry and exit to the gravitational field of M-Os.

Each non-diversified firm and each SBU in diversified firms can be compared to matter in the physical world. Matter is anything that occupies space and SBUs, firms and M-Os occupy space in the universe represented using Abell's (1980) three-dimensional model. Assuming a kinetic theory (Bellomo, 2008) of matter, all matter is composed of tiny particles (atoms, molecules, or ions) that are always in motion. In physics, states of matter can be classified into solid, liquid, gas, and plasma. This classification is based upon particle arrangement, particle energy, and distances between particles. There are other (exotic) states of matter, but they only occur in extreme situations, and none of them can be observed in normal conditions —Bose-

Einstein's condensate (BEC), neutron-degenerate matter, and quark-gluon plasma (Young and Freedman, 2015).

Matter in the solid state maintains a fixed volume and shape because its component particles are tightly packed together (with little free space between particles) and fixed into place according to a regular arrangement. The forces between particles are so strong that they cannot move freely, and they only vibrate around a fixed position. As a result, a solid has a stable, definite shape and a definite volume. Matter in the liquid state maintains a fixed volume, but liquids have a variable shape that adapts to fit the container. In liquids, particles are tightly packed and still close together but are far enough apart and are not fixed, so they can slide over one another. Matter in the gaseous state has both variable volume and shape. Particles are very far apart, randomly arranged, and expand to fit the entire volume of the container. The particles are neither close together (there is a great deal of free space between particles) nor fixed in place, but move freely and quickly in all directions. Finally, plasma is ionized gas at a very high temperature. It is the most common form of visible matter in the universe (Gurnett and Bhattacharjee, 2005). Matter in the plasma state has both variable volume and shape, but some particles (ions and electrons) can move around freely. Plasma is formed of free charged particles, and consequently, it is a very good conductor of electricity, and it both creates and affects magnetic fields, which leads to collective effects. This means that the motions of all other particles influence the motion of each charged particle. Collective behaviour is a key concept in the definition of plasma.

States of matter differ in their levels of energy. Solids have the least amount of energy. Liquids have more energy than solids. Gases have even more energy than

liquids, so that their particles cannot keep still. They spread out to fill the entire space of their container by putting as much distance as possible between them. Plasmas have even more energy than gases, and when the temperature is hot enough, collisional ionization splits particles and through recombination, some parts join to form particles.

Temperature is a physical property of matter at the macroscopic level that is caused at the microscopic level. In thermodynamics, temperature is directly related to part of the internal energy of a thermodynamic system. This part is called kinetic energy, and it is the energy that results from the motion of particles in the system. This motion can be vibrational (in solids), rotational (in liquids), translational (in gases), and chaotic, and magnetically oriented (in plasmas). The higher a system's kinetic energy is, the higher the system's temperature is. At absolute zero (0 K), particles reach the lowest point of internal energy and have no motion. The higher the temperature is, the higher the system's enthalpy and entropy—the amount of energy that it interchanges (absorbing or giving up) with its environment

Metaphorically, it is possible to describe SBUs, firms, and M-Os using states of matter such as solids, liquids, gases, and plasmas. It is further very useful to apply kinetic theory to obtain an alternative perspective about firms' behaviour and interactions (Bellomo, 2008). To this end, we can assume that SBUs, firms, and M-Os are matter, with a mass (tangible assets), volume (scope), shape (structure), particle movements (change and innovation), and energy and temperature (competitiveness). Thus, in solid firms or firms in the solid state⁴⁶, strong bureaucratic norms maintain all components fixed at the firm. Nothing changes

⁴⁶ Everything stated for firms in this paragraph is also applicable to SBUs. M-Os as mixtures will be discussed later.

without authorization and direct supervision. Only slight vibration is possible. In a solid firm, volume is stable and the energy of its particles is very low, so competitiveness is also reduced. Liquid firms are more adaptable and their elements have more possibilities for movement, allowing not only vibration but also rotation. They can change their shape to better adapt to a competitive position in the environment (container). Their energy is moderate, but their volume (scope) is also fixed. Gaseous firms have variable structure (shape) and scope (volume). Their particles have high energy and can move in all directions. Competitiveness is higher in these firms because there are more possibilities for change and innovation. Plasma firms have even higher energy than gaseous firms because they are ionized. That is, collision among particles splits them into components that can be combined with elemental components from other particles. These elemental particles are searching for the best partners to form a new particle that can be split again in the next collision (magnetic fields mean attractive and repulsive forces). Plasma firms are formed of free charged elements, which are polarized elements (very specialized and focused) that can attract, repel, be attracted, or be repelled by other particles. Magnetic fields that can be induced (using the mentioned chaotic attractors) such as these, lead to collective behaviour.

The kinetic theory of matter helps to explain why substances (firms and SBUs) can change phase when energy is added to or taken away from matter. The strength of bonds between particles is different in the four states, and if temperature and/or pressure are modified, different states of matter can be obtained. So, adding energy affects the forces binding the particles that constitute matter, and matter can change phase from solid to liquid, from liquid to gas, and from solid to gas.

Conversely, taking energy away from matter can change its phase from gas to liquid, from liquid to solid, and from gas to solid.

Thus, matter can change from one state to another by gaining and losing energy, affecting the closeness, arrangement, and motion of its particles. Similarly, firms and SBUs can evolve to a higher energy state or can step backwards to a lower energy state. This way, solid firms can be transformed into liquid firms by melting (individual elements stay close together, but the bonds become more flexible, so these individual elements start to move). Liquid firms can be transformed into gaseous firms by vaporization (individual elements become able to move quickly in any direction). Solid firms can also change directly into gaseous firms through the process of sublimation (much more energy is necessary to change bureaucratic links and gain freedom to move). In reverse, firms can step backwards by losing energy. So, gaseous firms can change directly into solid ones through deposition, gaseous firms can change into liquid ones by condensation, and liquid firms can be converted to solid firms by freezing.

3.1. Thermodynamics and competitiveness in meta-organizations

Upgrading our level of analysis to M-Os, firms and/or SBUs are now the particles that constitute matter. M-Os can therefore be a mixture of solid, liquid, gaseous, and plasma firms and/or SBUs. M-Os are mixtures of two or more firms or SBUs that are not chemically combined (they maintain their psychical properties —legal, economic, and strategic relative independence). Because they have variable composition, their components retain their characteristic properties, and they can be

easily separated by physical methods. Thus, mixtures of different compositions can have very different properties.

Thermodynamics predicts that when two parts of a system with different temperatures are in contact, heat transference occurs from the high temperature object to the low temperature object, until the system's thermal equilibrium is reached. So, when forming an M-O—that can be composed of solid, liquid, gaseous, and plasma firms or SBUs—the interaction between two of them with different temperatures (competitiveness) leads to heat transference from the more to the less competitive partner. If this interaction is continuous, this competitiveness transfer can be maintained until both firms or SBUs reach a thermal equilibrium (similar competitiveness). Because M-Os are always open to the entry and exit of new partners, they are in a permanent process of seeking thermal equilibrium across the entire system. Additionally, as M-Os are part of bigger systems, if the temperature (competitiveness) of an M-O is high, its interactions with other lower energy M-Os result in an exchange of heat.

M-Os are mixtures of two or more firms or SBUs that share similar or compatible states of matter or that are close to changing to a similar or compatible phase. Any firm can join an M-O, even when its partners' states of matter are very different, but interaction becomes more difficult and consequently energy interchange (competitiveness enhancement) becomes very slow. High energy firms may feel that they dedicate too much effort to helping low energy firms, unless the latter have some valuable assets. Additionally, if differences are too large between high and low energy firms, the latter may decide that too much energy is not suitable for them, as they are used to slow decision making, fixed structures, and small

changes. Thus, these differences may end in a negative assessment of the interaction and even of the utility of belonging to the M-O.

Interaction possibilities grow when energy and motion grow as well as when there is more flexibility and adaptability. Therefore, before entering an M-O, each firm or SBU should increase its internal energy state. As we know, firms are not closed systems, so they can import energy from their environment by incorporating new skilled and motivated people and fresh management ideas, by improving their processes, and, in sum, by becoming more effective and efficient. When firms decide to enter into a collaborative relationship (assuming a complex M-O approach), they should assess their internal energy level and compare it with that of potential partners. Their interactions with other firms could entail consequences that can be explained using the kinetic approach. Solid firms have low energy, allow only vibrational motion in their elements, and have a definite volume and shape. Liquid firms have moderate energy, allow rotational motion in their elements, and have a definite volume but can change their shape to the shape of their container. Gaseous firms have high energy, allow translational motion, and have indefinite volume and shape. Finally, plasma firms have very high energy, allow collective motion, and have indefinite volume and shape.

The possible combinations among states of matter are as follows: solid to solid, solid to liquid, solid to gas, solid to plasma, liquid to liquid, liquid to gas, liquid to plasma, gas to gas, and gas to plasma. In interactions between more than two firms or SBUs in different states of matter, it is necessary to consider all of the effects to characterize the M-O that result from these mixtures.

Interactions among solid firms with a definite shape are only possible if the interactions are set close their surfaces, and they are limited to complementary surfaces. Therefore, only part of the firm has the potential to interact with other firms or SBUs, and consequently, energy interchange is less efficient. The only possibility to increase the interaction of solid firms is to break them into smaller parts so that many surfaces can be contacted. This breakage can represent a major transformation that no firm would be able to accept because if they leave the M-O, the firm would need to be recomposed.

If all firms and SBUs increase their internal energy and become liquids, it makes expand the possibilities for interaction and adaptation so many more contacts are possible with other firms in the M-O. Because they are more flexible and adaptable, mixing them is possible if their densities are similar. Density is defined as mass divided by volume. Low density substances float over high density ones. Thus, a firm with many assets in relation to its scope is much denser than a firm with fewer assets in relation to its scope. This way, if liquid firms with different densities are mixed, the less dense firm will float over the denser one.

When all firms are gases, their contact will be more intense at the particle level. Because they can expand and adopt any form, gaseous firms in the expanding universe of possibilities can reach new intersections among customers, customer needs, and technologies. The distance between gaseous firms' elements and their weak bonds means that they are easy to mix.

For plasmas, their very high energy makes interaction extremely dynamic and impossible to predict, and they can even help to expand the universe of possible intersections. In plasmas, all partners' elements can be interchanged with other

partners. Thinking about firms as a core business (nucleus) orbited by complementary activities (electrons), in plasmas, the collision of a firm (defined by its nucleus and electrons) with very specialized firms (ions) when engaging in those complementary activities can remove these activities (electrons) and replace them with specialists. Ions are formed by these impacts, which force electrons (complementary activities) to escape to the influence of their nuclei (core businesses), allowing them to join other ions waiting for the next collision. The greater the internal energy (innovation and change) that can be generated in an M-O the more likely that a plasma M-O will result. Plasma M-Os are high-energy (very competitive) combinations of firms and SBUs that are highly individually competitive to avoid losing temperature (competitiveness) in interactions with low energy (less competitive) partners.

Competition and cooperation are intrinsic to plasma's nature because they are created by collision, that is, some parts can be expelled from the organization because other external elements are more competitive. Therefore, competitive impact can remove some components, and (in extreme cases) reduce the firm to its business core. All of the components can be reorganized by attracting and repelling forces to create new temporal forms of business. These new particles can be affected by competence and cooperation according to magnetic forces driven by changes in customer needs and technological advances.

There are other possible combinations among states of matter: solid to liquid, solid to gas, solid to plasma, liquid to gas, liquid to plasma, and gas to plasma. Additionally, M-Os can involve many firms in very different phases. Close and sufficient interaction means cooperation that helps to upgrade competitiveness

because close contact with more competitive firms leads less competitive ones to realize that they can develop potential by making internal changes and increasing innovation. But, when greater differences exist in the level of energy (competitiveness) of firms, their interaction could be more difficult and disappointing for all partners. Those with high energy cannot be motivated to interact with low energy firms, and for the latter, close interaction with the former would assume big changes that they cannot confront as quickly.

When many firms are part of an M-O, their interdependences and interactions should be designed and managed to ensure the best adjustment. Entries and exits may imply changes that need to be managed. This management effort can allow pure M-O (solids, liquids, gases, and plasmas) to be obtained by fitting the firms to each other, but, more important, it can allow phase changes. Adding high energy firms to the M-O helps to improve partners' competitiveness. M-Os can also have a composite structure with partners in different phases⁴⁷, so that solid firms can coexist with liquid, gaseous, and plasma firms. The interaction among these firms can enhance their competitiveness. Over time, those firms that find belonging to an M-O useless are going to leave it. Additionally, other partners can be attracted and enter into close interaction within the M-O. Creating the conditions for attracting high energy firms can be the most important role of managers at an M-O.

The composite structure of M-Os also helps them to interact with other M-Os. So, firms or SBUs with high energy in an M-O may be attractive partners for low energy firms in other M-Os. This means multi-interaction possibilities among M-Os

⁴⁷ The same can be said about individual firms. Thus, diversified firms can show differences in the energy level (competitiveness) of their SBUs. It is less probable that big differences will be found in the phases of a SBU, so close states of matter are more likely (solid and liquid, liquid and gas, or gas and plasma).

that can take firms closer to cooperating and/or competing. A low energy M-O may result in a solid M-O with stable and bureaucratized relationships based on detailed contracts. In contrast, high energy M-Os (gaseous and plasma) are more dynamic, flexible, changeable, and adaptable. High energy M-Os have greater possibilities for attracting other individual firms and M-Os for collaboration because they have more energy (competitiveness) to share, but they also have a higher possibility that one of their elements will collide (compete) with other individual firms and M-Os. Their higher energy and motion makes it easy to find both partners and competitors in the expanding universe outlined by Abell's (1980) three-dimensional business definition model.

M-Os are neither constellations with fixed orbits nor networks formed by contractually negotiated nodes and links. Interdependences in M-Os are dynamic and changing because each element (firms or SBUs) can modify its energy by interacting cooperatively or competitively with other elements within the M-O or with other M-O. By increasing its energy level, each element can change phase from solid to liquid, gas, or plasma, from liquid to gas or plasma, and from gas to plasma. Becoming plasma, they even can escape the interdependences of their M-O and be attracted by other M-Os. The chaotic outcome of increased motion and multiple collisions can be guided by chaotic attractors acting as magnetic fields.

This approach offers a new perspective on competence among M-Os because competition should focus not on current M-Os settings but on prospective settings, due to the dynamics and change that characterize M-Os. Thus, competence among M-Os can imply cooperation within M-Os and between elements of several M-Os. In addition, cooperation among M-Os can imply competence within M-Os and between

elements of several M-Os. Because the members of an M-O can vary over time and because their competitive advantages can evolve, the situation of those partners at the M-O—or of the entire M-O—determine whether there is cooperation or competition with/against other individual SBUs, firms, or M-Os.

Stabilizing and destabilizing forces within M-Os induced by meta-entrepreneurs or meta-leaders can influence the interactions among M-Os by fostering a joint purpose to increase competitiveness by serving customer needs better than competitors. Firms' involvement in M-Os is contingent, and if some firms decide to leave the M-O, it does not necessarily mean that the relationship failed. Even if the M-O disappears, it does not mean that it has been unsuccessful but only that the integrating firms have found a better way to satisfy their customers' needs. What really matters is not the success or survival of the M-O, but that the firms become more competitive. The role of meta-entrepreneur or meta-leader—according to Barnard's (1938) functions of the executive—should maintain the vitality and efficiency of the M-O and the cooperative effort and should define and communicate the purpose of the M-O.

4. THE ROLE OF STEWARDSHIP AND TRUST IN MANAGING COMPLEX META-ORGANIZATIONS

Managing second-order complex M-Os means managing complexity caused by both internal and external interdependences and interactions and narratives. The kinetic theory of matter applied to firms, SBUs, and their interactions helps to explain the existence and evolution of M-Os. Although they are not just matter, M-Os and their “particles” are living systems that self-produce and self-organize (Bellomo, 2008).

To manage second-order complexity in M-Os, there are three options (Márquez-García, 2015):

- Trying to reduce the complexity of M-Os by aligning members' interests and perceptions, leading to a common narrative within the M-O. The role of meta-leader or meta-entrepreneur could help to develop common narratives; however, it also could engender distrust among partners if this meta-role is assumed by one or more partners or someone related to them. An external promoter can better develop this role.
- Promoting shared values, identity, sense of purpose and a trust environment as attractors to help to maintain the M-O because the partners' trust in the ability of the M-O to create common competitive advantages.
- Relying on flexible mechanisms⁴⁸ that take the M-O from one point of equilibrium to the next provides an option to manage the second-order complexity of this complex M-O. Real-time attention should be given to what is happening in the M-O from each partner's perspective.

All options are based on trust and the promotion of a stewardship approach (Márquez-García, 2015) among the firms and the SBUs that are or may become part of the M-O. Thus, if assuming that most exchange partners behave as stewards of the resources under their control (Donaldson and Davis, 1991), they are then trustworthy, and trust in exchange relationships will be common without legal and contractual governance protections (Barney and Hansen, 1994). According to kinetic

⁴⁸ Das and Teng (1996, 2001) argue that high uncertainty implies that partners should avoid hierarchical control modes.

theory, the interactions among matter with different energy levels (competitiveness) help to upgrade lower energy states to higher ones. So, as much as trust facilitates these interactions, it also becomes a source of competitive advantage, as Barney and Hansen (1994) early noted.

Using Sabel's (1993, p. 1133) definition of trust as "the mutual confidence that no party to an exchange will exploit another's vulnerabilities," trust is more useful in high energy states. Thus, in solid M-Os, it is difficult to find vulnerabilities because interactions are more difficult, everything is under control, and there are limited opportunities for opportunism. When energy rises and M-Os become more liquid, exchange vulnerabilities may increase as well. So trust is increasingly necessary for allowing motion, learning, and adaptation among members of the M-O. Finally, for gaseous and even more for plasma M-Os, trust is essential because exchange may entail significant vulnerabilities. Quick and chaotic interactions in these high energy M-O mean that trust cannot be based on formal and static governance mechanisms. This trust reflects the shared values, principles, and standards of members joining the M-O.

Stewardship theory (Davis, Schoorman, and Donaldson, 1997) is a suitable framework for explaining those situations in which agents are not motivated by individual objectives but have motives aligned with the objectives of the principal. Thus, the steward's behaviour is collective and seeks to achieve the organization's objectives. For the steward, collective and pro-organizational behaviour has a higher utility than individualistic and selfish behaviour; thus, when confronted by a choice between selfish or pro-organizational behaviour, the steward's behaviour will not

stray from the interests of its organization, and it will attempt to satisfy everybody involved (Márquez-García, 2015).

In high energy M-Os (gases and plasmas), members' stewardship behaviour promotes trust and helps interactions to be more open and innovative to determine the best way to satisfy customer needs. Members' steward behaviour is more attractive than agent behaviour when joining an M-O. Stewardship theory is therefore useful for explaining the "magnetic fields" that guide collective behaviour in plasma M-Os, but it is also useful for promoting the conditions for phase change in members of an M-O from solid to liquid, liquid to gas, and gas to plasma. The transition between states of matter can be explained by Barney and Hansen's (1994) types of trust (a weak form of trust when there are limited opportunities for opportunism; a semi-strong form of trust or trust through governance; and a strong form of trust or trust based on values, principles and standards of behaviour that have been internalized by the M-O's members assuming stewardship behaviours).

Three levels of analysis can be distinguished in meta-organizational members' narratives: individual (firms or SBUs), group, and meta-organizational. Thus, various types of trust (Márquez-García, 2003, 2008, 2015) can be identified that differentiate among three possible targets in which trust can be placed: individual members themselves, the other members involved in the M-O and the M-O itself. These trust types can become stabilizing and destabilizing forces that can take potential and current members in and out of the M-O. If they can be correctly managed, they may work as chaotic attractors.

Partners' self-trust can help them to become more involved in the M-O because it reduces their perception of vulnerability. Interactions and phase change to

higher energy (more competitive) states are then more likely. However, very high, and even excessive, self-trust may take a member out of the M-O. When this member is a plasma firm, this high self-trust may lead it to look for a new M-O or even to create a new one by attracting others. But if this high self-trust is not supported by genuine competitiveness, the incorrect perception of vulnerability may harm the firm and leave it left out and isolated.

Trust among members of the M-O can help to keep them involved in the M-O, and when this trust does not exist or distrust is present, members can decide to abandon the M-O. The open nature of an M-O makes it very likely that new members will enrol in the M-O, and then distrust among current and new members (current or potential competitors) can arise. Increasing members' energy (competitiveness) and establishing synergic relationships with other trusted members of the M-O could be the best method of prevention. But when there is trust among members of the M-O, it is also more likely to interact and to attract members' trustworthy partners to the M-O. So, trust or distrust in the partners of an M-O can stabilize or destabilize it.

Finally, trust in the M-O is the main attractor; it can stabilize the M-O and promote phase changes by increasing the energy levels for its members and the entire M-O. When current and potential members trust in the M-O they become easily involved and committed. They are also more open to interaction, exploration, and innovation. M-Os can thus become liquids, gases, and even plasmas, attracting more resources and skills to explore the expanding universe and better meet customer needs. The meta-entrepreneur and meta-leader roles could be keys to delivering both inter-organizational leadership and a shared mission and vision that could help

manage complexity and encourage partners' pro-M-O behaviour within a stewardship framework (Márquez-García, 2015). Each member should increase its energy state to better contribute to the competitiveness of the M-O, becoming more competitive itself in the process and more attractive as a potential partner. Therefore, trust in other members of the M-O is not sufficient because of its open and variable nature. Members' self-trust and trust in the M-O should be promoted by meta-organizational leaders to encourage the permanence and competitiveness of the M-O.

In high energy plasma M-Os, interactions and changes happen very quickly. Trust is then essential because behaving opportunistically may entail exclusion from the magnetic fields of collective values and behaviours that coordinate the M-O. Further, in high energy plasma M-Os, quick motion is also a trust source because if the explored intersection in the expanding universe is not interesting, it can be rapidly exchanged or reoriented. In low energy states, it is necessary to have contracts and other governance mechanisms due to low trust, slow motion, and rigidity. In lower energy states, it is more difficult to cooperate, and the competence impact may be stronger.

4.1. A process model to analyze the role of trust in meta-organizations

Finally, assuming a kinetic approach that focuses on interdependences and interactions means adopting a process perspective to manage complex M-Os and the interaction between M-O to address the expanding universe of customer needs.

M-Os as cooperative systems pass through different process stages (Ariño and De la Torre, 1998; Axelrod, 1984; Doz, 1996): initial decision to become

involved (Klijn *et al.*, 2010), the attraction of other members (Lavie, Lechner, and Singh, 2008), negotiation of the interaction and structure (Reuer and Ariño, 2007), management (Hoffmann, 2007) of the M-O, outcome assessment, and evolution (Reuer, Zollo, and Singh, 2002) of the M-O. Throughout this process, M-Os are affected by two competing tensions (stabilizing and destabilizing) that maintain the complex system between equilibrium and chaos (Solansky *et al.*, 2014). Individual, group and organizational levels of analysis can represent competing narratives (Figure 31) in which members' positive perceptions and experiences can stabilize the M-O, and negative ones can either end it or lead it into a crisis (Márquez-García, 2015).



Figure 32. Process and second-order complexity in M-Os

In this process, the role of trust types and their foundations is also relevant. We find Sako's (1998) and Faulkner's (1999) trust typologies to be useful as foundations for each member's self-trust, trust in the other members of the M-O, and trust in the M-O. Contractual and calculative trust are more likely in low energy M-

Os (solids and some liquids), competence and predictive trust are more likely in medium energy M-Os (liquids and some gases), and goodwill and friendship trust are more likely in high energy M-Os (gases and plasmas). Thus, trust can evolve from more rationally based objective trust to emotionally based subjective trust in stewardship contexts (Figure 32).

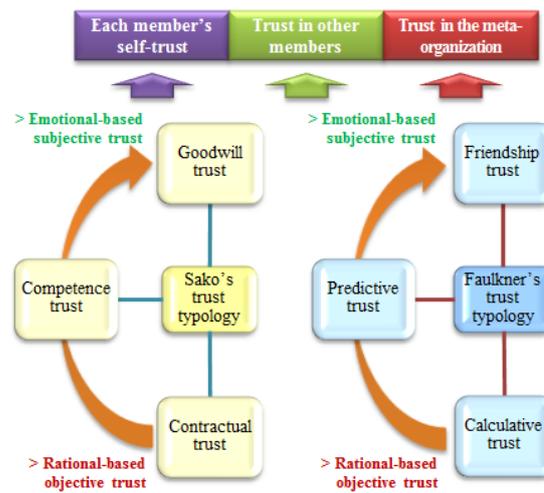


Figure 33. Foundations of trust targets

A complete representation of the role of trust types and their foundations along the stages of an M-O is proposed in Figure 33. At each stage, members' self-trust, their trust in the other members, and their trust in the M-O represent the levels of organizational analysis and help explain the second-order complexity of the M-O. Each manifestation of trust can be based on these foundations, and managers and meta-leaders should foster the right trust level (trust threshold) (Márquez-García, 2015) at each stage to maintain the M-O and to make it more competitive. Their challenge is to help members and the M-O advance from a low energy state and rational-based trust type to a high energy state and emotional-based trust form.

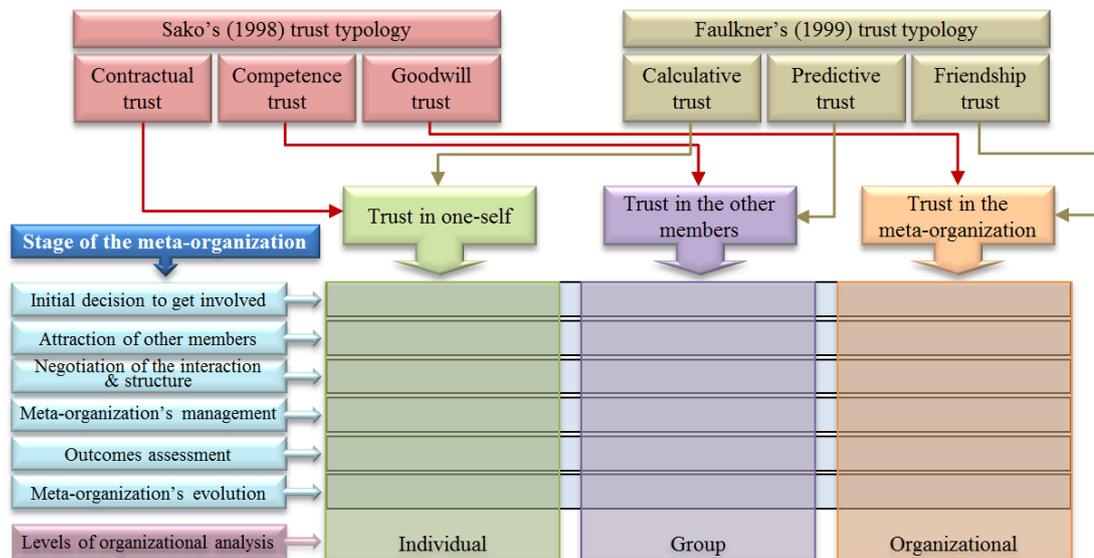


Figure 34. A process approach to the role of trust targets and foundations in M-Os

Many combinations are possible to reach the trust threshold that each member considers necessary to stay in the M-O and to contribute its best effort to increase its own and the collective competitiveness.

5. RESEARCH DESIGN

A longitudinal collective case study of three cooperative relationships among competitors in Spain was designed to demonstrate the convenience of considering them as a second-order complex M-Os, the utility of the kinetic approach for better understanding their complexity and evolution, and the role of trust over time.

Coller (2000) recommends case study-based research because it allows proximity to the actors and to the context to better understand their actions. According to Yin (1993, 1994), a case study is appropriate when researching an object or a causal relation. Siggelkow (2007), Huff (2003), and De Rond (2003) also

recommend case studies in the specific field of strategic alliances. In a similar context, Faulkner (1999) used three cases to show that the traditional control-focused approach in the study of cooperative relationships can be counterproductive.

Considering cooperative relationships as second-order complex M-Os, qualitative research is useful for exploring all partners' narratives about the relationship. It also allows applying organizational analysis levels (individual, group and organizational), that can be used as trust targets. It meets Yin's (1994) recommendations to design case studies using different units of analysis to better understand the case. Additionally, a longitudinal approach is recommended to understand the complexity and dynamics of cooperation (Smith, Carroll, and Ashford, 1995). Consequently, in this research, all members of the three selected cooperative relationships among competitors were interviewed and surveyed using a semi-structured interview and an ad hoc questionnaire, respectively. After 15 years, new interviews were conducted with the managers or leaders of the relationships to obtain their assessment of their cooperative relationships. Thus, all members' narratives have been taken into account. Also, by considering a long time period (2000–2015), we observed the evolution of each M-O and explored the theoretical and practical applicability of our proposed framework.

5.1. Case selection

The criteria for choosing the cases was to look for heterogeneity to illustrate the role of trust in different cooperative relationships because case study research is not sample-based research (Stake, 1998), and the main concern is identifying learning opportunities in the collective case study. Because three out of four cooperative

relationships are held by competitors (Morris and Herger, 1987; Dussauge and Garrette, 1999) and it is the most difficult for trust to arise and develop under a competitive scenario, the collective case study is focused on cooperative relationships among competitors. However, according to Dussauge and Garrette (1999, p. 58–59), alliances among rival firms can take on three different forms (complementary, shared-supply, and quasi-concentration) according to a classification based on two criteria: each partner's contribution to the cooperative relationship (different or similar) and the cooperative relationship's "output" (same common product or products specific to each partner).

In addition to the type of cooperation among competitor partners and because this research is also focused on the role of trust in the process of business cooperation, the maturity of the relationship is another criterion for selecting the cases because trust varies along a relationship's stages (Lane, 1998). Therefore, cases should have different lengths to represent various experiences. As a result, the type of cooperation between competitors and the length of the cooperative relationship are the main criteria for choosing the cases of this collective case study. However, other criteria can be used, such as the level of formalization of the agreement (with or without joint structures), the number of partners in the relationship (relationships among few partners have fewer interaction possibilities than relationships among many partners), the type of relationship between partners (dyadic, centred on a common element, fully networked), the level of intervention of third parties (with or without the help or participation of public agencies or facilitators), geographical scope (local, regional, national, international, global), partners' business entities (self-employed, company, social economy entity, etc.), productive sectors, functional

areas, etc. Finally, the cases selected for the study are all relationships between competitors of different lengths, with multiple geographically concentrated partners, and from different productive sectors.

6. RESULTS AND DISCUSSION

Case 1: Shared-supply relationship. Comercial Cerámicas de Bailén, S.A. This cooperative relationship was formed in 1986 by 17 producers of structural ceramics, which require a common supply of clay. They collaborate to exploit the quarries and to obtain clay of a homogeneous quality. Subsequently, they independently manufacture and aggressively market their products. The resulting products are not always distinct, but each company represents a varied combination of products. This cooperative relationship arose from the initiative of some firms from the ceramics cluster in Bailén (Jaén, Spain) and is supported by the public agency for economic promotion of the regional Andalusian government. This case presented a longer experience of cooperation when this study began in 2000. The cooperative relationship is still operational and fully consolidated, although there were many difficulties in its evolution, the expansion of its scope and the potential benefits that the partners could obtain.

Case 2: Quasi-concentration. Sierra Mágina's Protected Designation of Origin (PDO). This PDO was formed in 1995 (and authorized by the European Union in 1999) by 37 producers of extra virgin olive oil (EVOO) from the same geographical area. They meet to conduct all activities related to olive tree crop care, research, aid in manufacturing, quality control and assurance to obtain certified high quality EVOO with a Protected Designation of Origin. This quality is guaranteed to

customers by a common label only for qualified products. This relationship also led to the creation of a common trader for qualified EVOO, but not all partners chose to join it (Aceites Andaluces Sierra Mágina, S.L.). This cooperative relationship arose through the initiative of the regional government with the support of the sector in the region of Sierra Mágina in the province of Jaén (Spain), and it represents the largest EVOO PDO in the world. In this case, the sector had earlier perceived the need to work together to achieve their goals, but there was no definition for the specific manner through which common action should materialize. This relationship was the most recent of the three considered when the study began. Over time, the relationship has consolidated, and it has shown major evolutionary possibilities given the particular circumstances that the olive oil sector must confront. In this case, many of the members are first degree cooperative societies with less professional management (not in all cases and improving over time) and higher management turnover. This results in more heterogeneous views about the relationship given the different levels of knowledge and commitment to the cooperative relationship, as those managers who negotiated the agreement cannot continue leading their respective organizations.

Case 3: Complementary. Agrupación de Interés Económico Mancha Real Grupo Muebles. This cooperative relationship was formed in 1994 by five manufacturers of wooden furniture in a small geographical area (Mancha Real, Jaén, Spain). Each firm specializes in a type of furniture (kitchen furniture, bedroom furniture, living room furniture, entryway furniture, and furniture fabric and upholstery). These firms decided to cooperate to jointly offer full furniture solutions to their customers and also to gain access to international markets. In complementary

cooperative relationships, the objective is to take advantage of the varied and complementary skills and assets from different partners without duplicating the corresponding investments. Direct competition among partners is avoided due to the differentiation of partners' products. One of the partners was the main promoter of this cooperative relationship, and he searched for other partners to create a complete furniture offering for customers' common needs. This relationship was legally in force when the study began, but without effective activity because some partners had started to compete among themselves. Because some customers did not order all types of furniture, some partners questioned whether customers did not really need the furniture or whether some partners were recommending purchasing from other firms outside the relationship. As a consequence, the relationship did not progress, and finally it disappeared. Nevertheless, the promoter has continued improving its competitiveness and has finally formed a new relationship, but he now uses equity to control the other partners. Some of the new partners are the former partners, but due to their low competitiveness and financial problems, the promoter has invested capital so that he can now control the partnership and make decisions.

All of these cases can be defined as complex M-Os. This concept offers a more accurate representation of what happens inside these cases than the usual concepts such as cooperative relationships, alliances, networks, constellation of firms, etc. As M-Os, these cases show high complexity: their members are competitors; the number of possible dyadic bilateral interactions is very high⁴⁹ to be

⁴⁹ Potential dyadic bilateral interactions are the result of the combination of n members taken $k=2$ at a time without repetition: $\binom{n}{k} = \frac{n(n-1)\dots(n-k+1)}{k(k-1)\dots 1}$; $\binom{18}{2} = \frac{18 \times 17}{2 \times 1} = 153$; $\binom{37}{2} = \frac{37 \times 36}{2 \times 1} = 666$; $\binom{6}{2} = \frac{6 \times 5}{2 \times 1} = 15$.

fully designed, controlled or predicted; and the differences between members in terms of sales, assets, and competitiveness are quite high.

The first two cases show autopoietic behaviour. Both M-Os have changed structurally (members' entry and exit), but they remain and maintain the processes that characterize the M-Os. Designing M-Os with redundancy makes them more stable over time due to possible exits. The first two cases have high redundancy. They have experimented with the exit of members and the M-Os continue to exist. Low redundancy (just one firm per type of furniture) made the third case very sensitive to any member's withdrawal, and it finally collapsed.

A second-order complex approach to cooperative relationships as M-Os is extremely useful to understand and to manage them. Interviews and questionnaires show the relevance of considering individual (each firm), group (dyadic and multiple), and meta-organizational (entire cooperation relationship) levels of analysis. Cooperation and competition coexist within M-Os.

All cooperative relationships create a formal structure: a joint venture (JV) for the first case, a Protected Designation of Origin (PDO) for the second, and an Economic Interest Group (EIG) for the third. However, only the first two cases, particularly the second one, achieved both a common identity and a sense of purpose that worked as chaotic attractors thanks to the role of the meta-leaders. In the first case, the CEO of the biggest firm in the cooperative relationship—which is also one of the most competitive in the entire national sector—assumed the role of promoter. The fact that this firm did not need the clay from the common quarries and still wanted to get involved in this common initiative led other firms to enter the relationship. Their motives were not only access to the clay but also to benefit from

collaborating with the sector leader. In addition to helping the group, the leader firm was motivated to head the project because the regional government was very interested in promoting economic activity in the territory. Additionally, the leader firm was highly specialized in products that the other members could not compete against because they were less technologically developed. By participating in the common project, the leader obtained a reputational benefit and also potential advantages from the regional government. Complementary to this leadership, an independent professional was hired for managing day-to-day operations. Members' individual narratives showed some fear regarding cooperation because of differences in competitiveness, size, technology, and equipment. Additionally, some members were direct competitors, so some dyadic interactions were almost impossible due to bad past experiences, which influenced group narratives. However, their common need of clay, the equality established for all partners in the joint venture, the leader, the manager, and support from the regional government led them to share a favourable narrative about the M-O. Some partners shared in a past common selling experience with a poor outcome, so the narratives about the possibility of common selling were less positive.

In the second case, we also find a leader and an independent manager. The leader was not one of the members but was the public officer in charge of agricultural issues in the province and was designated as the PDO's president. All members were in the same territory "Sierra Mágina"—which gives its name to the PDO— which helped develop a sense of belonging. Additionally, a common logo for the PDO's members was created and installed on the façade of all members' facilities. Thus, they started to be known as members of Sierra Mágina's PDO.

Common promotional activities directed to final customers were also designed to emphasize the common identity. Members' individual narratives showed that they were very proud of their product, but the lack of marketing vision and marketing channels led them to sell their EVOO as a commodity. This means that the group narratives were not very relevant because they did not consider the other members to be competitors. As a commodity, the EVOO prices were controlled by a few brokers. One past experience of cooperation that grouped the sector and was stopped by judicial intervention had a major effect on their narrative on cooperation. Nonetheless, they are fully convinced that unity is strength.

In the third case, the promoter assumed the leader and manager roles because the other members did not want to spend money or time managing the relationship. They thought that benefits would be automatic after agreeing to enter into the EIG. The individual narratives discussed the members' competitive difficulties because many undifferentiated firms with basic technologies were competing in a small geographical area. Members therefore sought cooperation as an opportunity to sell more without having to invest to become more competitive. The possibility of sharing customers with complementary furniture needs encouraged them to participate in the relationship (narratives on cooperation). They expected to gain advantages just by creating a common catalogue, without committing resources or designing jointly. The fact that they were not direct competitors helped them decide to get involved, but they were suspicious about the possibility of becoming direct competitors because any of them could easily extend their scope to new types of furniture (group narratives).

According to kinetic theory, members differ in their state of matter, but in our three cases, most of the members are solid firms. In the first case, many members do not have competitive infrastructures because technological updating means heavy investment, and the sector has cyclical crises. Therefore, uncertainty about the evolution of the sector and strong competition from more technologically advanced firms makes these firms very cautious and fearful. Some firms are more liquid and explore new products (e.g., low density thermal honeycomb clay blocks), and the leader can be described as a gaseous firm. This firm has a R&D department and produces innovations based on mixtures of clay that result in products with improved features, with new designs, adapted to international markets, etc. All of these changes help liquid and gaseous firms find blue oceans (Kim and Mauborgne, 2005) with fewer competitors, even no competitors in their geographical area. Structural ceramics products are heavy, so it is necessary to consider distances between the producer and the customers because transportation costs may become an important part of their final cost.

In the second case, all members (EVOO producers) have their production facilities technologically updated. They are very competitive in extracting the best EVOO from olives, but their commercial skills are minimal. Years ago, different qualities of olive oils were not valued differently, and all olive oils can be sold — sooner or later— at a minimum price. In this context, some firms bet on producing high quality EVOO and using strategic and operative marketing with an international orientation to search for new markets (gaseous firms). As a result, some customer segments appreciated their products more and paid higher prices. Seeing that some geographically nearby firms sell their EVOO at a higher price, some (liquid)

producers asked to have a PDO recognized. Then, all PDO members could offer their high quality EVOO to these customer segments, who appreciate them enough to pay a higher price. However, not all olive oils can be certified as high quality, and firms find it difficult to sell them. Many of these firms depend on brokers who sometimes require firms sell them high quality EVOO at a lower price in exchange for also buying regular olive oils. Therefore, some members formed a joint venture to market in common their high quality EVOO. However, competing in high price segments requires an investment in marketing, and many members believe that a high quality product does not need extra effort to be sold. As a consequence, a new M-O emerged to meet members' needs to better sell high quality EVOO, but it had low mass (assets) and low motion. Some initial members decided to exit this joint venture and to individually try to position their own brand in the market.

In the third case, members are firms created by skilled workers that decided to leave their jobs and become entrepreneurs. They knew the technical side of the firm, but they usually copied designs from other more innovative firms. So, with few resources and costs, they could compete using a low price and acceptable quality strategy. Most members were solid firms, but some members wanted to innovate. Only the leader firm (gaseous firm) decided to introduce radical innovations and even stopped producing during one year to install the best technology. This new technology makes it possible to efficiently produce custom furniture on demand.

The M-Os we study have a composite structure. The three cases share the existence of gaseous firms that promote the creation of the M-O, but most of the other members are solid firms. Gaseous firms also perform the role of meta-leaders, but there are major differences between members. It is very difficult for solid firms

to increase their energy state to the level that gaseous firms would like and need. Thus, gaseous firms' expectations may be disappointed, and their commitment to the M-O can be reduced. Consequently, an M-O formed mostly by solid firms tends to be solid too. In the third case, the gaseous firm tried to encourage changes in the other members, but a gaseous firm alone was not enough lead other members to upgrade. This gaseous firm attracted other members to form the M-O, but the M-O did not gain enough energy to attract new members.

In the first case, the gaseous leader, the external meta-leader, and the manager gave more energy to the M-O. So, over time, the M-O has maintained enough energy to attract new members. Finally, in the second case, gaseous and liquid members jointly with the external meta-leader, and the manager made this M-O more liquid. Some of the gaseous members decided to form a new M-O to improve selling and to sell abroad. As members invested in marketing, they realized the potential of producing high quality EVOO, so other firms were attracted to join the PDO. However, just being a member of the PDO does not improve sales and prices, so some solid members have left the PDO. Entries and exits have been more frequent in the PDO because most of its members are cooperatives, and their governing boards change. When new governing boards step into the cooperative, they may or may not realize the potential of being part of the PDO. This is why some members have entered, exited, and re-entered the PDO.

The three M-Os also illustrate the effect of a stewardship or agency approach. In the third case, members are primarily motivated by their individual objectives. Only the gaseous leader showed pro-M-O behaviour. Therefore, this M-O is close to an agency approach, and selfish behaviour and opportunism have left no place for

trust. The first two cases are closer to a stewardship approach, particularly the second. In the first case, the members' interests are better aligned because all of them need the clay from common quarries. In the second case, members share the common desire to produce high quality EVOO, so none of them will place the PDO's reputation at risk.

Finally, the role of trust is also different in the three cases. In the first case, many members declared that they do not trust each other, but they trust themselves and they trust the M-O they formed to have the clay they need to manufacture their products. They are therefore involved in the M-O even though there are major differences among them. Their trust is more calculative and contractually based. In the second case, the members do not consider each other to be competitors, so they trust the other members and they trust the M-O they formed to have certified high quality EVOO. The members' self-trust is low due to their frequently changing governing boards and the lack of professional managers. Experience may be lost with these changes, making the firms feel less confident. In the third case, the members show the worst trust mix of the three M-O: high members' self-trust, low trust in the other members, and low trust in the M-O. Therefore, the M-O collapsed.

7. CONCLUSIONS

This paper integrates both a strategic and organizational orientation and proposes an alternative framework to upgrade our understanding of the interplay between cooperation and competition. The concept of M-O and insights from the social sciences, systems theory, complexity, chaos, autopoiesis, fractals, and even physics

help to better explain how the interdependences among firms can evolve into cooperative or competitive relationships.

When focusing on underlying interdependences among firms or SBUs, both cooperative and competitive relationships form cooperative systems (intended and unintended, respectively). The interactions between the elements of a system and with elements from other systems can be cooperative or competitive. Abell's (1980) business definition model helps to explain the interplay between cooperation and competition using interdependences among SBU from different firms. Interdependence makes cooperation and competition regular functions that systems can perform and should manage in both an intra-organizational and an inter-organizational context.

SBUs are micro-units in the expanding universe of possible intersections between customers, needs, and technologies, and interdependences relate micro and macro units. Some interdependences are natural, or given in a particular environment, and others can be designed to create the best environment for the M-O's members to cooperate and compete more efficiently to better satisfy customer needs. An M-O composed of interdependent and interacting firms and/or SBUs represents a macro-unit of organizational analysis with dynamic and variable configuration and scope. M-Os represent the organizational effect of members' strategic decisions. M-Os are not stable and structured networks of firms (entries and exits are common), but the result of a set of stabilizing and destabilizing forces seeking equilibrium. Thus, changes are not accidents but intrinsic to M-Os. The internal evolution of their elements and their internal and external interdependences make it possible for M-Os to change their scope, competitiveness, and attraction to

cooperate with and to compete against other members. M-Os are an aggregate of synergic SBUs, and their individual and interrelated evolution make it impossible to predict the joint outcomes. Consequently, M-Os can be autopoietic, this is, self-produced.

The focus on interdependences can result in cooperative and/or competitive interactions within and among complex M-Os in the context of an expanding universe of combinations among customers, needs, and technologies. Chaotic attractors should be designed to help define the particular “shape” of the M-O as a state of flux at a particular time because multiple narratives result in second-order complexity. The roles of meta-entrepreneur and meta-leader can be performed to create chaotic attractors that serve as “magnetic fields” to handle the second-order complexity in M-Os.

Describing firms using states of matter and applying kinetic theory offer an alternative perspective on their behaviour and interactions. Firms, SBUs, and M-Os can be classified as solids, liquids, gases, and plasmas. The kinetic theory of matter helps to explain why firms, SBUs, and M-Os can change phase when energy (competitiveness) is added to or taken away from them. Additionally, according to a kinetic perspective, systems are always in a permanent process of reaching thermic equilibrium. Thus, when two firms or SBUs with different temperatures (energy) inside an M-O, across M-Os, or within two separate M-Os interact, heat transference (competitiveness) is produced between them, from the partner with high temperature to the partner with low temperature. Firms and SBUs would like to enter into an M-O that helps them to increase their energy and competitiveness. M-Os should help their members to increase their inner energy. They also should attract high energy partners

and M-O to their field of interaction. Creating the conditions for attracting high energy firms, SBUs, and M-Os can be the most important role of the leaders and managers at M-Os. This approach provides a new perspective on competence among M-Os because competition should focus not on their current settings but on prospective settings due to their intrinsic dynamics and change.

Applying the kinetic theory of matter to firms, SBUs, and their interactions helps to explain the existence and evolution of M-Os. Trust and a stewardship approach facilitate these interactions, and both are useful for promoting the conditions for phase change in members of an M-O. Different forms of trust can be relevant to reaching the necessary trust threshold to maintain the M-O and to improve its competitiveness.

The longitudinal collective case studies show some evidence of the theoretical and practical utility of this kinetic approach to M-Os and the relevance of trust targets along the cooperative process. Knowledge of members' individual, group and organizational narratives about the M-O is necessary to manage it with higher success possibilities (not probabilities). Finally, a stewardship framework produces better results and helps develop trust, especially trust in the M-O.

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The increase of known truths stimulates the investigation, establishment, and growth of the arts; not their diminution or destruction

Galileo Galilei⁵⁰

⁵⁰ Letter to Madame Christina of Lorraine, Grand Duchess of Tuscany. 1615. Available at <http://inters.org/galilei-madame-christina-Lorraine>

**CONCLUSIONS,
LIMITATIONS AND FURTHER RESEARCH,
AND RECOMMENDATIONS**

CONCLUSIONS

This research intends to contribute to the existing knowledge on the relation between cooperation and trust.

We propose a holistic-dynamic approach, which assumes that a cooperative relationship is really a meta-organization; thus, much of what we know about governing and managing organizations can be applied to cooperative relationships. Just as firms are composed of individuals, cooperative relationships show an additional aggregation level, where the “individuals” of the meta-organization are other organizations.

By integrating both a strategic and organizational orientation we propose an alternative framework for upgrading our understanding of the interplay between cooperation and competition. Strategic business units are micro-units in the expanding universe of possible intersections among customers, needs, and technologies, and interdependences are what relate micro and macro units. Some interdependences are natural, or given in a particular environment, and other can be designed to create the best environment where members of meta-organizations can cooperate and compete more efficiently to better satisfying customers’ needs. Meta-organizations composed by interdependent and interacting firms and/or strategic business units represent a macro-unit of organizational analysis with dynamic and variable configuration and scope. Meta-organizations represent the organizational effect of members’ strategic decisions.

When focusing on underlying interdependences among firms or SBU, both cooperative and competitive relationships are cooperative systems (intended, and unintended, respectively). The interactions among the elements of a system, and with other systems' elements, can be cooperative or competitive. Interdependence makes cooperation and competition regular functions that systems can perform and should manage both in an intra-organizational and inter-organizational context, in an expanding universe of combinations among customers, needs, and technologies.

Therefore, the unit of analysis should be the meta-organization as a system, not the firms (elements), the transaction (short-term interchange), or the relationship (long-term interchange). The meta-organization emphasizes the long-term, open, flexible and complex character of cooperative relationships. From a systemic perspective and in a growing global environment, the meta-organizational analysis becomes increasingly relevant. A cooperative relationship as a meta-organization (and therefore, as a system) has properties that are not found in any of its elements. In the study of cooperation, it is necessary to complement the reductionist approach that attempts to explain systems through the individual study of their elements because a system yield depends fundamentally both on the form in which its elements mutually interact and on its relationship to other systems (holism).

The concept of meta-organization and insights from social sciences, systems theory, complexity, chaos, autopoiesis, fractals, and even physics help better explain the real evolution of interdependences among firms that can evolve into cooperative or competitive relationships. They can also contribute to explain both how to govern these new meta-organizations and how to address problems that are far outside the traditional paradigms.

The concept of entropy—as a measure of the amount of disorder in a system—can be related to the amount of uncertainty in a situation of a choice among many available alternatives. Because entropy tends to increase in a cooperative relationship, the relationship becomes more difficult to govern. When the relationship's governance does not effectively produce negative entropy, it fails to keep the system united, and that system may ultimately disappear. The second law of thermodynamics states that closed systems degenerate to a fixed-point equilibrium characterized by maximum disorder. Therefore, the design of cooperative relationships as closed systems is probably one of the reasons for the high failure rate of business cooperation. The dynamic process of cooperation and learning among partners in a cooperative relationship helps increase the available information, thus reducing entropy and helping organize the system.

Complexity is changing how we think about organizations and therefore about cooperation relationships as meta-organizations, because as complex systems numerous elements interact constantly and spontaneously, organizing and reorganizing themselves into increasingly elaborate structures. There is no proportionality between cause and effect, and small causes may produce large effects in cooperative relationships. Also, because complex systems are very sensitive to initial conditions, small differences can result in the configuration of very different systems. Due to the impossibility of fully specifying initial conditions with total accuracy, cooperative relationships have the tendency to become unpredictable. Moreover, because systemic behaviour is the emergent outcome of multiple interactions, complex systems such as cooperative relationships tend to provide for

the emergence of new modes of behaviour that are not reducible to the previous description of the system's behaviour.

Cooperative relationships as meta-organizations can be considered as living systems as a suitable paradigm for understanding organizations that do not always act rationally, nor do they do their best for their members. Moreover, as a living system, the concept of autopoiesis is applicable. If cooperative relationships are considered as living autopoietic systems, they could change structurally (with the ins and outs of organizations) but maintain their identity if they had the ability to self-replicate the components necessary to continue the processes or operations that characterize the system. Meta-organizations are not stable and structured networks of firms (ins and outs are normal), but the result of a set of stabilizing and destabilizing forces seeking for equilibrium. Thus, changes are not accidents but intrinsic to meta-organizations. The internal evolution of their elements and their internal and external interdependences, make possible that meta-organizations can change their scope, competitiveness, attraction to cooperate with, and to compete against, etc. Meta-organizations are an aggregate of synergic strategic business units which individual and interrelated evolution make impossible predict the joint outcomes. Consequently, meta-organizations can be autopoietic that is, self-produced. Thus, partners' ins and outs are not a signal of failure; instead, they are a normal, possible consequence of the cooperative system's self-organization.

Then, the cooperative relationship should prevail independently of the partners enrolled at any moment. The most difficult thing is not looking for and finding the right partners, nor is it signing a contract (more or less detailed), but instead, it is awakening a real will to become part of a common project in which all

partners are necessary but none are important enough for the project to fail if a partner decides to quit. Therefore, to decide how to govern or manage a cooperative relationship, it is necessary to consider its design as a meta-organization that can survive partners' ins and outs.

The meta-organization has the possibility of connecting or disconnecting nodes to the relationship at any time that it is competitively convenient to do so. This way, the system can evolve and self-organize because potential and current partners can enter and exit; in other words, the nodes could be active or inactive, but they can be activated if the dynamic equilibrium needs them. The prevalence of this meta-organization is guaranteed, and attractors cause partners to become either more or less close to the cooperative relationship. Self-organization creates attractors in the form of "system memory", redundancy (which makes them less vulnerable to disruptions and malfunctioning parts), or self-reference. The availability of alternative sources of resources (partners) increases the meta-organization's power and autonomy by decreasing its dependence upon any particular partner. Consequently, these systems are adaptive, they operate far from equilibrium, and they can be inherently unpredictable.

A meta-organization as a complex system is continuously transforming itself into one with a higher level of complexity, producing changes that are irreversible and thus evolutionary and even small changes can cause complex and unpredictable disorders. This is, cooperative relationships can be considered from the perspective of chaos. As self-regulated complex systems, organizations and meta-organizations are not rigid structures; instead, they are flexible manifestations of underlying processes. Given that a system can become chaotic when modifying a parameter that

represents its complexity, knowing its attractor can allow us to use and/or to attempt to influence it. A skilful leadership can take advantage of addressing values, identity, history, a sense of purpose, etc., as chaotic attractors. Chaotic attractors should be designed to help define the particular “shape” of the meta-organization as a state of flux at a particular time, because multiple narratives result in second-order complexity. The roles of meta-entrepreneur and meta-leader can be performed to create chaotic attractors as “magnetic fields” that helps to handle second-order complexity in meta-organizations.

The attractors of chaos theory that lead to self-organization are fractals. This fractal theory is also applied to the study of organizations, which considers them equilibrium systems in which small but multiple forces and visions coexist that drive the organization toward a new state of equilibrium. The application of fractal theory questions the linear thinking of one vision and one mission, accepting the existence of multiple visions and missions in strategic planning. In the fractal approach, the units of an organization (cooperative relationship or meta-organization) are not the only replicas of the organization’s central thought; however, it is desirable to find in each employee or collaborator (in each organization) a replica, at the appropriate scale, of the spirit of cooperation. Fractal theory introduces interesting aspects related to the non-uniqueness requirement of the mission and vision of cooperative relationships as fractal organizations.

Describing firms using states of matter and applying kinetic theory offer an alternative perspective about their behaviour and interactions. This way, firms, SBU, and meta-organizations can be classified as solids, liquids, gases, and plasmas. The kinetic theory of matter helps explain why firms, SBU, and meta-organizations can

change phase when energy (competitiveness) is added to or taken away from them. Also, according to a kinetic perspective, systems are always in a permanent process of reaching thermal equilibrium. Thus, when two firms or SBU with different temperatures (energy) inside a meta-organization, across meta-organizations, or even two whole meta-organizations interact, heat transference (competitiveness) is produced between them, from the partner with high temperature to the partner with low temperature. Then, firms and SBU would like to enter in a meta-organization which helps them to increase their energy and competitiveness. So, meta-organizations should help their members to increase their inner energy. They also should attract high energy partners and meta-organizations to their field of interaction. Creating the conditions for attracting high energy firms, SBU, and meta-organizations can be the most important role of leaders and managers at meta-organizations. This approach gives a new perspective to competence among meta-organizations because competition should focus not on their current settings but on prospective settings due to their intrinsic dynamics and change. Kinetic theory of matter applied to firms, SBU, and their interactions helps explain existence and evolution of meta-organizations.

It is possible to focus any organizational question from multiple perspectives, using organizational levels of analysis, taking into account the systemic interdependencies among them and their reciprocal influences, as each level integrates the precedents as subsystems with which it maintains interdependence relations. Therefore, considering cooperative relationships as meta-organizations and systems, by applying the principle of isomorphism, it is possible to study business cooperative relationships using these levels of analysis. The individual level (micro)

is represented by simple organizations involved in the relationship, the macro level corresponds to the cooperative relationship as a meta-organization, and the meso level corresponds to the groups of firms within the relationship. The complex nature of the systems is evident in the interaction among the levels of analysis.

This perspective is compatible with the narrative approach which implies second-order complexity. Second-order complexity is also a very useful approach for understanding cooperative relationships, at which we can arrive by combining the complexity view to explain both the dynamics within the meta-organization team and fractal theory's multiple perspectives. Therefore, considering multiple individual, group and organizational narratives from a dynamic perspective, it is possible to obtain a better understanding of the cooperation process from the initial decision to cooperate, partners' election, the negotiation of the agreement and its structure, the management of the relationship, the evaluation of outcomes and the possible evolution of the relationship.

These levels of analysis represent complexity layers that produce different narratives (partial views of reality) about the cooperative relationship from all partners' point of view about their particular motives for cooperating and maintaining their involvement in the relationship, their perception of their partners' selection process, the negotiation of the agreement and the final adopted structure, the management of the relationship, their pros and cons assessment and their prospective perception about the evolution of the cooperative relationship. Each partner has its own narrative about what happens throughout the cooperation process. The dynamic process of cooperation is a story with different phases, and levels of organizational analysis help us understand the plot.

Throughout the cooperation process, the meta-organization is affected by two competing tensions (stabilizing and destabilizing tensions), maintaining the complex system between equilibrium and chaos. Individual, group and organizational levels of analysis can represent competing narratives in which positive perceptions and experiences can stabilize the relationship and negative ones can either end it or lead it to a crisis state. Thus, assuming each partner is also a meta-organization (because of its relationships with stakeholders, but usually with a low complexity level) that becomes part of a cooperative relationship (with higher level of complexity), these two competing tensions can be identified. Because it is easier to generate negative entropy in the first one (each partner as a meta-organization) and the last one (the cooperative relationship as a meta-organization) is more complex, it is more likely that the cooperative relationship will fail to achieve its goals. Partners' acts of organization and contributions to the (meta-) organization are necessary to define an organization. Therefore, a meta-organization's attractors should be designed both to generate negative entropy and to maintain partners interested in the collaboration relationship.

All of these narratives create a very high level of complexity that cannot be addressed using previous paradigms. Cooperative relationships as second-order complex meta-organizations are not fixed and given objects to be governed and managed. We are attempting to govern and manage very complex systems, using tools and techniques that are designed for systems with lower complexity levels. The obvious consequence is a very high failure rate of cooperation initiatives, their limited scope and lifetime, and the constraints that are imposed to make them work by either reducing or ignoring their complexity such that the potential advantages do

not present themselves as often as the disadvantages. Consequently, it is necessary to upgrade our level of thinking if we want to address organizations that are more complex. Therefore, to govern and to manage second-order complexity in meta-organizations, there are three options.

The first option is trying to reduce the meta-organization's complexity. One way to reduce complexity in the meta-organization is to align partners' interests and perceptions, leading to a common narrative that begins by choosing the most suitable partners, not only in terms of their resources or abilities but also in their motives to cooperate, their compatibility, and their real will to engage in a common project. The role of meta-leader or meta-entrepreneur could help develop narratives that are more common.

The second option is developing specific governance mechanisms to address this second-order complexity in meta-organizations in which, even with different narratives, there can be shared values and a trust environment that helps maintain the cooperative relationship because of partners' trust in the relationship's ability to create common competitive advantages. Therefore, fostering a meta-organization's attractors—values, identity, sense of purpose—despite differences in the partners' narratives, can influence partners to engage in pro-meta-organizational behaviour by creating a setting in which partners voluntarily decide to engage in the behaviour that benefits the alliance and trust mitigates uncertainty (producing negative entropy) about partners' behaviour.

The third option is thinking in a way that makes it possible to accommodate multiple descriptions that are not equivalent descriptions—that are even contradictions. In other words, managers should “complicate” themselves, increasing

the complexity of their understanding to match the complexity of the situation that they must manage, thus maintaining a balance between flexibility and stability. Therefore, relying on flexible mechanisms that take the meta-organization from one point of equilibrium to the next provides an option to cope with the second-order complexity of this complex meta-organization. High uncertainty implies that partners should avoid hierarchical control modes. Real-time attention should be given to what is happening in the meta-organization from each partner's perspective, knowing what happened in the past and what partners want to happen in the future.

Literature on cooperative relationships has been usually focused on control-related issues that enable the enforcement of cooperative behaviours through retaliation and punishment ("hard control"). The power source for this action could be hierarchy, equity dependence, contractual commitments and strategic dependence. This "hard control" is a push strategy to compel partners to remain in the cooperative relationship, even if the motives that led them to participate have disappeared. This rigidity makes partners think very carefully about entering into a partnership, seeking to specify all of the possible contingencies that could arise over the lifetime of the relationship, attempting to formalize behaviours to address situations of uncertain and indeterminate characteristics and even situations whose appearance is unforeseeable. These structuring and formalizing practices can be seen as a demonstration of the bureaucratization that affects the growth of organizations. However, when we join two autonomous and independent components with an excessively rigid and formal link, in the event of emerging differences, the link's inflexibility makes its breakdown more probable. Thus, cooperative relationships' governance should tend toward a greater flexibility and adjustment capacity,

establishing the necessary mechanisms to govern and manage in real time any emerging incidences and redefining the agreement according to each organization's needs and objectives.

Unlike a push-based "hard-control" strategy, a "soft-control" strategy is a more flexible, pull-based strategy to attract partners to the cooperative relationship. By maintaining their independence, partners choose to participate and continue to participate over time because the attractors designed for the meta-organization link the partners' willingness to stay to the cooperative relationship.

Taking into account that a meta-organization is intended to improve its partners' competitive advantages and that agency theory studies bilateral relationships as how a particular delegation of authority is produced, agency theory offers an interesting framework for understanding partners' behaviours, because those partners are both principals and agents. In this way, each firm plays a double role, attempting to pursue its own interest through its performance with the collaboration offered to and received from the other partners.

As a result, each company is in charge (principal) of its own interests, delegating to the other partners the responsibility of helping it further those interests. Additionally, each firm is an agent of all partners' interests (including its own) and should collaborate to achieve all of the partners' objectives. Nevertheless, each firm should not leave in its partners' hands the task of achieving its own objectives; instead, each firm should also attempt to achieve those objectives through its own initiative, with the help of its participation in the cooperative relationship. Therefore, the problem arises of when firms should elect to behave like agents of their own interests or agents of their partners' objectives. It is a logical assumption that each

partner will decide to make reaching its own objectives the top priority, because inter-organizational principals and agents also play the role of intra-organizational agents to whom their intra-organizational principals have entrusted the defense of their interests. The challenge is how to achieve each partner's objectives collectively, because it is more likely for each firm to place more relevance on its own goals, using its partnership to better achieve them.

Considering a cooperative relationship as a meta-organization, the distribution of the roles of principals and agents in the relationship can be seen from a different perspective. Maintaining their roles as the principals and agents of their own interests (intra-organizational agency relationships) (1st intra), partners in cooperative relationships also act as principals in the inter-organizational agency relationship (1st inter) that arises when cooperating because they (should) rely on the relationship (the meta-organization) as the agent with the responsibility to make a contribution that improves their competitiveness. The meta-organization as a principal in an intra-organizational agency relationship (2nd intra) needs agents to achieve its own goals. These agents can be personalized as the executives of the relationship, when they exist; in any event, the relationship is implicitly composed of all of the partners. In the absence of an own-management organ for the relationship, companies are both principals and members of the "associated agent"—that is, the cooperative relationship itself. However, the meta-organization needs to do things that it cannot do on its own. Thus, a new principal-agent relationship (2nd inter) arises in which the meta-organization is the principal and partner firms become the meta-organization's agents. Consequently, when cooperating, each partner acts both as principal and agent of its intra- and inter-organizational interests.

Similar to the central figure of the entrepreneur which converts contractual relationships into bilateral relationships that configure the firm, the meta-organization allows conversion of multiple relationships among the partners into bilateral relationships (each partner to the meta-organization), so that each company would be mainly related to the meta-organization. This can be especially necessary when there are many participants in the cooperative relationship.

When the agent's and principal's utility functions coincide, there are no agency problems and it is possible for both principal and agent to increase their individual utility. Nevertheless, when the agent's and principal's interests are not aligned, given the chance, some partners will attempt to maximize their own utility at the expense of the other partners. Therefore, because it is difficult for principals to know beforehand whether agents will behave loyally, it is necessary to provide adequate control mechanisms to avoid opportunistic behaviour.

However, if it were possible both to identify common objectives and to align interests, firms would assume stewardship behaviours in the cooperative relationship. In that situation, partners are not agents of other partners in the relationship; instead, they are stewards of the meta-organization. Therefore, the meta-organization is a steward of each principal and at the same time, the principals should be stewards of the meta-organization.

This could make it possible to move from an ownership-based "hard control" governance approach to a trust-based "soft control" one that considers cooperative relationships as meta-organizations. Thus, using a framework of two intra- and two inter-organizational agency relationships, such relationships can evolve into stewardships if enough trust is present throughout the cooperation process. Their

underlying assumptions are very different, and the latter makes cooperation governance easier because partners' objectives can be aligned and trust can be developed. Thus, using insights from complexity theory, it could be possible to design meta-organizations in which promoting the conditions for encouraging stewardship behaviours would make it possible to use trust-based "soft control" governance systems.

Cooperation relationships serve the strategic objectives of partner firms, so partners (as principals) create a meta-organization (as stewards) to help their partners achieve their objectives. The meta-organization's stewardship role needs to be complemented with partners' stewardship behaviour. Therefore, if partners in a cooperative relationship behave as stewards instead of agents, they should be more likely to cooperate in an effective form to achieve the common objectives because doing so should also be the better choice to satisfy the partners' organizational interests.

Relationship governance would fit the stewardship model whenever the steward can be sufficiently trusted. This steward role must be performed on behalf the relationship, its managers—if they exist—and each of the cooperating firms. A form of discovering whether partners actually behave as stewards is to observe partners' trust toward their relationship, their trust in the relationship's managers (if they exist), and their trust in the other partners to be mutually helpful in improving their competitiveness.

Control-oriented systems are designed to avoid vulnerability and thus to avoid the need for trust. Therefore, it is more likely that such systems will produce agency-theory relationships, whereas an involvement-oriented management

philosophy is more likely to produce stewardship-theory relationships. Thus, we can substitute the control-oriented approach for involvement-oriented management in cooperative relationships, using leadership and trust to encourage stewardship behaviours from all partners. If partners can create a trusting atmosphere in their relationship and the meta-organization has effective leadership, then partners are more likely to become stewards instead of agents, thus affecting the potential results of the cooperative relationship for its partners. As much as trust and a stewardship approach facilitate interactions among partners, both are useful for promoting the conditions for phase change in members of meta-organizations.

Leadership in the arena of inter-organizational relationships can be a useful and effective “soft control” mechanism for influencing partners’ narratives and therefore making them more similar, thus reducing second-order complexity. Accordingly, meta-organizational leadership would improve cooperation governance, management and results. This meta-organizational leadership role could be performed by one or several relationship partners (and can even shift from partner to partner according to the needs of a particular task), taking into account that the leadership role should not produce distrust. Additionally, the meta-organizational leader can be an external agent for the related companies to avoid opportunistic thoughts (e.g., hired managers or representatives of public administrations that support the joint project).

The key factor in leadership is the leader’s credibility and trust. Thus, to be meta-organizational leaders, partners (or external agents) should both improve their credibility (a good reputation is a good token) and become trustworthy. The meta-leadership function in cooperative relationships must seek to influence both potential

and current partners to be voluntarily engaged and oriented toward the achievement of the meta-organization's objectives, because to do so would be the best way to achieve their individual goals.

Governance is about both control and coordinating activities and people to achieve (meta-) organizational objectives. Therefore, before considering how to control a relationship, it is necessary to design that relationship in a way that makes it possible to coordinate interdependences for mutual gain. As a consequence, designing a meta-organization is primarily a question of what interdependences are necessary and the intensity of interaction in which partners can engage. The intensity of interdependence should be managed using different coordination methods. Standardization in rules and operating procedures is recommended for pooled interdependences, moderately adaptive planning and scheduling for sequential interdependences, and constant information sharing and mutual adjustments for reciprocal interdependences. Thus, if simple and informal communication possibilities exist in a cooperative relationship, coordination can be achieved by partners' mutual adjustment without structured governance mechanisms. This can be the case in cooperative relationships among a few small firms with intense interaction, in which the firms can observe their behaviours reciprocally and adjust to each other. However, when partners do not have such direct contact or the number of partners makes contact more difficult, direct supervision can offer a suitable method of coordinating the cooperative relationship. That said, direct supervision is not the best mechanism because of the lack of an accepted common authority, and its utility further declines when complexity increases. Thus, normalization or standardization proposes, first, coordinating what activities or processes are going to be developed;

second, what results partners want to achieve through the cooperative relationship; third, what should be partners' best profiles to achieve that which is supposedly good for all partners; and finally, what beliefs, values, norms, rules should be shared by the partners.

Assuming cooperative relationships are second-order complex meta-organizations, the combination of coordination mechanisms should be focused on norms normalization (trust environment) and mutual adaptation based on the partners' common goodwill. Such a stewardship approach to the meta-organization is in reality a governance mechanism that allows coordinating partners to behave in a manner that fosters mutual benefits.

Trust increases the possibility of cooperation experience and action. Trust can affect second-level complexity in cooperative relationships as meta-organizations because these possibilities are more focused around the common project. In addition, when trust exists, it can perform the role of normalizing norms in intra-organization coordination. As a result, partners' narratives can be more similar when they share somewhat common interests.

However, the variety of definitions and fields in which trust has been investigated has contributed to generate great conceptual confusion. We have analyzed the dimensions that are considered necessary when categorizing trust: subjects who trust, objects or things that can be trusted, the limits or conditions of trust, the stakes involved, the basis or sources of trustworthiness and the mental, psychological sources of trust.

Considering that the study of any organizational situation can be approached from three levels of analysis—individual, group and organizational—various types

of trust can be identified using this analytic perspective applied to cooperative relationships as meta-organizations. As a result, we propose a target-based trust typology which differentiates among three possible targets in which trust can be placed: individual partners themselves, the other partners involved in the agreement, and the cooperative relationship itself as a meta-organization.

Theoretically, the origin of the proposed types of trust is justified if we consider that trust in partners comes from specific literature on trust in cooperation relationships, as an extension of the concept from the interpersonal scope to the inter-organizational one. In the same way, trust of the organization in itself also comes, by analogy, from literature on psychology that considers it applied to the individual subject, transferring it to the organizational subject, to each one of the organizations that participate in the relationship. Finally, trust in cooperation comes from the observation of the real evidence of cooperation relationships in which trust between the partners does not exist, and even exists distrust and, in spite of it, the relationship stays. The answer can be the trust in the common project, in cooperation. Also, it is possible to base trust in cooperation keeping in mind that a cooperation relationship is a meta-organization which needs the conviction of all its members in relation to the possibility and necessity to obtain the planned objectives for the cooperation relationship. This way, trust in cooperation could be understood like an extension of trust of the organization in itself, justified in psychology, at the organizational scope considering the cooperation relationship as a meta-organization.

A target-based trust typology—self-trust, trust in partners, and trust in the cooperative relationship—facilitate an understanding how the construction of a critical trust threshold can make cooperation possible, even when trust in partners is

weak. The possibility of reaching a trust threshold by encouraging partners' self-trust and trust in the cooperative relationship can make cooperation possible, sustainable and more successful for all partners if they behave as stewards.

The target-based trust typology we propose can also contribute to a greater trust level within an organization, when not being exclusively focused in the interpersonal trust. Also it recognizes the relevance of trust in oneself both as a powerful auto-motivation element and as an antecedent of trust in others. Finally, also it shows the need to trust in the organization each one works for. As a result the combination of trust types could reduce the uncertainty and stimulate cooperation within an organization. Both total trust absence and full trust are non-real and extreme situations. The effort must go directed to stimulate the optimal level of each trust type that is appropriated for each organization in each situation, since as much a trust deficit as an excess can be detrimental.

Since the borders of organizations are more and more blurred and permeable, trust building does not have to be limited only to the own firm and the own employees, but all those that potentially could work with us in the future. With the increase of inter-organizational relationships (strategic alliances, outsourcing, etc.) both among competitors and non-competitors, trust becomes a more relevant issue to manage these relationships where people works together but belong to different organizations. Thus, they should be no longer seen as other firms' people, but as valuable potential partners and colleagues. Where authority does not work, trust, leadership and power could be the more suitable tools for co-managing people within and among organizations.

Typologies developed for inter-organizational relationships have been used to study trust within an organization and in an interpersonal context to show the necessity and possibility of linking the intra and inter-organizational perspectives to improve our understanding on trust. Also, our proposal of target-based trust has been tested both in an inter-organizational and an interpersonal context. Based on the literature, the theoretical reasoning, and the study of three cases, we have developed items that try to observe the proposed dimensions constructing subscales for each one and a joint scale adding all items. The reliability and validity of these scales and subscales have been verified. So, we get evidence of the proposed trust typology through suitable quantitative techniques (exploratory and confirmatory factor analysis, and SEM), and that allow us to understand better the role of trust in cooperation relationships.

Therefore, trust in partners is not the only relevant trust form, but it seems to be trust in cooperation the key factor for getting a successful relationship, and it is also necessary to keep in mind the role of each firm self-trust. The focus on trust in partners in the analysis of trust in cooperation relationships should be a consequence of the interpersonal origin of trust concept, where we can observe that it is more relevant. However, we find differences in the arranging in order of trust types between the interpersonal and inter-organizational relationships suggesting that what really matters in a cooperation relationship is mainly trust in cooperation. If partners do not trust their common project trusting in partners will not be so relevant. Considering a cooperation relationship as a meta-organization it needs that its members have compatible goals that could be achieved jointly, so partners should first trust in cooperation for improving their own competitiveness. After that, trust in

partners is also very important to define the governance and control mechanisms, and self-trust to value the own contribution to the relationship.

Thus, our proposed typology is also relevant because trust types can be enforced reciprocally. Also, these different combinations can determine a mix with very different consequences. This way, a greater trust in oneself (individual or organization) can favour a greater trust in others (individuals or organizations) and trust in the organization (or meta-organization). Also, self-trust together with distrust towards others will take more to the rupture than to the consolidation of relationships and could be detrimental for the organization.

Among trust foundations a hierarchy could be found that advances from contractual trust to goodwill trust and from calculative trust to friendship trust. Competence trust and predictive trust are more influenced by having better information about partners and interaction experience.

In the context of cooperative relationships as second-order complex meta-organizations trust investment could be a risky one, due to the increasing possibility that new relationships emerge and disappear. This result in a permanent need of internal reorganization, where trust in changing others could be complemented with greater trust in oneself and trust in the meta-organization we work with.

The longitudinal collective case study show some evidences of the theoretical and practical utility of the kinetic approach to meta-organizations, and the relevance of trust targets along the cooperation process. Knowledge of members' individual, group and organizational narratives about the meta-organization is necessary to manage it with higher success possibilities (not probabilities). Finally, stewardship

framework produces better results and helps develop trust, especially trust in the meta-organization.

IT allows high connectivity at a global level and bring up new opportunities by increasing contacts among potential partners from different geographic areas that can result in meta-organizations. If companies develop an alliance strategy instead of strategic alliances, it seems to be more likely the possibility of making the most of technological resources that can favour the establishment of successful cooperation relationships.

In this context IT allows firms to have more and better information possibilities. Also IT could facilitate interaction among people within and among organizations. Both should result in greater levels of trust and cooperation, but IT can rise or diminish trust due to their increasing effect of the available information and the interaction among people in the organization. The greater information availability should affect more the rational basis of trust and the greater interaction should affect to the construction of trust with emotional basis. Anyway, trust will be reduced if the use of IT is seen as only a mean to keep people under surveillance. This way, we should rethink trust and IT in practice, considering this multidimensional view.

The greater information to which IT provides access does not reduce the need to trust, since on the one hand this information never will be complete and perfect, due to the dynamic and complex character of the reality, and on the other hand, the abundant information make it not possible to have all into account to make decisions, that would be delayed until being able to get processed all the available information. In addition, trust is oriented towards the future, on which the complete information is not possible. Therefore IT does not eliminate the need to trust.

Related to the role that IT carries out in the construction of trust, it depends on two basic dimensions: the trust type that is being considered and, the contingent variables to the relationship that come from the nature of the involved agents and the environment settings. Thus, we can say that IT can strength or reduce any trust type, depending on the information and interaction that IT facilitates would contribute with favourable or unfavourable evidences about partners.

IT affects to the interpersonal trust scope and also they influence the impersonal one (institutional and systemic), since IT provides a source of trustworthiness (institutional) when allowing a greater information access and diffusion. At the same time, IT generalization is generating a social trust (systemic) in the technological tools, so that what is made through computer or electronic means usually is not questioned and it is assumed optimally done.

Remaining constant the contingent variables, IT tends to favour trust types based on a rational view of cooperation, in which the detailed analysis of the information referring to the cooperation constitutes an essential element. Therefore, IT can be appropriate means to clear the doubts that can affect to contractual trust or competence trust. In the same way, IT can be constituted as effective means to gather enough information that sustains a suitable calculative and predictive trust. The existence of online reputation mechanisms can improve contractual trust as being easier the diffusion of opportunistic behaviours. At the same time, competence trust can also be favoured by IT when having more and better information on the partners, their past behaviour and the resources and capacities that they have and which they can contribute to the relationship.

Nevertheless, the influence of IT on other trust types based on subjective interaction and with a high personal component can more be limited. Moreover, there are evidences to think that, under certain conditions of electronic interaction rejection, IT can exert no influence on friendship and goodwill trust. In these cases, it is more likely that the use of IT would be the result (and not the cause) of these trust types existence. That is to say, the previous existence of friendship or goodwill trust can give rise to a greater use of IT, but not conversely.

From a dynamic point of view IT can exert a significant role in practically all the cooperation stages. However, this influence will depend to a great extent on the trust type more relevant for the relationship development as well as of the contingent circumstances that affect the relationship. Considering the mentioned conditions, IT can be especially valuable at the previous moments to the cooperation beginning, especially when the initial decision to cooperate is taken and the more suitable partners are chosen, using systems of business intelligence and starting exchanging information directly. During the cooperation process, IT can become effective means of information exchange and interaction, stimulating trust development.

The increase of the available information through IT can be crucial in the determination of the positive and negative aspects to evaluate the cooperation relationship. Here, the strategic information systems can be especially useful, currently included in ERP systems. In general, the electronic environments allow continuous information “refreshment”, so it is easier to readjust the parameters that affect trust types and level.

In any case, in the analysis of the influence of IT on trust and the cooperation process we should consider the level of partners’ IT implementation, as well as the

experience level and familiarity with these technological tools that facilitate interaction and information access. A significant difference between the partners can represent an obstacle for the relationship and for trust development.

It is possible to maintain trust relationships based on stable and lasting electronic bonds among organizations. Nevertheless, we understand that these trust relationships will be favoured if the digital interaction go with traditional face-to-face interactions, based on personal interchange of information, values, experiences and points of view. This circumstance would make certain trust types with a high subjective component arise (as goodwill trust, friendship trust, etc.).

In this new scenario trust becomes essential to manage the new organization of the future.

LIMITATIONS AND FUTURE RESEARCH

In order to use techniques such as confirmatory factor analyses and structural equations models a big number of observations is usually demanded. It is recommended at least 200, or ten times the number of parameters to estimate. The confirmatory analyses of the subscales in our research are within this second limit when having almost sixty observations and considering six parameters by each one of them. In order to facilitate the application of the multivariate techniques in the case of analysing a reduced number of observations, the dimension of the scales in the inter-organizational questionnaire has been limited to avoid the dispersion of the answers.

This limitation derived from the reduced number of observations for the application of some multivariate techniques has been tried to palliate by means of

complementary analyses and the use of multiple methods of estimation to show their results are coherent. In any case, we understand that the applied techniques (exploratory and confirmatory factor analyses for the joint scale and subscales, using competitive modelling strategies and confirmatory second order models) provide sufficient evidence of the multidimensional character of trust and the relations between these dimensions at inter-organizational and interpersonal relationships.

In spite of having a small sample, inferior to the habitually recommended minimum to apply techniques based on models of structural equations, we obtain sufficiently suitable results. The reduction of the dimension of the scales, the process of selection of variables from the initial set, as well as the existence of common reference frameworks in the answers when analysing to all the members of the cooperation relationships, can justify the viability of the applied techniques, as well as they help to explain the good adjustment obtained in the proposed models.

Nevertheless, partial least squares (PLS) analysis can be conducted to confirm the results. This technique works well with small samples and does not impose any limitation to the data distribution. This analysis will be conducted in future research to confirm the results, and also for each one of the two cases with many partners, and with the items along the stages of the cooperation process.

It would be interesting to interview again all partners and compare their current perceptions and the new results of questionnaires with those obtained years ago. But along time is very probable that governing boards have changed and due to the subjective and individual nature of trust and the probable change the results can be difficult to be compared.

It is also interesting to apply this framework to well-known cooperative relationships and alliances, observing ins and outs and the changing structure of the meta-organizations they create.

More research is necessary on designing autopoietic cooperative relationships as complex meta-organizations, which have the capacity of evolving from one equilibrium state to the next, answering the needs of their partners and partners' customers. More research is also necessary to understand the link among meta-organizations' design, which can deliver different types of meta-organizations, partners' interdependence, and governance structures and mechanisms for reducing and managing complexity.

Both, the meta-organization concept and second-order complexity that arises from partners' narratives and levels of organizational analysis are a good framework to try to integrate many theoretical approaches to cooperation in a comprehensive theory of cooperation. Thus, different theories can be relevant according to the stage of the cooperation process and the level of organizational analysis (individual, group, or organizational). So, further theoretical research can develop interesting insights about meta-organizations that can be very useful for governing and managing their complexity, upgrading not just knowledge for academics, but also for practitioners.

Empirical research should be extended to other cooperative relationships, not just among competitors. Also, more research is needed to get additional evidence of the existence and usefulness of this trust typology in the inter-organizational and in the interpersonal scope. Also we think very interesting to use this typology to empirically observe which type of trust is more relevant at each stage of the cooperation process, so we could foster it in order to promote the cooperation success.

It will be interesting to develop empirical analysis to confirm the theoretical relation between trust and IT, making an exhaustive revision of all the contingent variables that can influence the IT-trust-cooperation relationship. Also, it would be interesting to consider the role of the different IT technologies that can be used in a cooperation relationship, and IT influence according to the different cooperation relationship types (complementary, competitive, and symbiotic; equity and non-equity; domestic and international; dyadic and multiple; etc.).

RECOMMENDATIONS

Thinking on cooperative relationships as second-order complex meta-organizations represents big possibilities for better understanding, governing, and managing them.

So, cooperative relationships should be designed according to the necessary interdependences and interactions. Therefore, the best option for building stable cooperative relationships results from identifying clear, common objectives among the firms that decide to cooperate and ensuring that each partner both identifies with the relationship and observes that its contributions to the relationship are the best way to achieve its particular organizational objectives. In fact, it should be suitable for firms to assume steward behaviours in the cooperative relationship. In this way, cooperative relationships could benefit when transitioning from the “hard control” approach based on ownership to a “soft control” approach through the use of trust. Within a stewardship framework, inter-organizational leadership and trust could become more effective mechanisms for governing cooperative relationships as

complex meta-organizations because of the greater flexibility and ability to adjust to change that they facilitate.

Both equity and full and detailed contracts are quite unlike the type of bond that is more suitable for linking partners in meta-organizations as complex systems. Because the best way to attract and retain employees in a firm is to create a challenging and attractive atmosphere that makes potential candidates either apply to work there or do their best when they are hired, the unique way to attract and bond partners in a collaboration relationship is to create and maintain attractiveness as part of the meta-organization. Accordingly, the primary role of those in charge of governing and managing should be to create the right conditions to attract and retain the best, most suitable partners to collaborate to improve both their individual and collective competitiveness. This role is more closely related to what an entrepreneur and a leader do than it is to the job of a controller or a board of directors. The inter-entrepreneur or meta-entrepreneur role in meta-organizations should be an element of joint risk assumption and coordination, and it should lead the meta-organization to use its negotiation and persuasion abilities more than an authority ownership would typically allow. To some extent, this inter-entrepreneur role must be jointly developed by all of the partners in the cooperative relationship, so that their joint performance might present a greater possibility of success.

From this perspective, the challenge in the study of business cooperation is determining how to produce autopoietic systems that can be self-produced and self-organized, going beyond the elements (companies) that integrate the relationship during its evolution as a system. Before considering how to control a relationship, it

is necessary to design that relationship in a way that makes it possible to coordinate interdependences for mutual gain

Consequently, it is more important to determine how to create and maintain partners' interest in entering and remaining part of the cooperative relationship and engaging in cooperation acts (in Barnard's approach) instead of controlling the relationship using hard-control strategies such as hierarchy, equity dependence, contractual commitments, and strategic dependence. A "soft-control" strategy is a more flexible, pull-based strategy to attract partners to the cooperative relationship. By maintaining their independence, partners choose to participate and continue to participate over time because the attractors designed for the meta-organization foster the partners' willingness to stay to the cooperative relationship. Thus, meta-organization's attractors should be designed both to generate negative entropy and to maintain partners interested in the collaboration relationship.

We can substitute the control-oriented approach for involvement-oriented management in cooperative relationships, using leadership and trust to encourage stewardship behaviours from all partners. If partners can create a trusting atmosphere in their relationship and the meta-organization has an effective leadership, then partners are more likely to become stewards instead of agents, thus affecting the potential results of the cooperative relationship for its partners.

It is necessary to find out how to get that a cooperative relationship becomes a meta-organization without creating a joint venture. The world's growing competence and the increasing speed of changes show that there is no time to create joint ventures to obtain the advantages of those ventures; moreover, firms are confronted by both administrative and legal costs. In addition, for firms using an

alliance strategy, the need to have multiple relationships with different partners to achieve a variety of goals makes difficult to create as many joint ventures as there are joint activities to be pursued. The meta-organization framework and kinetic theory offer a better explanation about how to manage the consequences of an alliance strategy.

Focusing on the meta-organization allows conversion of multiple relationships among the partners into bilateral relationships (each partner to the meta-organization), so that each company would be mainly related to the meta-organization. This can be especially necessary when there are many participants in the cooperative relationship.

Considering the usefulness of the stewardship approach to understand and manage partners' behaviours, it would be very interesting to develop methods and models to determine whether a particular cooperative relationship is based on agency or stewardship assumptions, analysing partners' profiles and their behaviours as agents or stewards. Additionally, more research is necessary to better understand how to create and foster stewardship behaviours in all partners (e.g., by identifying different types and features of meta-organizational leadership and entrepreneurship).

Practitioners must abandon the idea of creating or governing fully planned, secure cooperative relationships. Leadership and trust should be emphasized in building a common identity among partners so that they consider themselves integrated parts of a meta-organization, to which they should provide their best efforts if they hope to achieve the objectives that led them to cooperate.

An excessive concern about possible problems that have not yet appeared (and that may not appear during the cooperative relationship's lifetime) shows a

short-term perspective and a focus on the potential disadvantages, not on the competitive advantages that partners can jointly achieve. With this worry about having to face potential opportunistic behaviours from other partners, partners are not only speaking loudly about their lack of trust in the other partners but also (and more importantly) clearly showing their lack of self-trust and their lack of trust in the cooperative relationship that they are creating or joining. If partners do not have enough trust in themselves, it is very likely that they feel frightened when planning a joint business venture with other firms. Additionally, if partners do not trust in the cooperative relationship's potential advantages, it is very difficult for these advantages to come to fruition. Taking into account these trust targets, the relation between trust and cooperation acquires a new perspective that can offer interesting insights into improving the knowledge of the role that trust plays in cooperative relationships as an alternative or complementary coordination mechanism to control.

An adequate knowledge of each partner and its resources and capabilities should be assessed before considering and entering into a cooperative relationship. Because a meta-organization is a complex system that is open and changing by nature, the only sources of certainty are each partner itself and the meta-organization that the partners are creating. Consequently, these two targets of trust should be encouraged. Some partners may have been known previously, but others can enter the meta-organization in the future. Therefore, trust in partners is difficult to assess in advance. Additionally, it is necessary to highlight that if a partner enters into a cooperative relationship attempting to hide its weakness and take advantage of its partners, that partner's lack of self-trust can handicap its ability to gain the necessary trust level to remain in the meta-organization. The partner-selection process can also

be seen differently. This is not an issue that involves accepting or rejecting partners' entry into the meta-organization. Any firm can enter if it shares common goals and can help the group. Moreover, it is not about what each firm can get from cooperating, but what all partners can contribute and receive from working as a meta-organization.

The challenge is to determine how to govern and manage cooperative relationships as meta-organizations and complex systems throughout their process, taking into account the second-order complexity coming from the different narratives of the relationship. Small causes can produce big effects, and initial conditions and multiple interactions deliver emergence and unpredictability. So, knowing partners is not enough to describe system's possible behaviour. Inter-organizational or meta-organizational entrepreneurship and leadership can be suitable answers in this quest for improving cooperative relationships' success possibilities (not probabilities). It is more feasible to create the underlying assumptions of stewardship in the context of a meta-organization. In addition, the trust-targets approach also helps achieve the minimum trust threshold by encouraging partners' self-trust, trust in other potential or current partners, and especially trust in the meta-organization. It is very important that partners trust in the cooperative relationship's autopoietic features of self-producing and maintaining both its attractiveness and its competitiveness-enhancing possibilities. The use of leadership and trust as "soft-control" mechanisms in cooperative relationships should not be seen as a signal of resignation caused by the impossibility of having a safer option; instead, they must be outlined as an opportunity to obtain greater advantages that are derived from every partner's more fruitful and loyal cooperation.

Therefore, it is necessary to take into account interdependence among current and potential partners to design, govern and manage meta-organizations that stimulate partners' cooperative behaviour without using equity. The challenge is to get partners to work together using leadership, motivation, communication and trust as attractors to the meta-organization sphere. The meta-entrepreneur and meta-leader roles could be keys for delivering both an inter-organizational leadership and a shared (fractal) mission and vision that could help to manage complexity and encourage partners' pro-meta-organizational behaviour within a stewardship framework.

Trust can benefit both intra- and inter-organizational relationships, but both too much or too less trust can be detrimental. This way, both too much or too less trust in oneself, in the other partners, and in the relationship itself can have bad, or at least, unintended consequences. So, instead of claiming for trust building, the effort must go directed to stimulate the optimal level of each trust type that is appropriated for each organization in each situation, since as much a trust deficit as an excess can be detrimental. It is necessary to focus on the right combination of trust types to reach the trust threshold that each partner needs to start and to maintain collaboration. Thus, if partners have enough self-trust they will less frightened by opportunism threats. So a good partner choice is determinant in the initial design of the meta-organization as the starting point to create something valuable that can attract other firms. Also, having a good project of collaboration helps trust in the meta-organization partners are creating. These two trust types can be fostered without being affected by possible trust deficits or even distrust between some partners. The practice of building trust is the real challenge for individuals, managers and firms. Success is the reward that winners will get.

Le meglio è l'inimico del bene

The best is the enemy of the good

Dans ses écrits, un sage Italien

Dit que le mieux est l'ennemi du bien

In his writings, a wise Italian

says that the best is the enemy of the good.

François-Marie Arouet (Voltaire). 1772.

La Bégueule. Conte moral

*A man may imagine things that are false, but
he can only understand things that are true*

*What we know is a drop, what we don't know
is an ocean*

Sir Isaac Newton

Apeireka ta onta skopon

Plato