Governance mechanisms of cooperation between firms: role of formal contracts and «intermediate» (private) institutions in the context of technological projects

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MOTIVATION

An epoch of new technologies and new specific needs of the customers, of new mode of transactions organization is coming. It is distinguished from both market relations and “pure” hierarchy (classical Market vs. Hierarchy framework) and corresponds to different mixed modes of “cooperation” between firms: networks, alliances, partnerships, clusters, etc. In the frames of this research we are interested mostly in all the organizational arrangements which bring to the significant level of coordination between business units, but at the same time keep them legally autonomic with hold on separate property rights on their assets. Various characteristics of functioning of these forms, qualified as “hybrid” in the transactional literature meet the requirements of efficient coordination even better than other organizational forms in the contemporary world. However, it is important to recognize that such collaborative organizational forms are inherently risky and, in fact, together with the increase number of creation of such inter-firm collaborations, its failure rate also increases (Anderson et al., 2006).

At this point is the real concentration of our interests, - first, how to govern technological collaborative agreements, and in particular – which mechanisms have to be used and in which manner (separately or combined) and under which conditions – in order to reduce this risk and to guarantee success of technological cooperation. Second challenge here is to analyze performance of
collaborations from a wider perspective, taking into consideration that today the factors as transaction costs efficiency, market power and appropriability of innovation outcomes cannot explain consistently the success / failure of many alliances. A necessity to search for new determinants of alliance performance involving new approaches and methodology has appeared.

**PURPOSE OF THE PROJECT**

Our Ph.D. research therefore aims to explore different alternatives to justify the superiority of certain alliances. We argue that neither power nor static efficiency nor even learning capabilities alone are the driving forces behind the prominent technological partnering. In this context our research serves as for the two main purposes:

1. The first main purpose of this research is to study the relations of inter-firm cooperation in the context of technological development projects. We intend here to understand properly functioning of the specific forms of organization, namely: alliance contracts and agreements of technological cooperation, contracts of licensing of technologies, clusters between the firms in cooperation, in the sphere of software production, industrial districts, etc., which in their turn can be structured in variety of ways. Nowadays such intermediate forms of cooperation between firms become widely distributed, especially in industries with network externalities. Formal and informal institutions set rules that clarify the rights and duties of the various parties involved in the industry, and allow them to avoid the necessity to specify all the details of their bilateral relationships. Regarding this, it’s very important to understand what is «hidden» inside these relationships (motivation of the agents, the «power» of collective arrangements, etc.).

2. Secondly, in this PhD project, basing on evolutionary approach we’re going to apply the concept of cooperation process divided into series of events that occurs in the course of the relationship between partners and to explicate the impact that external shocks have on behavior of the latter. We consider also the impact of these events on the quality of the relationships, and finally, on the performance (efficiency) of technological alliances. Incompleteness of each single mode of coordination (in particular, of the contract) allows us to put transactions between interacting firms in rich theoretical context and consequently to introduce dynamics of collaboration in inter-organizational arrangements.

**METHODOLOGY**

The dominant theory of governance in alliances has been without doubt Transaction Cost Theory. Only recently critique has been voiced from several perspectives, as this theory ignores many important aspects of alliance functioning. The sharpest criticism issues from Evolutionary perspective. Competence-based theories point the weakness of the transaction cost explanation of governance choice in the fact that it is only concerned with minimizing the expected cost arising from the governance form. It assumes that governance modes do not differ in the value that can be
created through these forms (Hagedoorn, 1990). Governance modes are expected to differ in respect to the organizational learning potential they provide (Sobrero & Schrader, 1998; Steensma, 1996). Consequently dynamic processes might affect the choice of governance modes in alliances.

In this context we try to apply two alternative perspectives – governance (Transaction Costs theory) and competence (Evolutionary and Knowledge-Based Theories) – in order to show how technological cooperation agreements are governed through a period of time and in particular – which mechanisms have to be used and in which manner (separately or combined) and under which conditions – in order to reduce the risk of opportunistic behavior, from one side, and to stimulate learning and innovative capacities, from another side, and thus, to guarantee success of technological cooperation.

In our research program we propose to investigate in details the following scheme of technological cooperation:

Contractual regulation implies existence of formal bilateral relationships between counterparts, where all contract default questions become subjects to Law (Court) and public institutions intervention. It serves as a benchmark of partners’ relationships, though in this scheme we do not suppose the existence of direct impact of the choice of contractual design by partners on the economic result of their collaboration. We rather argue that more complex nexus of causal relations exists between formal structure and performance, as a technological cooperation represents a dynamic phenomenon and not a static one. As Ring and Van de Ven (1994) propose, cooperation process, and thus, alliance evolution consists of sequences of negotiation, commitment and execution stages. Moreover, initial contract, as explores Doz (1996), influences learning processes in alliances, as partners learn from their interactions in joint or coordinated activities. In our research we would like to integrate these two views on evolution of collaborations and match it with the transaction costs approach applied to the stage of choice of governance structure by partners. This allows us consequently, to have a fuller model of collaborative behavior in alliances and its influence on alliances’ performance.

Following Doz (1996) we point out the outcomes of alliances are not solely determined by the initial conditions. We rather consider that the evolution of cooperation is “pushed” by initial conditions of partners’ commitments, allocation of resources, conditions of information exchange, and rules of sharing of results (Bureth, Wolff and Zanfei, 1994; Ring, Van de Ven, 1994), stipulated in the formal agreement. Initial conditions are viewed to set the stage by either fostering or blocking
learning in the alliance. These inputs may undergo changes during the agreement in response to changes in the environment. The output of cooperation is about the transfer, creation and appropriation of technological know-how through interactive learning processes (Lazaric, Marengo, 1997). Learning is the key driving force in the dynamics, and thus the evolution of cooperation appears as a result of a dynamic between inputs and outputs.

The second challenge to be realized in this study refers to the concept of collaboration performance. We identify routines and dynamic capabilities, determined by the initial conditions (formal agreement) as major drivers of competitive advantage; and then we link initial contract conditions, learning capabilities and internal routines of the partners and overall alliance’s performance.

The issue of revealing connection between organizational choices and performance is very complex. Let’s represent a binary organizational strategy set \((G_1, G_2)\) corresponding to two different forms of strategic alliances (take for simplicity equity and non-equity forms) and the corresponding performance outcomes \((\Pi_1, \Pi_2)\). The crucial questions we have to answer in order to disentangle alternative approaches are: what would have been the performance, had the alternative strategy been chosen? And what is the effect of the organizational choice according to different values of exogenous variables (namely the characteristics of the transactions, of the partners, etc.). These effects are the organizational effects we have an intention to discover in our study.

We argue that the majority of existing empirical studies are not precise enough to rule out two competing views on the choice of a form of strategic alliance, basing on its performance. Therefore we highlight necessity for the detailed case studies to be conducted in order to assess more deeply interfirm cooperation processes and costs. Such studies would permit to give insights concerning what are various forms of strategic alliances and how they handle transactions necessitating high levels of specific assets and uncertainty.
Below you can find certain steps which form a part of our dissertation, and which were already realized in the direction of our own scientific investigation. In this document the key features of the research in progress on governance and contractual foundations of technological cooperation are outlined. Moreover, the paper below shows the results of preparatory stage of this research; it provides an overview of the essential concepts used in the research, as well as, an investigation of existing literature on analyzed issues.
Governance and contractual foundations of technological cooperation: role of specific provisions and mutual trust

Purpose: The purpose of this paper is to examine the essence of technological cooperation agreements - their contractual underpinnings, and reveal, what are the main factors influencing the choice of certain governance mechanisms by contracting partners and to what extent relational constituent, in particular, mutual trust impacts this choice.

Design/ methodology/ approach: Theoretical framework of the research is based on the main principles of Transaction Costs Approach and Incomplete Contracts Theory, i.e. transaction costs, and contractual hazards resulting from opportunistic intentions of the counteracting partners. This framework then allows us to analyze the content of several technology cooperation agreements, more specifically cross-licensing technological contracts, and, thus, to understand which contractual provisions partners use in order to deal with specific behavioral hazards.

Expected findings: The paper reveals detailed characteristics of various technological cooperation agreements, as well as specific factors which determine the choice of the partners in favor of certain type of cooperation agreement. In addition it highlights relationships between various types of contractual mechanisms, and particularly specifies dependence between trust and legal provisions. This research also offers practitioners some recommendations on how to draft collaboration agreements in order to capture all opportunistic hazards, from one hand, though still remaining a flexible strategic instrument.

Originality/ value: The value of the paper is twofold: on the one hand, based on a set of individual contract provisions and other safeguards (microanalytic categories), it provides an exhaustive overview of the various technological cooperation practices. On the other hand, a detailed content-analysis of several technological cooperation agreements allows us to match characteristics of partners, their transactions and surrounding institutional environment with the choice of a certain cooperation agreement. This should prove useful findings both for practitioner and researchers.

Abstract

This paper provides new evidence on various contractual structures of cooperation arrangements and their efficiency in different conditions. Based mostly upon the transaction costs and incomplete contracts theories, we explore relations of cooperation in the context of technological development projects. Within the frame of these cooperation agreements, especially in technological context, partners more often operate in highly uncertain environment in which property rights are badly specified and bargaining power and input resources are unevenly distributed. Efficient solution of these behavioral hazards can be achieved by choice of appropriate design of contractual structure underlying cooperation relations, which can provide proper incentives to all parties to behave according to expectations. Detailed analysis of a legal agreement clause by clause allows us to understand relationships between such clauses, and to argue that cooperation agreement represents a coexistence of independent and complementary provisions. Moreover we state that mutual trust between partners also plays a significant role in managing inter-firm relations in highly uncertain environment. Taking into consideration key characteristics of partners, transactions they are involved in, and institutional environment in which they operate, we investigate the combinations of different modes of coordination of these transactions as the best (in terms of transaction costs minimization and realization of common interests) response to environmental and behavioral uncertainty contracting partners deal with. Furthermore we sketch two models of governance of the technological cooperation between firms: the first one describes the formal (legal) instruments of contractual governance, while the second includes, in addition, relational aspects of transactions, in particular, level of trust
between partners. These models help us to determine a manner whereby the partners cooperate with each other in the context of highly uncertain technological projects and to derive some dependences concerning influence of different governance mechanisms, including relational ones, on efficiency of partners’ cooperation.
Contractual underpinnings of technological cooperation agreements - a survey of the state of the art

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Abstract
Cooperation agreements play an important role in the strategic set up of many firms, especially in the technological sphere. While this mode to conduct economic activity has received increasing attention in the literature in the last years, our understanding of what really stands behind this type of arrangements is still limited. Moreover, though careful design of the terms of collaboration, which provide proper incentives to all parties to behave according to expectations, and choice of adequate governance procedures are the main ingredients of successful cooperation agreement, mutual trust between partners also plays a significant role in managing inter-firm relations in highly uncertain environment. This paper reviews the state of the art of knowledge on technological cooperation agreements. In particular it discusses literature about the governance of cooperation transactions, making nevertheless strict distinction between governance and contractual forms. Based on this review, this paper extends this knowledge by investigating the specific features of technological cooperation agreements which structure the relationships between partners, as well as the role of trust in such relations.

After a short introduction to what we mean by cooperation and technological cooperation agreements, we continue by contrasting two related but not completely identical constructs - contractual and governance forms. Next we explore the research on design of collaborative agreements setting the stage for a discussion of what is still have to be explored.

Keywords: cooperation agreements, contractual forms, governance mechanisms, trust

Introduction
Interfirm collaboration is not new. Since long ago companies cooperate with each other in order to produce new products, to expand current activity on a new sphere, to access to new markets, etc. What is new is the current scale and distribution of this specific mode of organization of economic activity that had become central for firms in the new economy. The increasing complexity, costs and risks involved in innovation activities enhance the importance of interfirm collaborations to reduce these transaction costs.

Recent evidence indicates that firms have dramatically increased the use of strategic collaboration agreements for transactions that require a high level of involvement and coordination between cooperating partners. These collaborations may take the form of arrangements that align the interests of participating parties through formal profit-sharing rules (for instance, franchises, licensing agreements, and joint ventures). Alternatively, they may take a more amorphous form, using few mechanisms from contract law to structure their interactions or to allocate the gains from trade (such as - strategic alliances, consortia, and strategic supply chains) (Anderson and Sedatole 2003). However, it is important to recognize that collaborative organizational forms are inherently
risky and, in fact, together with the increase number of creation of such inter-firm collaborations, its failure rate also increases (Anderson et al., 2006).

At this point is the real concentration of our interest – how to govern technological collaborative agreements, and in particular – which mechanisms have to be used and in which manner (separately or combined) and under which conditions – in order to reduce this risk and to guarantee success of technological cooperation.

While cooperation agreements as a mode to conduct economic activity has received increasing attention in the literature in the last years, our understanding of what really stands behind this type of arrangements is still limited. Moreover, though careful design of the terms of collaboration, which provide proper incentives to all parties to behave according to expectations, and choice of adequate governance procedures are the main ingredients of successful cooperation agreement, mutual trust between partners also plays a significant role in managing inter-firm relations in highly uncertain environment. This paper reviews the state of the art of knowledge on technological cooperation agreements. In particular it discusses literature about the governance of cooperation transactions, making nevertheless strict distinction between governance and contractual forms. Based on this review, this paper extends this knowledge by investigating the specific features of technological cooperation agreements which structure the relationships between partners, as well as the role of trust in such relations.

This article is organized as follows: after a short introduction to what we mean by cooperation and technological cooperation agreements, we continue by contrasting two related but not completely identical constructs - contractual and governance forms. Next we explore the research on design of collaborative agreements setting the stage for a discussion of what is still have to be explored.

**Cooperation: plurality of approaches**

There exist several approaches to define cooperation. According to one of them, cooperation is perceived as an attitude to behave non-opportunistically, in cooperative mode. Following definition proposed by Menard (2003, p.24), cooperation means “to prefer common result to individual gains”. The second definition refer cooperation to the coordination mode distinct from Pure Market and Hierarchy, while the third one defines cooperation as a specific type of transaction through which joint participation in production or R&D is carried out contrary to simple exchange of products and services.

In our paper we adopt the third approach for definition of cooperation. This maneuver allows us to investigate this particular type of transaction of co-production / co-innovation reasoning from 3 categories of transactional analysis, proposed by Williamson (1985), i.e. frequency, specificity of assets exchanged, and level of uncertainty.
We argue that frequency can not be considered as the main characteristic of cooperation activity, as partners cooperate in the frame of common project, and there is no reason to assert that when its purpose is achieved, the next independent transaction (exchange) between them will follow.

As for asset specificity, there are two views in the literature. One stands on high specificity of resources involved in cooperation between partners, which, without controversy, justifies to a significant degree the choice of governance, and even contractual forms, made by them (Joskow, 1988; Dyer, 1997; Poppo and Zenger, 2002; Reuer and Arino, 2003). Another part of studies acknowledges that assets involved in co-development activity are specific or demand specific investments; nevertheless, they argue that as the value of knowledge accumulated during the cooperation can not be completely withdrawn in case of breaking off the relations, high level of assets specificity can not explain the nature of cooperation relations between partners (Brousseau, 2000). In the same manner, Reuer, Arino and Mellewight (2003) explain obtained insignificant influence of asset specificity on contractual complexity.

The third category of transaction – uncertainty – reflects in a very precise manner the main feature of cooperation activity. Arino and Reuer (2004) distinguish two different types of uncertainty: uncertainties about the futures states of nature (environmental), and uncertainties about the future behavior of the partners (behavioral). Contrary to the notion of risk – situation where we don’t have information about an event which will occur, but where, at least, we have characteristics of all possible events and we can assign the probability for each of them, uncertainty implies that we don’t even have information about the structure of possible future events. In our study we treat cooperation activity as related to co-development and co-innovation, thus we inevitably find ourselves in the conditions of high uncertainty: as the final result of the cooperation depends not only on risk, but also on market conditions, consumers’ reaction, rivalry activities, etc. Moreover this high level of uncertainty amplifies also with particular nature of resources involved in cooperation activity between partners – knowledge, as distinct from information, its tacit and specific features.

Knowledge can be tacit or codified in the form of publications, patents, etc. It is always at least partly tacit in the minds of those who create it. “Tacitness refers to those elements of knowledge, insight and so on, that individuals have, which are ill-defined, uncodified and unpublished, which they themselves cannot fully express and which differ from person to person, but which may to some significant degree be shared by collaborators and colleagues who have a common experience”, as Dosi noted (1988, p.1126). Tacit knowledge can take many forms, such as skills and competences, specific to individuals or to groups of cooperative individuals, shared beliefs, and modes of interpretation, but it’s not codified.

This impossibility to codify the main resource of technological cooperation causes its relatively incomplete protection by intellectual property system: it’s impossible to define the limits of
knowledge in which an individual can exercise his exclusive rights. Furthermore, incomplete protection by intellectual property system results also from the second characteristic of knowledge – knowledge as a collective good. From one side, public authorities are interested to protect exclusive rights related to certain transaction in order to promote innovation activities. However, from another side they have incentives to limit the level of protection, as to facilitate diffusion of knowledge in the society (Brousseau, 2000). What does it mean for counteracting parties? The main consequence for them is that protection of exclusive use of their resources becomes very expensive and, thus, transaction costs of dealing with knowledge are very high (Bessy and Brousseau, 1998).

Also, knowledge is characterized by a very high level of uncertainty regarding its economic value and its uses. This is partly due to the information asymmetry about quality inherent in every market transfer of information (Arrow, 1962). But it is also due to the radical uncertainty over the potential use of knowledge. It’s very difficult, almost impossible to measure what was invested by each party in common project and, which knowledge (or technology) contributed more to final result, thus to make commitments enforceable. Consequently the risk of opportunistic behavior and hold-up by counterpart is very high.

To sum up, technological cooperation transactions are characterized by high level of environmental and behavioral uncertainty, asset specificity (that nevertheless remains discussable), and high uncertainty of knowledge. These their features explain why partners choose different Hybrid forms to accompany their relations instead of market contracts, or “transactional” or “classical” contracts as qualified by MacNeil (1974), and hierarchical structures. Further in this paper we investigate which types of structures are more suitable to manage technological cooperation between partners.

**Technological cooperation agreement – basic definition**

First, we have to define on which type of cooperation agreements we concentrate. They are neither simple sell-buy contracts (typical for spot transactions) nor integrated firms. In the frames of this research we are interested in all the organizational arrangements which bring to the significant level of coordination between business units, but at the same time keep them legally autonomous with hold on separate property rights on their assets. Various characteristics of functioning of these forms, qualified as “hybrid” in the transactional literature meet the requirements of efficient coordination even better than other organizational forms in the contemporary world. Hybrid forms retain some of the incentive characteristics of markets, while allowing enhanced monitoring and bilateral adaptation. Extensive list of possible forms of hybrid structures confirms its wide prevalence: subcontracting, network of firms, franchising, alliances, etc. (Menard 2004).

Our attention is focused on technological alliances as an agreement between two or more firms (societies of capital) characterized by a two-side contribution of goods (capital, technology, or firm-specific assets) for a joint project that is directly managed by participating partners (Harrigan, 1986;
Parkhe, 1993; Gulati, 1998). These cooperation agreements may differ significantly in their purposes and can include a multilateral transfer of technology, the joint development of a technological project or production process or expansion to new geographical markets. They may also take a variety of forms, ranging from a purely contractual partnership to a joint venture, which involve partners creating a new entity in which they share equity and that most closely approach the hierarchical control features of organizations.

This study proposes the overview of theoretical and empirical works on the specific features of these agreements and how they set forth the parties’ mutual rights, obligations and expectations and determine how disputes are resolved and cooperation terminated.

**Governance Form vs Contractual Form**

Let’s start from the very beginning. Before companies even reach the contract stage, they need to go down to the basics and make sure that the best way to reach their goals is indeed a cooperation agreement, in more wide sense, a strategic alliance - and not a merger, an acquisition, or some other business strategy. This question has long been studied both by organizational scholars who made an accent on hierarchical control as a mechanism to manage uncertainty (Pisano, Russo and Teece, 1988; Pisano, 1989; Gulati, 1995), as well as by transaction cost economists, who have focused on the issue of appropriation concerns in alliances, originated from behavioral uncertainty and contractual hazards (Williamson, 1996; Oxley, 1997). According to the latter, the greater the appropriation concerns the more hierarchical governance structure for alliances will be chosen be counteracting parties. The logic of hierarchical controls as a response to appropriation concerns is based on their ability to assert control by fiat, provide monitoring and align incentives. The operation of such logic was examined in make-or-buy decisions (Walker and Weber, 1984; Masten, Meehan, and Snyder, 1991), and then translated to alliance formation for the choice of governance structure by partners: when firms anticipate appropriation concerns, they are likely to organize alliances with more hierarchical contracts.

When the related parties eventually start negotiation process to discuss further details of their future cooperation, they must should another important decision: whether this cooperation will take form of an equity-based or a non-equity agreement. This is a consequential decision, since the resulting governance form will set up different incentive and control mechanisms to shape inter-firm exchanges. Significant portion of prior research on hybrid forms is devoted to this classification of alliances as equity and non-equity, where the presence of shared equity is considered as synonymous of hierarchy, and all equity arrangements are supposed to have similar incentives properties – shared ownership and control (Geringer and Hebert, 1989; Gomes-Casseres, 1989; Harrigan, 1988; Hennart, 1991). As Teece (1992, p.20) insisted: “Equity stakes provide a
mechanism for distributing residuals when ex ante contractual agreements cannot be written to specify or enforce a division of returns.”

However, this is only one of many decisions to be made when structuring cooperation agreement between partners, and moreover this scheme does not provide a look on what stands behind each alliance, i.e. its governance properties. As noticed by Gulati and Singh (1998): “…it masks differences in hierarchical controls across different types of structures and ignores the original basis for classifying the governance structure of alliances: degree of hierarchical controls.”

There exist few studies that tried to overcome this problem. For example Oxley (1997) identified three governance structures – unilateral contractual agreements (for instance, unilateral licensing agreements, long-term supply contracts, R&D contracts, etc.), bilateral contractual agreements (technology sharing or cross-licensing agreements), and equity-based alliances, where the first two are distinguished according to level of incentive alignment, higher for the latter. Gulati and Singh (1998) also distinguished three types of alliances governance structures: joint ventures, minority investment, and contractual alliances. Though the key distinguishing feature for them was another variable, in particular - dimensions of hierarchical controls, including the following: command structure and authority systems, incentive systems, standard operating procedures, dispute resolution procedures, and non-market pricing systems. According to authors this list fully encompasses both the agency and coordination features of hierarchical controls presenting in various types of alliances.

Having made a step further in discovering specific governance structures in alliances, these numerous papers, however, still left a curtain on the real base of all cooperation relationships – on legal contracts. And from executives’ point of view it is not yet clear which type of contracts to choose in order to accompany their projects – after all, there is a variety of unilateral and cross-licensing agreements, R&D contracts. Next and more complex step they normally undertake is the design contractual agreement which is at the base of the majority of inter-firm collaborations, i.e. the allocation of duties, risks, procedures and so forth through contractual provisions that determine inter-firm relations in more precise terms. These contractual terms help firms devise remedies for foreseeable contingencies or design processes for unforeseeable ones.

Before analyzing in details cooperation agreements, it’s important to contrast two notions – governance form and contractual form, as there is always a confusion between them. Based on the approach of Williamson (1979), we argue that governance and contractual forms serve for different purposes: while governance refers to “alternative institutional modes” (Williamson, 1979, p.234) for shaping economic transactions, contract stipulates allocation of risk and gains for trading partners, as well as specific conditions of this exchange (James, 2000). Thus, contract specifies
detailed terms of an interaction between partners, whereas governance form defines boundary between different institutional modes.

All this give us an idea that although there is a relationship between governance form and contractual form, it is not necessary one-to-one. And several empirical studies support this hypothesis. For instance Reuer with co-authors (Reuer, Arino and Mellewigt, 2003) investigate contractual complexity, defined as a set of eight provisions, on a sample of alliances in German telecommunication industry, and conclude that the frequency of contractual terms does not vary significantly between equity-based and non-equity alliances.

Moreover, if we look further on the antecedents of firm’s decisions concerning contractual complexity and governance structure, we can see that they are mostly different. There exist only two common determinants – asset specificity and prior ties between partners. Table 1 below, based on Arino and Reuer (2004), shows pivot results of recent research on determinants of alliance contractual complexity and governance form.

Table 1. Determinants of alliance contractual complexity and governance form

<table>
<thead>
<tr>
<th>Determinants of</th>
<th>Contractual complexity</th>
<th>Governance form</th>
<th>Studies</th>
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<tbody>
<tr>
<td>Asset specificity</td>
<td>X</td>
<td>X</td>
<td>Reuer and Arino, 2002; Reuer, Arino and Mellewigt, 2003</td>
</tr>
<tr>
<td>Prior ties</td>
<td>X</td>
<td>X</td>
<td>Poppo and Zenger, 2002; Reuer and Arino, 2003; Reuer, Arino and Mellewigt, 2003</td>
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<tr>
<td>Transaction activities</td>
<td>X</td>
<td>Oxley, 1997; Pisano, 1989</td>
<td></td>
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<tr>
<td>Technology scope</td>
<td>X</td>
<td>Oxley, 1997</td>
<td>Reuer and Arino, 2002</td>
</tr>
<tr>
<td>Alternative partners</td>
<td>X</td>
<td>Reuer, Arino and Mellewigt, 2003</td>
<td></td>
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<tr>
<td>Partner search cost</td>
<td>X</td>
<td>X</td>
<td>Reuer, Arino and Mellewigt, 2003</td>
</tr>
<tr>
<td>Technological change</td>
<td>X</td>
<td>Poppo and Zenger, 2002</td>
<td></td>
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<tr>
<td>Performance measurement difficulty</td>
<td>X</td>
<td>Reuer and Arino, 2003</td>
<td></td>
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<tr>
<td>Alliance time-boundedness</td>
<td>X</td>
<td>Reuer, Arino, 2003</td>
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<tr>
<td>Alliance strategic importance</td>
<td>X</td>
<td>Reuer and Arino, 2003; Reuer, Arino and Mellewigt, 2003</td>
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<tr>
<td>Firm age</td>
<td>X</td>
<td>X</td>
<td>Reuer, Arino and Mellewigt, 2003</td>
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These are distinct features of alliance design and really two big topics to be explored. Till now much more attention has been paid to governance modes of alliances, while reflections on contractual underpinnings have been relatively less developed. This can be explained by difficulties with collecting detailed contractual level data, as well as by lack of special theory to guide our understanding of the role and consequence of individual contract provisions. Moreover investigation of contractual foundations of cooperation relationships also implies participation of scholars of different fields such as economics, management and legal studies, as well as real practitioners. Next part of the article provides an overview of the existing literature on this perspective issue.
According to juridical definitions, contracts represent agreements that institute or modify reciprocal obligations between parties. Hence, understanding contract variety entails understanding to what extent and by what means obligations, i.e. roles and responsibilities are instituted and enforced: whether formal or informal, self-enforceable or externally enforced. From economic point of view, companies resort to legal agreements as a mechanism allocating their decision and control rights, regulating to certain extent partners’ behavior and in case of any contingencies arise, “providing guidance to the courts on the partner intentions…” (Ryall and Sampson, 2003 p.3). Moreover contracts bear other functions: they also provide a tool to better define partner’s expectations.

In the paper more aimed at practitioners, Campbell and Reuer (2001) offer an exhaustive list of the basic legal issues included in typical alliance contracts, diving them into two parts – establishment issues, relating to setting up the alliance, identifying partners and their purposes, instituting their duties and liabilities, and post-establishment issues that include dispute resolution mechanisms, re-negotiation and termination issues. While the authors focus on bilateral equity joint ventures, they argue that similar considerations can be applied to non-equity alliances, excluding issues related to share-related provisions, as well as to multilateral agreements, except that negotiating process for them is probably more complex.

Another paper, also mostly devoted to executives, specifies the following basic concepts of the alliance contract (Arino, Reuer and Valverde, 2005): (1) capital-finances, which sets up legal obligations of the parties regarding their contributions in terms of capital, technology, assets, people, etc., (2) governance society, which specifies a management structure and corporate governance rights, (3) “reserved matters”, i.e. issues reserved for decision by a majority of shareholders, (4) transmission of participations which includes contractual provisions allocating pre-emption rights to shareholders (considered as a common practice for joint ventures), (5) inclusion of deadlock resolution mechanisms, and (6) exit mechanisms.

Even though previously mentioned key contractual aspects are well examined, the following question arises: Should a contract include a clause for every possible condition “what if”? Given all the specific features of technological cooperation transactions, designing a contract that anticipates all possible eventualities is not feasible. Moreover, hybrid forms are advisedly created in order to obtain better flexibility in uncertain environments in which it’s impossible to foresee all potential contingencies. This is the dilemma that companies face when designing contractual structure of

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1 MacLeod (MacLeod, 2006) cites the accepted legal definition of a contract taken from the Restatement of Contract Law: “A contract is a promise or set of promises for the breach of which the law gives a remedy, or the performance of which the law in some way recognizes as a duty” and contrasts it to one founded in economic theory of contract, where, starting with the general equilibrium model of Arrow-Debreu, contract represents simply a set of transfers and actions as a function of the state of the nature.
their relationships. On one hand, the more complex the contract is, the less space remains for opportunistic behavior. On the other hand, more complex contract is more costly to write. So, when it is worth to bear these additional costs?

**Contractual complexity**

In the literature there exist a sound part of contributions concentrated on the concept of contractual complexity, its definition, measures and determinants (Parkhe, 1993; Poppo and Zenger, 2002; series of articles by Reuer and Arino, 2002, 2003; Reuer, Arino and Mellewigt, 2003).

Transaction Cost Economics scholars argue that contracts will be more “complex” as more contractual safeguards are written into them in order to mitigate potential exchange hazards (Williamson, 1985, 1991). Arino and Reuer (2004) make a review of past studies on contractual complexity, strongly contrasting it to contractual completeness, that is, following Luo (2002, pp.904-905) defined as the “extent to which all relevant terms and clauses are specified, and the extent to which the contract accounts for unanticipated contingencies and delineates relevant guidelines for handling these contingencies”. They advocate as well, that without having detailed knowledge of firms’ exchange relationships, it’s more appropriate to talk about contractual complexity then contractual completeness.

One of the earliest examinations of alliance contract provisions Parkhe (1993) identified eight provisions that were commonly adopted in alliance contracts. They are (in the increasing order of strength): (1) periodic written reports of all relevant transactions; (2) prompt written notice of any departures from the agreement; (3) the right to examine and audit all relevant records through a firm of CPAs; (4) designation of certain information as proprietary and subject to confidentiality provisions of the contract; (5) non-use of proprietary information even after termination of the contract; (6) termination of agreement; (7) arbitration clauses and (8) lawsuit provisions. Parkhe used the information gathered on these contract provisions to create measures of contractual complexity for a sample of alliances, based on a count of provisions employed, weighted by the level of stringency.

Deeds and Hill (1998) modified Parkhe’s index, not weighting the same individual provisions by their severity. As further proved Reuer and Arino (2003), the stringency weights did not influence interpretations of the determinants of more or less complex alliance agreements.

Another survey, made on strategic alliances in the German telecommunications industry by Reuer, Arino and Mellewigt (2003) with the use of Parkhe’s (1993) classification of contract provisions, highlights the existence of significant heterogeneity in the use of various provisions across alliance agreements, and a lack of systematic differences between equity and non-equity

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2 CPA = Chartered Public Accountant.
alliances in the use of specific provisions (with the exception of the right to reports of relevant transactions and auditing rights).

A more recent paper by Hansen and Higgins (2007) extended existing literature on contractual complexity by modeling complexity in a multi-dimensional framework, that allowed to focus both on the functional (breadth) and technological (depth) scopes of an alliance agreement.

Now we turn to the analysis of the conditions influencing contractual complexity identified in the literature.

Determinants of contractual complexity

Turning back to the dilemma identified earlier, contractual provisions can be costly to negotiate, control and enforce. And it’s reasonable for firms to bear these costs when they expect that the safeguards established in the contract reduce the costs and losses caused by exchange hazards that stem from both environmental and behavioral uncertainties (Ring and Van de Ven, 1992). According to this logic, conditions that lead to higher environmental uncertainty increase transaction costs of writing a contract and would result in less complex agreements. At the same time, conditions that augment the likelihood of opportunistic behavior of the counterpart will increase the potential performance losses and would lead to more complex contracts (Crocker and Reynolds, 1993).

Contracting involves two types of costs: ex ante and ex post (Williamson, 1985). Ex ante costs comprise those that refer to formalizing an agreement – gathering information about potential contingencies, crafting initial contracts, reaching agreement with the partner on both parties’ right and responsibilities, while ex post costs are associated with contract renegotiation, opportunity costs due to management time (Reuer and Arino, 2002) and activities initiated to re-allocate increasing risk of cost uncertainty (Crocker and Reynolds, 1993).

Among the main factors that influence both ex ante and ex post contracting costs, and thus, the level of contractual complexity, the following are usually listed: level of specificity of investments, existence of prior ties between partners, as well as alliance experience (without mandatory referring to a current partner), time boundaries of the relations, strategic importance of the alliance, and the level of costs associated to search for alternative partners. Let’s analyze these conditions in more detailed way.

Level of asset specificity

When talking about asset specificity, the following logic should be applied: as the potential losses increase with investments in specific assets (one party can find itself in a hold-up situation, when its partner tries to profit by threatening dissolution), companies will find it advantageous to negotiate more complex contracts in order to cover the consequences of breach and termination, as
well as the processes itself by which such threats will be handled (Dyer, 1997; Poppo and Zenger, 2002; Reuer and Arino, 2003).

However empirical studies do not always confirm this hypothesis. For instance, using data from a sample of information service exchanges Poppo and Zenger (2002) find support for this statement, as their results shows that partners use more customized, complex contracts as the level of asset specificity increases. Reuer and Arino (2003) also confirms these findings, while, in contrast, Reuer, Arino and Mellewigt (2003), analyzing the sample of entrepreneurial alliances in the German telecommunication industry, did not find any significant influence of asset specificity on contractual complexity; on the contrary they found that asset specificity influence partners’ decision to adopt an equity alliance over non equity-based one.

Prior relationships

Prior ties between collaborative partners can also affect contracting costs in the following way: on one side, the existence of previous relationships among the partners reduces behavioral uncertainty by means of two mechanisms - trust3 and interorganizational routines - and may result in lower level of contractual complexity. While on the other side, previous collaborative histories result in lower contracting costs, thus allowing partners to conclude more complex contracts. In sum, the final impact of prior relationships on contractual complexity depends on which of these two effects prevail.

Poppo and Zenger (2002) find that prior relationships between firms lead to more detailed contracts, thus considering relational aspects as complements to formal contracts. Ryall and Sampson (2003) also confirm that contracts are more detailed when firms have previously allied with each other. They interpret this result suggesting that prior relationships allow partners to learn more about each other and, thus, to draft issues hard to identify in the absence of a certain mutual knowledge. Ryall and Sampson also show that as firms have greater alliance experience (irrelative of current partner) they also tend to write more “complete” contracts, particular in terms of development specifications and timeframe, but when collaborative partners have other concurrent alliances together, contracts tend to be less complete. This evidence is consistent with research of Mayer and Argyres (2004) on the sample of supply contracts.

In contrast to these studies, Reuer and Arino (2003) find that in the presence of prior relationships partners specify fewer provisions relating to alliance operational control, though prior ties does not influence the use of provision regarding partner control. These findings underline the hypothesis that contracts appear as substitutes for trust.

There exist another researches that show that firms that had prior collaborative agreements tend to choose non-equity alliances rather than equity ones (Gulati, 1995; Oxley, 1997).

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3 We will cover the role of trust in collaborative relations further in the article.
Overall, the question if the contract is used as a complement or substitute to trust and other relational aspects of inter-firm collaboration, still remains under discussion.

**Time boundaries**

This variable defines that strategic alliance is designed to operate during a pre-specified length or its duration is not bounded over time (open-ended). As stipulates Arino and Reuer (2004), the presence or absence of time bounds on alliances can affect both environmental and behavioral uncertainties faced by partners. Agreements in which time length is pre-defined lower environmental uncertainty, as partners can better anticipate future states of the nature, and thus specify their rights under these states in a more efficient manner. In contrast, open-ended alliances are self-enforcing agreements, as future potential gains of mutual collaboration serve as a safeguard against opportunistic behavior of the partners aimed at appropriation of immediate surpluses (Telser, 1980). These statements provide ground for the following hypothesis: alliances with a pre-specified duration are expected to have more complex contracts then open-ended arrangements.

Most empirical studies prove this logic (Crocker and Reynolds, 1993; Parkhe, 1993). Though, for instance, Luo (2002) shows that longer duration of joint-venture results in more complex contracts along the contract dimension that deals with environmental uncertainty.

**Strategic importance of alliance**

Another determinant of contractual complexity at the base of cooperation relationships is strategic importance of these relations. Theoretical prediction suggests that firms which negotiate more complex alliance contracts for alliances that are viewed as strategically important, as in this situation firms are therefore more justified in bearing additional costs to clarify rights and obligations concerning the scope of alliance (Borys and Jemison, 1989), ownership claims on technology transferred or created during cooperation, and the management of alliance’s termination, as well as ways in which such alliances will be monitored and arising disputes resolved (Doz, 1996).

Empirical investigations of Reuer and Arino (2003) and Reuer, Arino and Mellewigt (2003) confirm this hypothesis. However, Reuer and Arino (2003) find, while using disaggregate measure of contractual complexity, that strategic importance exercises no influence on firms’ adoption of the provision aimed at alliance operation control, though it positively affects the application of partner control provisions. These results justify the importance that behavioral uncertainty takes in strategically important alliances. Moreover, Reuer, Arino and Mellewigt (2003) find also that factor such as the strategic importance of an alliance to a partner impacts the complexity of the contract that formalizes the alliance, but does not affect the choice of governance mode for the alliance.

**Level of search costs**

Before companies sign legal agreement, they need to confirm that they found the appropriate partner. As many practitioners confirm, the process of search for potential partner is very time and
resource-consuming, given the number of “screening” procedures involved. Moreover these search costs for an alliance partner are sunk. All this brings us to idea that the higher the search costs incurred in finding and locating a partner for specific relationships, the greater the firms’ incentives to bear the costs of designing a more complex contractual agreement. Empirical evidence on the impact of this factor on alliance contractual complexity is very scarce. Models of Reuer, Arino and Mellewigt (2003) support this prediction. Furthermore, they insist that firms that have undertaken a significant and highly expensive search process for a partner also tend to choose an equity-based alliance instead of non-equity arrangement.

This overview of the literature on alliance contracts helped us to understand conditions that may warrant the design of more or less complex alliance contracts depending on their effect on environmental and/or behavioral uncertainties, and, consequently on the costs and benefits of contracting. At the same time these findings suggest that we have yet much to learn about specific contract structures, and how the use of different contract provisions is shaped by characteristics of the underlying alliance activities, partner resources and capabilities, and relational history.

**Contractual provisions**

Let’s move now into more complex and detailed level of contractual provisions and conditions when companies should use them. Since alliance contracts are often considered as confidential matters, empirical literature with such detailed level of data is very scarce and it is devoted mostly to an analysis of technology licensing agreements rather than cooperation agreements which, as we could see previously, are not exactly the same constructs.

Only recent series of studies by Grandori and Furlotti (2006, 2007) can be an example of such detailed contract investigation, though the authors don’t develop econometric models, they rather empirically apply a conceptual framework that integrates the concepts of organizational theory of formal coordination with economic perspectives on contracting, to content-analysis of the written agreements regulating inter-firm alliances for innovation. They introduce a notion of associational contracting, which defines a “constitutional order” or “core” of alliance contracts, focused on resource commitments and on the specification of property rights, and further conceive of a degree of “associativeness” of a contract and the collection of different coordination mechanisms that complement an associational contract, and their degree of inclusion in the contract itself. Among coordination mechanisms Grandori and Furlotti distinguish: price-like coordination; governance by teams, communities and democratic voting; brokers, intermediaries and integrators; hierarchy (both authority-based and agency-based); rules and procedures; plans, programs and job descriptions. Analyzing the content of several alliance contracts, they conclude that these contracts are not a simple mixture of price-like and authority-based coordination, although these mechanisms are sometimes employed, but a composition of associational core and “of a belt of contractual clauses incorporating coordination mechanisms of various kinds.”
**Evidences from Technology Licensing Agreements**

As we can observe, specific contractual provisions of alliance agreements still need to be empirically investigated. In the meanwhile we consider very helpful to turn to the content of technology licensing agreements (hence forth, TLAs), the more so since majority of TLAs are often set up within a frame of strategic alliances, aimed not at simple exchange, but the development of technology, etc. (Jorde and Teece, 1990).

From the theoretical perspective, there are several contributions – based mainly on incentive theory (Shapiro, 1985) or Transaction Cost Approach that attempt to explain basic features of license contracts. Most of the theoretical studies are dedicated to the consequences of these licensing contracts on competition and innovation (Gallini and Winter, 1985). A significant portion of the theoretical literature deals yet with the determinants of payments schemes. Since Kamien and Tauman (1986) a lot of contributions were dedicated to explain why licensing agreements implement royalties (Macho-Stadler et al., 1996; Shapiro, 1985). At the same time other contractual clauses of TLAs are almost unexplored: only two theoretical papers were published about grant-back rationale (Choi, 2002; Van Djik, 1994). Similarly, the rationale for exclusivity provisions was explored mostly by industrial economic literature studying the optimal number of licensee (Kamien, 1992).

However the development of theoretical literature on these issues has not always been followed by applied studies trying to identify real firms’ practices. Although we can refer to the research of Contractor (1981), and more recently, Arora (1995), Bessy and Brousseau (1998), Bessy, Brousseau and Saussier (2002), Brousseau and Coeurderoy (2005), Brousseau, Coeurderoy and Chaserant (2007), which, following Transaction Cost Economics logic, investigated payments scheme, monitoring and safeguard provisions in TLAs, as well as their determinants. Now we try to outline the main outcomes of these studies.

All of these articles are organized as follows. First, authors specify discrete contractual provisions which are usually implemented in TLAs (mode of payment, exclusivity clauses, etc.), and try to construct typology of the contracts, distinguishing between the sets of different provisions. Next, basing on analytical framework, they find explanations for inclusion (exclusion) of a certain provision in a specific contract, considering as determinants of this partners’ choice different features of transactions, characteristics of institutional environment, etc.

For instance, Bessy and Brousseau (1998) try to investigate the totality of the contractual provisions and governance mechanisms applied in the contracts, rather than reduce the structure to certain number of key features of the contract. As we saw previously, technological cooperation, including licensing is highly risky. Moreover it is always complex to control once a transfer of know-how, technology and knowledge has been made, how the licensee will behave ex-post either within the frame of the contractual relationships or out of it. To manage ex post behavioral
uncertainty, safeguards and governance mechanisms aim at generating the security and the adaptability necessary to success of the licensing relationships. Among safeguards they mark out payment schemes, confidentiality and non-competition provisions, protection provisions (exclusivity clauses), provision of minimal performance, grant-back provisions and some others; each of them aims at resolving a specific hazard caused by existence of behavioral uncertainty. Thus, payment schemes serve as a solution (though, only partial) to problems of adverse selection, when the potential licensee has difficulties anticipating the value of the transferred technology, and double moral risk, as the success of the transfer depends both on the efforts of the licensor and those of the licensee. Confidentiality and non-competition provisions allow the licensor to protect himself against the risk of the transferred knowledge being disclosed. The uncertainty about the possible uses made of the technology leads the licensor to implement protection provisions, restricting, for instance, geographical area of the technology distribution, and consequently, protecting himself against the licensee’s opportunistic behavior. Another contractual clause – grant-back provision guarantees the licensor a right over developments carried out by the licensee.

To ensure ex post adaptation and enforcement of TLAs, partners resort also to governance mechanisms, which are based on contractual provisions implementing supervision, renegotiation and dispute resolution mechanisms that aim at enabling ex post enforcement of mutual obligations. Bessy and Brousseau (1998) argue that the more intensive the exchange of tacit knowledge, the more complex and complete the governance structure. Basing on the sample of ten case studies and 46 licensing agreements, on which data were collected through questionnaires, they analyzed the frequency of certain types of contractual clauses, correlation among them, and also managed to point out the existence of five categories of contracts clearly differentiated by their features: from Transactional TLAs (as qualified by MacNeil (1974)), through One-Shot Complete Transfer, Relational Commercial TLAs and Development TLAs to Relational TLAs. The authors also stipulated that institutional framework plays a major role in the explanation of inter-industry differences in licensing practices.

Similar analytic framework was applied in another study of Bessy, Brousseau and Saussier (2002), and its statements were tested on the database of 226 contracts within seven industries, constituted by the INPI’s Office of International Technology Transfer. In order to identify the interdependencies between the characteristics of the contracts, they elaborated a typology based on the complexity of the transfer of knowledge and verified the hypothesis that the nature of the transfers brought about by the license agreement is co-determined with the type of contractual structure. Their classification comprises seven classes of licensing agreements, where the first three classes correspond to Transactional contracts, which strictly speaking even do not represent a real

4 It’s worth mentioning, that in the case of TLAs, the focus of researchers is mainly on contractual risks arising from licensee’s behavior.
transfer of knowledge, but only of user rights, whereas the latter two classes are constituted by more Relational contracts, with other classes occupying intermediary positions. The presentation of the classes ordered according to the main features of resources transferred by the licensor to the licensee allowed authors to note that the increased difficulty of the transfer goes together with the increased complexity of the contractual structure, i.e. contracts become more relational. In spite of this, the relationship between the complexity of the transfer and the governance mechanisms does not prove to be so direct, that is interpreted in the analysis as a dependence on the specific features of institutional framework surrounding the relationship between contracting parties.

The most recent paper of Brousseau, Coeurderoy and Chaserant (2007) provides new evidences on the contractual governance of TLAs, in particular, it assesses the influence of transaction attributes, institutional environment and strategic hazards on the creation of licensing agreements. Consistent with previous studies, governance clauses include three mechanisms – supervision provisions, aimed at reducing licensee’s incentives for opportunistic behavior, renegotiation clause that provides partners with incentives not to shirk (since they can adapt to new situations) and reduces the level of misalignments (since it reduces the costs of adaptation) (Crocker and Masten, 1991), and dispute resolution mechanisms, which directly associated by authors with an alternative dispute resolution.

Basing on the database of 213 licensing agreements, developed together with LESI (Licensing Executive Society International), Brousseau, Coeurderoy and Chaserant test propositions about the design of governance mechanisms, in particular, how transactional characteristics of technology transfers, institutional framework and strategic hazards arising from technological competition influence the choice of partners in favor of certain governance mechanisms. Going deeper into methodological “cuisine” of the study, we can notice that explanatory variables used as proxies the appropriate provisions of the contracts: for instance, the level of technological uncertainty was defined through the presence/absence of grant-back and future improvement provisions, while strategic hazards – through implementation of warranties, renewal provisions and minimal performance. This maneuver permitted to have more accurate proxies assessed at the level of transactions.

The results presented in the analyzed article, confirm the close link between the intensity of the transfer and the preference of partners for supervision mechanisms. They also show, that by granting a renewal provision, the licensor explicitly provides ex ante a long-term commitment, thus he includes a renegotiation clause in the agreement. The most prominent result obtained in the study is that there is a strong link between the existence of private institutions and the recourse to governance mechanisms, which is in line with MacNeil’s vision (MacNeil, 1974). By facilitating the exchange of information among firms and through agreements on behavioral norms, these entities simplify technology transfers and clarify the rules of the game in the business. Additional
check for dependence between contractual provisions confirmed the idea that contracts are made up of independent mechanisms which appeal to play different roles, that fits with the idea proposed by Williamson (Williamson, 1991) that economic agents choose among a reduced set of possible governance modes.

Summarizing, we can conclude that key findings revealed in the studies on the structure of contractual governance mechanisms in TLAs are sound enough to provide us with some evidences on contractual features of technology cooperation agreements in general, as well as on main transactional, institutional and strategic determinants influencing the shape of these agreements. However, we should remember that the licensing process by itself tends to be only a part of a broader, cooperative agreement in which many types of transfers are performed and many types of links are created between the two entities. This fact encourage us to carry out further research on the structure of more complex cooperation agreements, and to take into account other contractual clauses possibly implemented in latter.

New “tendencies” in drafting cooperation agreement and field for further research

One of these kinds of clauses, recently widely discussable among practitioners is deadlock resolution mechanism (Arino, Reuer and Valverde, 2005). Different scholars debate whether the inclusion of this mechanism in cooperation contract is reasonable or not. Some people call for a quick end to deadlock through mechanisms such as casting vote. However, new formal ways to settle a prolonged and fundamental dispute appear, such as “Russian roulette” or “Texas shoot-out”. First means an exit mechanism that allows one party to offer to buy shares of the other party at a certain price, while the other party has the right to decide either to accept and sell its shares or, instead, to buy the first party’s shares at the same price. The second represents another way to terminate an alliance: “the shoot-out happens when both parties wish to buy and a sealed bid procedure takes place to determine who the higher bidder is” (Arino, Reuer and Valverde, 2005, p.53). The question of when, how, and following which conditions should a party be able to exit or terminate its participation in alliance is of high importance nowadays and should deserve a special attention.

Other contractual practices, for instance, “drag alone”, “tag alone” (ibid) and many others that are already widely used in business, but still did not get distinguished attention, and even explanation in economic and organizational literature, deserve further investigations, both theoretically and empirically.

It could be interesting as well to make a “bridge” between contractual provisions and alliance performance, because contracts also specify the distribution of gains between alliance partners (Elfenbein and Lerner, 2003). In the same direction, an issue of how contractual provisions reflect

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5 By definition, deadlock is the moment when a strategic alliance reaches a standstill because of a dispute or misunderstanding between its managers.
the distribution of returns on collaborative activity deserves to be explored. This is important because the allocation of control rights over returns on collaborative activity has a direct impact on the performance of each partner in cooperation.

The study of the question of complementarity between various contractual provisions has already been initiated. This issue requires further investigations in order to understand the relative importance of different contractual clauses, and to identify interdependencies among contractual characteristics (if there really exist complementarity, or under certain conditions it can be replaced by substitutability between them).

**Trust – Is It Substitute or Complement to Contractual Governance?**

The same question can be applied to relationships which exist between formal governance and relational governance, most often based on trust. As Kenneth Arrow once stated, “there is an element of trust in every transaction” (Arrow, 1973, p.24). Although he did not discuss the emergence of trust, current studies on trust and relational aspects of transactions support the view that all inter-organizational collaborations begin with an initial reservoir of trust (Arino, Ring, Torre, 2001). However there always exists a dilemma: on the one hand, contracts express the intention of both partners to develop their relational ties, and thus cannot be signed before at least minimal level of trust exists between them, i.e. formal control fulfills the intended role of promoting cooperation via explicit incentives to refrain from self-serving opportunistic activities. On the other hand, formal control is often interpreted by the controlled partner as a signal of mistrust, thereby leading to an unintended destroying of the trust, an important informal control mechanism (Margaret H. Christ et al., 2006). In order to resolve this dilemma we have to turn to the notion of trust.

What do we mean by trust? First, that trust requires the presence of an element of risk and mutual interdependence (Sheppard and Sherman, 1998). In other words, it implies that there must be an exposure to potential loss for the firm that is directly related to future actions taken by the partner in a mutual dependence and environmental uncertainty. Second, for the purposes of our analysis we assume trust not as an issue whether a person is more or less predisposed to trust other people (i.e., whether people are trustworthy), but whether institutions and economic agents rely on trust in their dealings (Ring and Van de Ven, 1992). Third, trust implies an expectation that the partners will subordinate their self-interests to the common interest of the cooperation under most circumstances. To this extent, trust may in fact be a substitute of more formal governance structures.

These views on trust however need to be reinforced by practical evidences; this motivates us for research in this direction.

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6 Relational governance implies that the partners have a past (one that is known and remembered), or that they may be associated with each other in the future. Thus past experience as well as the “shadow of the future” constitute important factors in the ways partners conduct themselves in relational exchanges. (Arino, Ring, Torre, 2001)
The concept of social capital that is closed to the notion of trust is proposed in the literature as an additional constraint for firm opportunism and governance choice. As firms cooperate in inter-firm relationships, social capital (Bourdieu, 1986; Coleman, 1988) is build between the partners. The level of social capital built in previous relationships is not only a resource, but it likewise poses expectations on a partner and limiting the partner’s variety of acceptable actions. Also in this stream of literature it is argued that social control replaces contractual mechanisms (Ghoshal & Moran, 1996). Powell (1990) stretches this point even further. He argues that alliances are a form of governance that is not intermediate between markets and hierarchies. Rather, alliances are characterized through social governance mechanisms that are unique to these institutional forms.

As one can see, the influence of trust and social capital on the structuring of the relations in the frame of collaboration agreement is still in its infancy and this issue promises a wide field for practical evidences to be investigated and supported by theoretical framework.

CONCLUSION

In this survey we have looked at the basic concepts of cooperation agreements, on the situation in which it’s worth writing a more complex contract, on provisions that can be specified in the contract, and how all these issues are covered in the literature.

When discussing alliance agreements, one executive said: “You need to have a very good contract and then… put it aside when running the alliance.” It means that health and prosperity of cooperation relationships between partners cannot depend only on the document. As Arino, Reuer and Valverde (2005) stipulate, “a well-designed alliance contract – like a well thought-out pre-nuptial agreement – can start a relationship off right, in clear terms”. However, a sound part of what can make difference between successful cooperation relationships and ones that fail is often in the print of cooperation agreement.

Making an overview of the existing literature on technology cooperation agreements, we attempted to understand the logic of contractual architecture of these specific arrangements by considering contracts as consistent coordination devices based on interdependencies among different provisions. We demonstrated that the “black box” of cooperation relationships between partners has been much investigated recently in economic and organizational literature, but still it remains unopened.

Our purpose for further research is to understand in great details the essence of cooperation agreements and, make some propositions on how to enhance the effectiveness of these contracts tailored to a particular type of transactions – technology collaboration.
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