Resorting to third parties as a means to reduce the ‘Costs of control’ and ‘costs of coordination’ in licensing agreements

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Resorting to Third Parties as a means to reduce the ‘Costs of Control’ and ‘Costs of Coordination’ in Licensing Agreements*

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Abstract. Although licensing agreements are essentially dyadic agreements, licensors and licensees frequently decide to resort to services offered by third parties in order to secure and ease their relationships. Key third parties in the licensing context are technology brokers, consulting firms, collective research centers, patent attorneys, auditing firms, law firms, and professional associations. Our intent in this essay is to shed light on these third parties, which have been largely neglected by scholars investigating inter-firm agreements, and to understand the factors motivating firms to resort to third parties’ services in the licensing context. We argue that the main motive for the use of third-party services is their ability to help partner firms face two main managerial imperatives in inter-firm agreements such as licensing agreement: the need to control and the need to coordinate. In other words, these third parties enable the licensing partners to reduce the ‘costs of control’ and the ‘costs of coordination’ associated with managing their licensing agreement. To test our conceptual framework, we use a detailed database of 113 licensing transactions. This database was collected through an online survey launched with the support from the Belgian technology trade association. Our findings provide support for our main argument that the use of third-party services is more likely to occur when the licensing agreement imposes high ‘costs of control’ and high ‘costs of coordination’.

Keywords: third parties; licensing agreement; costs of control; costs of coordination.

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INTRODUCTION

The last three decades have witnessed important growth in a variety of arrangements used to govern the exchange of knowledge and technology (Rivette and Kline, 1999; Rigby and Zook, 2002). Firms involved in technology development and commercialization increasingly engage in technology agreements such as licensing, R&D contracts, technology sharing agreements, cross-licensing, joint R&D, research joint ventures and research consortia (Hagedoorn, 1990). Among these agreements, licensing has become an increasingly important channel for diffusing technology. Indeed, world-wide licensing transactions averaged more than USD 36 billion per year between 1990 and 1997, compared to USD 5.6 billion in the 1980s (OECD, 2006), and recent statistics (World Bank) indicate that the value of licensing transactions reached USD 115 billion in 2005 (Zuniga and Guellec, 2009).

Licensing is a means by which technology can be transferred from one party (the ‘licensor’) to another (the ‘licensee’). The licensee buys the right from a licensor to use its intellectual property (IP) for a period of time and with a precise purpose. The licensing contract specifies the content of the technology transferred and the rights and duties of each party, and formalizes the agreement. Licensing enables the licensee to acquire the right to use new technology without having to undertake costly R&D, and simultaneously enables the licensor to derive royalties and, in some cases, to obtain reciprocal licenses to any technical improvements made by the licensee. Both licensee and licensor have the opportunity to capitalize on the other party’s reputation and expertise.

According to Teece (2000), four main objectives may be followed when engaging in a licensing agreement. The first objective is efficient commercialization. A firm’s decision to license technology it owns may indeed be driven by its lack of complementary capabilities and assets required to succeed in the marketplace such as downstream manufacturing, distribution, or marketing capabilities. A firm’s decision to get a license may, instead, be driven by its inability to conduct the necessary R&D. A second objective may be the exchange of technology; i.e., the mutual desire to acquire technology from the other firm. Cross-licensing patent rights is a frequent practice that reduces IP disputes and
litigation. The third objective is *market enhancement*. The decision to license or get a license may indeed be motivated by the strategic desire to establish a standard across a particular industry. Of course, a fourth underlying objective for licensors is often to generate *royalties*. Although some licensing agreements pursue all of these objectives, others focus on only some of them. To sum up, one might say that licensing agreements put technology in the hands of firms best capable of commercializing it and ease the entry of small innovative firms, which often lack the assets needed to commercialize their invention themselves.

The standard framework used to analyze licensing decisions has been Transaction Cost Economics. When studying the licensing agreements, scholars first focused on the trade-off between licensing and alternative governance structures (e.g., Buckley and Casson, 1976, 1998; Dunning, 1981; Rugman, 1981; Hennart, 1982, 1988; Teece, 1986). The main tenet developed in this literature has been that firms align their transactions with governance structures - going from market (i.e., arms-length “spot” contract) to hierarchy (i.e., organization within the firm) - so as to reduce the costs of transacting (Williamson, 1991). Markets form *a priori* a more efficient governance structure due to economies of specialization and the administrative and incentive limits of hierarchy. This is true, unless the transaction is surrounded with uncertainty and requires to invest in specific assets (e.g., Williamson, 1975, 1985; Klein, Crawford, and Alchian, 1978; Teece, 1982). Within this framework, a licensing agreement is a governance structure that was originally associated with pure market contract.

More recently, scholars have put emphasis on the wide variety of licensing agreements (Bessy and Brousseau, 1998; Anand and Khanna, 2000; Brousseau, Coeurderoy and Chasserant, 2007; Hagedoorn, Lorenz-Orlean and Van Kranenburg, 2009). Licensing agreements do not form a homogeneous set of contractual arrangements. They can instead be associated either with a pure market contract (also called ‘transactional contract’ (Macneil, 1974)) or with a hybrid form (also called ‘relational contract’ (Macneil, 1974)) according to their characteristics (Borys and Jemison, 1989; Grandori and Soda, 1995; Bessy and Brousseau, 1998; Sattin, 2005). Between the two polar forms, market and hierarchy, we can indeed find various hybrid forms of governance (Williamson,
The term ‘hybrid’ is used to refer to arrangements where parties maintain autonomy but are more bilaterally dependent than in pure market contracts. They retain some of the incentive characteristics of markets, while allowing enhanced monitoring and avoiding some of the bureaucratic and shirking costs associated with hierarchy (Williamson, 1991). In general, hybrid forms correspond to long-term contracts. Firms tend to opt for hybrid forms when the uncertainty surrounding the transaction and the extent of joint and inter-dependent activities render the drafting of complete contracts almost impossible. Hybrid forms enable them to deal with this incompleteness via governance mechanisms designed for coordinating activities, organizing transactions, and solving disputes (Ménard, 2004). In the licensing context, governance mechanisms such as supervision\(^4\), renegotiation\(^5\), and alternative dispute resolution mechanisms (negotiation, mediation and arbitration) (Brousseau et al., 2007) can be implemented, making licensing agreements closer to a hybrid form.

Scholars have begun to explore the trade-off between distinct forms of licensing agreement either in terms of financial condition, combination of resources transferred in addition to the right to use a patent, regime of exclusivity, unilateral vs. bilateral transfer of technology (cross-licensing vs. licensing agreements) or \textit{ex ante} vs. \textit{ex post} licensing\(^6\) (Caves, Crookel and Killing, 1983; Bessy and Brousseau, 1998; Anand and Khanna, 2000; Arora and Fosfuri, 2003; Brousseau and Coeurderoy, 2005; Sattin, 2005; Brousseau et al., 2007; Hagedoorn et al., 2009; Lichtenthaler and Ernst, 2009; Aulakh, Jiang, and Pan, 2009). These scholars investigate the \textit{raison d’être} of this wide variety of licensing agreements, which cover a sub-spectrum of governance structures between market and hierarchy.

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\(^4\) “The contractual agreement may grant audit rights to one of the parties or to a third party in order to check that contractual commitments are being enforced” (Brousseau et al., 2007).

\(^5\) “A renegotiation provision states the extent to which contractual obligations can, \textit{ex post}, be redesigned to adjust contractors’ behavior either to new environmental conditions, or to changing mutual preferences, or indeed to the accumulation of knowledge” (Brousseau et al., 2007).

\(^6\) Licensing agreement is considered as being \textit{ex ante} if firms license prospective technologies (Gallini and Winter, 1985; Anand and Khanna, 2000).
Although the literature on licensing is somewhat abundant, the role of third parties in licensing relationships has received extremely limited attention. However, licensors and licensees frequently decide to resort to services offered by third parties in order to secure and ease their relationships. Key third parties in the licensing context are technology brokers, consulting firms, collective research centers or federal labs\(^7\), patent attorneys\(^8\), auditing firms\(^9\), law firms, or professional associations\(^{10}\).

The purpose of this essay is to gain understanding of firms’ motives for using third parties in the licensing context and, in particular, to examine whether the use of third parties is more likely to occur when the licensing transaction causes high ‘costs of control’ and/or high ‘costs of coordination’.

The remainder of the essay is organized as follows. In the next section, we develop our conceptual framework by describing how third parties’ assistance can take place in the licensing context and help partners face their two managerial imperatives: the need to control and the need to coordinate. Following this, we develop a set of hypotheses addressing the influence of (1) factors magnifying the costs of control and (2) factors magnifying the costs of coordination on the use of third-party services.

We test our hypotheses with a database of 113 licensing agreements collected through an online survey with the support from AGORIA, the Belgian technology trade association\(^{11}\). The survey method enabled us to build a highly detailed database of licensing transactions. The description of the research design and empirical methodology is followed by a discussion of the results and the conclusion.

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\(^7\) These centers have been created in numerous countries to stimulate the technological development of firms in major sectors through collective research (Wright, Clarysse, Lockett and Knockaert, 2008).

\(^8\) Patent attorneys have the specialized qualifications necessary to represent clients in obtaining patents and acting in all matters and procedures related to patent laws and practices.

\(^9\) Auditing firms, such as Deloitte, conduct royalties’ investigations on behalf of licensor to help assess the completeness of licensing income returns. They also help licenses quantify their potential exposure or rebut allegations of royalty underpayments (www.deloitte.com).

\(^{10}\) Professional associations such as trade associations “usually have voluntary membership, are not-for-profit organizations formed by policy entrepreneurs within firms located in the same industry to collect, share and disseminate industry-relevant information and provide a platform for collective representation and lobbying” (Tucker, 2008).

\(^{11}\) In line with the Belgian technology trade association, AGORIA, we consider the following sectors as forming the technology industry: aerospace, industrial automation, automobile, contracting and maintenance, electronics, mechanical and mechatronical engineering, metals and materials, assembling and crane, plastics, building products, security and defense, ICT, and metal fabrication.
Third parties in the licensing context

Third-party assistance may be desirable at one or more contractual stages: (1) for the identification and selection of a licensing partner, (2) for the negotiation of the licensing contract, and (3) for the monitoring of the licensing relationship. At the first stage, third parties such as technology brokers or professional associations can help firms identify and select a licensing partner. These third parties have the ability to collect and diffuse information about potential partners’ resources, capabilities and needs and, in some cases, to give firms the opportunity to meet each other. For instance, a main task of technology brokers is to develop databases on potential partners. Professional associations may also be helpful at this first contractual stage by organizing networking events such as meeting days, seminars and professional fairs. Given the difficulties firms may encounter identifying trustworthy partners that are both potentially interested in licensing and have the necessary resources and skills, these third parties, and their national or international networks, can play a critical role at this first contractual stage.

At the second stage, negotiating the contractual terms and reaching an agreement regarding the value and price of the technology transferred are critical and non-trivial tasks. Specifically, when the licensing transaction is complex (containing exclusivity, renegotiation, grantback and other provisions), the capabilities to design appropriate contracts (Argyres and Mayer, 2007) will be crucial for the future governance of the licensing relationship. Regarding the legal aspects, third parties such as law firms, consulting firms or professional associations like the Licensing Executives Society\textsuperscript{12} put their own experience at the firms’ disposal. Besides the legal aspects, third parties like patent attorneys or collective research centers share with firms their expertise regarding the assessment of

\textsuperscript{12} Licensing Executive Society is a business-oriented international organization grouping professionals involved in licensing and other aspects of IP rights transfers (management representatives, scientists, engineers, governmental officials, lawyers and consultants): \url{www.lesi.org}. 

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the value of technology transferred and its obsolescence rate. At both legal and technical levels, third parties can assist partner firms in negotiating the contractual terms of their agreements; a process becoming increasingly delicate due to the frequent international scope of licensing agreements and the rising complexity of the technology involved.

While the activities leading to the signing of the contract are critical for the success of the agreement, the third stage - monitoring the contractual relationship throughout the contractual duration - is also extremely important. Third parties like collective research centers can help the technology recipient understand, assimilate, utilize and implement the technology. These third parties perform activities such as diagnostics, testing, prototyping, and training. Their technological expertise can greatly enhance monitoring of the knowledge transfer. In addition to assisting knowledge transfer and implementation, third parties may also monitor the partner’s activities and behaviors throughout the duration of the contract. Auditing firms, for instance, can be in charge of this monitoring as they inspect, control and certify activities, and assure the parties respect their contractual commitments via pre-defined mechanisms and rules.

**Third parties as mitigators of opportunism and facilitators of coordination**

The previous section shows that services vary with the type of third party and the contractual stages. Despite this variety, all of these third parties assist partners - to different degrees - in dealing with one or both of their two managerial imperatives: the need to control and the need to coordinate.

The first managerial imperative is to minimize the likelihood of suffering from the partner’s opportunistic behavior (Williamson, 1985, 1991). Indeed, even if inter-firm agreements are in essence cooperative and voluntary, they are characterized by an inherent instability arising from the uncertainty regarding the partner’s future behavior and the absence of a higher authority to ensure compliance. In other words, although cooperation is desirable and necessary to achieve the purpose of the agreement, it can be hindered by self-interest and opportunism of each party (Williamson, 1985;
Research in Transaction Cost Economics argues that aligning the governance structure adequately with the transaction attributes reduces the risk of vulnerability to opportunism. In cases where the transaction exhibits a low risk of opportunistic behavior, the default governance structure is the ‘market form’. When the transaction requires investments in specific assets and is surrounded with uncertainty, a more hierarchical governance structure may be needed to curtail opportunism. More hierarchical governance structures such as the equity-based agreement enable partners to reduce the risk of opportunism because these structures foster the alignment of the partners’ incentives and create a hostage situation where each partner has a continued interest in the maintenance of the agreement (Williamson, 1983).

The second managerial imperative is to coordinate the inter-dependent tasks across firms’ boundaries (Gulati and Singh, 1998). Indeed, while selecting a trustworthy partner and minimizing the vulnerability to opportunism are important for the success of the agreement, it is also important to successfully coordinate the inter-dependent tasks and match the respective profiles in resources and competences. This necessitates selecting a partner with the required pool of resources and competences and also implementing managerial mechanisms that promote the efficient sharing of information and communication, the establishment and maintenance of an inter-organizational interface, and the realization of internal adjustment in response to partners’ actions (White and Lui, 2005). As a result, even if partners have complete confidence in each other, they still have to face coordination costs, whose level depends on the degrees of exchange, sharing and co-development imposed by the agreement. In particular, the innovation process can be hard to partition into independent and self-contained tasks (Kline and Rosenberg, 1986; von Hippel, 1990). Throughout this process from research to manufacturing and commercialization, it can be difficult to conduct tasks in isolation. Scholars have argued that more hierarchical governance structures can reduce the costs of coordination when inter-dependency is important as these structures provide superior task coordination (Chandler, 1977; Thompson, 1967; Gulati and Singh, 1998).
Previous research has therefore shown that aligning the governance structure adequately with the need for control (first managerial imperative) or the need for coordination (second managerial imperative) reduces the risk of opportunism and eases inter-partner coordination. Knowledge about the influence of third-party intervention on these opportunism and coordination concerns is, on the contrary, extremely limited. However, as we explain below, the services offered by third parties are mainly aimed at reducing the costs of control and the costs of coordination.

Resorting to services offered by third parties like technology brokers, trade associations, auditing firms, or research collective centers can be considered as a means to deal with the risk of opportunism and/or means to facilitate the coordination of activities. On the one hand, costs of control caused by a high risk of opportunism can be mitigated by resorting to third parties at one or another contractual stage as third parties can propose: (1) assistance for the identification and selection of trustworthy partners; (2) assistance for the negotiation of a contract that integrates the necessary safeguards; and (3) assistance for the monitoring of the contractual relationship and adherence to contractual commitments. On the other hand, costs of coordination caused by a high level of inter-dependency can be mitigated by resorting to third parties at one or another contractual stage as third parties can provide: (1) assistance for the identification and selection of partners having the necessary set of resources, skills and capabilities to value, understand, assimilate and utilize the technology; (2) assistance for the negotiation of a contract that incorporates the necessary flexibility; and (3) assistance for the monitoring of the contractual relationship, which demands communication, continuity, and adaptation.

**HYPOTHESES**

On the basis of previous research and our understanding of the role of third parties in licensing relationships, we formulate in this section a set of hypotheses related first to the factors magnifying the risk of opportunism (first managerial imperative: the need to control) and second to the factors increasing the extent and complexity of coordination (second managerial imperative: the need to
coordinate) in the context of licensing. Our hypotheses address the link between these two dimensions and the resort to third-party services. It is important to note that using third-party services may impose some costs as well. Identifying the right third party, informing it about the details of the licensing agreement and interacting with it ask time, resources and money. In this essay, we assume that as soon as firms use third-party services, they expect that the costs of using third-party services is lower than the reduction in costs of control and costs of coordination resulting from these services.

**The use of third parties to curtail opportunism and reduce the costs of control**

Substantial empirical research in Transaction Cost Economics has been devoted to the study of the first managerial imperative: economizing on bounded rationality while simultaneously safeguarding against opportunism. We focus here on three transaction attributes that have been considered in previous research as increasing the threat of opportunism.

**Tacitness.** Licensing may necessitate transferring not only the technology covered by the patent but also tacit know-how necessary to assimilate and implement this technology. Tacit know-how is usually spread across multiple employees and made up of numerous tacit elements (Chi and Roehl, 1997). It corresponds to implicit and noncodifiable accumulation of skills that essentially result from learning by doing (Reed and DeFillippi, 1990).

Given its nature, the transfer of tacit know-how must, in most cases, be achieved through training of the licensee’s personnel by the licensor’s engineers (Teece, 1977; Contractor, 1981; Arora, 1996). Tacitness magnifies the risk of opportunistic behavior on both sides of the licensing relationship. On the one hand, when a transfer of technology involves tacit know-how, the licensor risks the escape of its knowledge from its proprietary control due to the difficulty of codifying tacit knowledge in a contract and, thereby, protecting it through the legal system (Arora, Fosfuri and Gambardella, 2001). On the other hand, tacit know-how presents some risks for the licensee as well, as it is difficult for a licensee to assess *ex ante* the extent of tacit knowledge that will be necessary to implement the
licensed technology, and to assure that the licensor actually provides the licensee with the needed know-how (Arora, 1995).

As a result, for licensing transactions where the transferred knowledge is characterized by high level of tacitness, the protection of the IP through the legal system is limited and the quality, extent, and efficiency of the actual knowledge transfer become uncertain. Tacitness thus magnifies the hazards in contracting (Oxley, 1997), and the subsequent risk of opportunism could make the resort to third-party services more likely. Indeed, third parties such as technology brokers and professional associations can first provide firms with assistance regarding the identification and selection of trustworthy partners, which either will not opportunistically take advantage of the unprotected tacit know-how or will respect their commitment in terms of quality and extent of knowledge transfer. Second, law firms, consulting firms, or legal departments of professional associations are third parties that can assist partners in negotiating and drafting a contract that incorporates safeguards to deal with the transfer of tacit know-how; essentially through the design of clauses leading to bilateral hostage situations. Finally, some third parties like collective research centers can formally monitor the licensing agreement and ensure that each party honors its commitments.

**Hypothesis 1:** The higher the level of tacitness of the knowledge transferred through the licensing agreement, the higher the likelihood that licensors and licensees will resort to third-party services.

**Relationship-specific investment.** Williamson (1991) defines the ‘asset specificity’ of a transaction as the degree to which the assets used in support of the transaction can be redeployed to “alternative uses and by alternative users without sacrifice of productive value”. Four main types of asset specificity can be distinguished (Williamson, 1985): site specificity, physical asset specificity, human asset specificity, and human asset specificity.

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13 As Leiblein (2003) puts it: “Site specificity refers to the co-location of facilities so as to minimize inventory or production costs [...]. Physical asset specificity refers to the use of co-specialized assets that are customized for a particular use or purpose [...]. Human asset specificity refers to an employee’s development of firm-specific
human asset specificity, and dedicated assets. In the licensing context, asset specificity is determined by the specific investment made by the licensor to develop the technology and made by the licensee to implement this technology. Licensing partners may indeed have to make substantial specific investments in plants, equipment, human resources, etc.

Assets characterized by high relationship-specificity represent sunk costs as they have little value outside the particular licensing transaction they support and cannot be fully recovered should the transaction be prematurely terminated. The need for relationship-specific investments creates the potential for hold-up, in which the party with less idiosyncratic investment at risk expropriates surplus from the other party (Williamson, 1975, 1985; Klein, Crawford and Alchian, 1978). The greater the level of specific investment, the greater the risk of opportunistic expropriation and, hence, the more likely are the firms to resort to third-party services that can assist them in identifying and selecting trustworthy partners, and in negotiating contracts that provide safeguards for the specific and non-recoverable investments\textsuperscript{14} (for instance, by opting for royalties instead of up-front payments, by imposing strong financial penalties to the partner who causes a premature termination or by designing a strict renegotiation scheme).

\textit{Hypothesis 2: The higher the relationship-specific investments required by the licensing agreement, the higher the likelihood that licensors and licensees will resort to third-party services.}

\textbf{Institutional environment uncertainty.} Features of the institutional environment are critical factors for technology transfers, and in particular for technology transfers that cross national borders. When contracting for technology, the diversity of legal frameworks and particularly of IP rights regimes

\textsuperscript{14} Masten and Crocker (1996) show, for instance, that some clauses can mitigate the hazards caused by durable and specific investments. In particular, they examine the ‘take-or-pay’ provision in contracts between natural gas producers and pipelines. This provision “requires purchasers to pay for a contractually specified minimum quantity of output, even if delivery is not taken” (Masten and Crocker, 1996).
between countries exacerbates the uncertainty surrounding the transaction (Williamson, 1991; Oxley, 1999; La Porta, Lopez-de-Silanes, Schleifer, and Vishny, 1999) and influences the firms’ decision to opt for one or another governance structure (Oxley, 1999; Hagedoorn, Cloodt and van Kranenburg, 2005). Weak and unpredictable IP protection and contract enforcement increase the risk that IP will be illegally invented around or that terms of a license agreement will be reneged on (Teece, 1988; Anand and Khanna, 2000). When institutional environments are more uncertain, a greater number of contingencies exists that could disturb the relationship, and the risk of opportunism increases (Williamson, 1985; Buckley and Casson, 1988). Besides the legal framework and IP rights regimes, political institutions (Levy and Spiller, 1994), governance interference (Oliver, 1991), and institutional environment volatility (Oxley, 1997; Luo and Peng, 1999) can also generate business risks that must be assessed by firms when engaging in technology transfer agreements with a foreign partner. Uncertainty is indeed a multifaceted dimension (Luo and Peng, 1999).

We argue that, where the level of risk and uncertainty caused by the institutional environment in the licensing partner’s country is high, firms tend to rely more on third-party services. Third parties may help firms identify and select trustworthy partners (e.g., technology brokers and professional associations), assist the negotiation of a contract that properly addresses the institutional environment uncertainty characterizing the countries involved (e.g., law firms and consulting firms), and check the extent to which the partners honor their commitments, especially when they are located in another country (e.g., auditing firms).

**Hypothesis 3:** The higher the institutional environment uncertainty in the licensing partner’s country, the higher the likelihood that licensors and licensees will resort to third-party services.
The use of third parties to facilitate the coordination of activities and reduce the costs of coordination

Licensing agreements do not form a homogeneous set of contracts. Instead, there is a wide variety of licensing agreements, characterized by different degrees of joint activities. These joint activities can be related to R&D, marketing, or manufacturing and supply. The broader the scope and the higher the intensity of joint activities and efforts, the higher the need to communicate, to establish and maintain an inter-organizational interface, and to make internal adjustments in response to the partners’ action; hence, the higher the costs of coordination (Gulati and Singh, 1998; White and Lui, 2005). Coordination costs arise, indeed, from the “task-related coordination needs and social integration that are necessary in order for partners to combine resources and integrate their activities in the course of undertaking a joint task” (White and Lui, 2005). In line with White and Lui (2005), we consider that coordination costs stem from two main sources: the task-related coordination needs and the social differences in cultures, values, and so on.

Scope and depth of joint activities. Coordination needs increase with the scope and depth of interaction between the partners (e.g., Garrette and Dussauge, 1995; Bensaou and Venkatraman, 1995). Scope refers to the range of joint activities or tasks undertaken by the partners along their value chain (Child and Faulkner, 1998). Depth refers to the intensity of interaction between the partners. When either scope or depth of joint activities increases, the coordination needs and, therefore, coordination costs increase as well. Third-party assistance and support can contribute to the reduction of these costs. First, third parties like technology brokers and trade associations can provide firms with assistance regarding the identification and selection of partners having the appropriate set of resources, skills and capabilities to provide the needed technology or to implement their technology. Second, third parties like law firms, consulting firms and legal departments of trade associations, can assist the partners in negotiating a contract that allows the flexibility imposed by the high inter-dependency (for instance, by implementing governance mechanisms like renegotiation, mediation or supervision (Brousseau et al., 2007)). Finally, third parties like collective research centers can provide
the partners with assistance in monitoring the more ‘relational’ contract, which requires communication, continuity, and adaptation, by assisting the partner in implementing monitoring and joint problem solving mechanisms.

*Hypothesis 4:* The broader the scope of joint activities in the licensing agreement, the higher the likelihood that licensors and licensees will resort to third-party services.

*Hypothesis 5:* The deeper the joint activities in the licensing agreement, the higher the likelihood that licensors and licensees will resort to third-party services.

**Inter-partner diversity.** Inter-partner diversity along social and cognitive dimensions - culture, managerial personalities, priorities, and so forth - may render coordination difficult to manage and thus increase its costs (de Rond, 2003; Child and Faulkner, 1998). On the one hand, this diversity can be the key motive for firms to engage in a licensing agreement. Licensing may, in fact, be driven by the lack of complementary capabilities and assets in marketing and manufacturing or by the inability to conduct R&D. On the other hand, inter-partner diversity along social and cognitive dimensions may make such partnerships difficult to manage (de Rond, 2003; Child and Faulkner, 1998). Conflicts and even failures arise when partners are not able to overcome or accommodate their organizational, industrial or national differences. Again, third parties could play a role in tempering inter-partner diversity. First, they can provide firms with assistance regarding the identification and selection of partners that share at least the necessary set of values, norms and behaviors to ensure successful coordination of inter-dependent tasks. Second, they can assist the partners in negotiating a flexible contract integrating the fact that partners may have different patterns of behaving and believing and different approaches to solve problems and resolve conflicts. Finally, when third parties have knowledge about partners’ respective rules, values and culture, they can help them develop an understanding of the other partner’s mode of thinking and implement mechanisms that temper difficulties of interactions and coordination.
Hypothesis 6: The higher the diversity between the licensing partners, the higher the likelihood that licensors and licensees will resort to third-party services.

RESEARCH DESIGN

The context for this study involves the decisions made by Belgian firms to resort to third-party services for their licensing activities. An initial list of 1,946 firms composing the Belgian technology industry was obtained from AGORIA\textsuperscript{15}. In line with AGORIA we consider the following sectors as forming the technology industry: aerospace, industrial automation, automobile, contracting and maintenance, electronics, mechanical and mechatronical engineering, metals and materials, assembling and crane, plastics, building products, security and defense, ICT, and metal fabrication.

The questionnaire design, implementation, and the conduct of the survey followed the Total Design Method (TDM) developed by Dillman (2007). Our online survey package included a prenotice letter written, signed and sent by AGORIA and customized cover letters. Follow-up messages were made by electronic mail and phone with between two and five contacts per firm. Distinct stages of pre-testing were conducted: on-site interviews with managers in technological firms, lawyers in IP rights, business consultants in IP, representatives of AGORIA and of the Brussels Enterprises Commerce and Industry association; evaluations by academic colleagues; and reviews by industry associations’ executives.

A key informant respondent approach was used for the survey. The technical and specialized nature of licensing decisions required sending our questionnaire to top executives\textsuperscript{16} whose understanding and field of action related to the overall firm. These executives were, moreover, the best qualified to redirect the questionnaire, if necessary, to other individuals in the organization who may have been more competent on the subject (Aulakh, Kotabe and Sahay, 1996).

\textsuperscript{15} Website: www.agoria.be
\textsuperscript{16} Chief Executive Officer, Chief Financial Officer, Manager R&D department, Manager IP department, and Head of the legal department.
The first part of the questionnaire prompted the respondents to complete questions on the global licensing strategy adopted by their firm. In a second part, respondents were invited to select and describe a current, or past but recent, technology licensing agreement in which the firm had participated (see dissertation appendix). In addition to data acquired through the questionnaires, secondary data, mainly related to the characteristics of the respondents’ firm (such as industry and size), were collected from the ORBIS-AMADEUS database.

After eliminating surveys with incomplete information, the sample consists of 289 responses (15% response rate). Because numerous firms having completed our questionnaire have not negotiated licensing agreements; we end with 113 usable questionnaires completed by 94 firms for the purpose of this paper. Indeed, we did not know in advance which firms in the list received from AGORIA had negotiated licensing agreements or not. In case the respondent answered that his firm had not negotiated licensing agreements, which is the case for 156 firms in our sample, we asked him to identify the main reasons for this absence of licensing agreements. We cannot use these latter 156 questionnaires for this present study that focuses on licensing transactions.

Since the sample is based upon AGORIA’s listings that represent the overall firm populations, sample selection bias is unlikely (Tomaskovic-Devey, Leiter, and Thompson, 1994). Firms composing our sample are of various sizes: 100 employees or less in 50 firms, between 100 and 500 employees in 21 firms, and more than 500 employees in 18 firms. They can be regrouped into 5 distinct sectors on

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17 We developed and proposed a list of possible reasons: no intellectual assets can be licensed by your firm to a licensee; your firm is not familiar with licensing practices and prefers other modes of technology transfer; intellectual assets could be licensed but potential licensees were not identified; your firm does not need external technology; etc.
18 There are 5 firms with a missing value for this variable.
19 We first identified the NACE rev1.1 codes for each firm. Then, we grouped the firms on the basis of the first two digits of the NACE rev1.1. Six categories were computed by using the NACE code and referring to the classification proposed by AGORIA, the Belgian Technology Trade Association. For ‘new materials’: 24. manufacture of chemicals and chemical products, 27. manufacture of basic metals, and 28. manufacture of fabricated metal products, except machinery and equipment. For ‘mechatronic and electronic’: 29. manufacture of machinery and equipment n.c., 31. manufacture of electrical machinery and apparatus n.e.c., and 33.
the basis of their NACE code: new materials (10 firms); mechatronic and electronic (29 firms); ICT (15 firms); automobile (4 firms); and construction (4 firms). Their experience in licensing is also diverse: 16 have negotiated out-licensing agreements exclusively, 44 have negotiated in-licensing agreements exclusively, and 34 have negotiated out- and in-licensing agreements. Moreover, 32 out of these 94 firms have a licensing or IP department.

**Variable operationalization**

The survey items were carefully developed on the basis of the related literature and discussions with industry experts. The first variable of interest in this paper is *resort to third-party’ services*, which reflects the firm’s decision to use third-party services at one or more contractual stages of the technology licensing agreement. To construct this dependent variable, each contractual stage (identification and selection of a licensing partner, negotiation of the licensing contract, and monitoring of the contractual relationship) was first considered separately. We asked whether the firm resorted to a third party (1) for the identification and selection of the licensing partner, (2) for legal and/or technical expertise during the negotiation of the licensing contract, and (3) for assistance in monitoring the contractual relationship. These three individual variables were aggregated into a single variable, *resort to third-party services*, which is equal to 1 if the firm used a third party at one or more contractual stages and to 0 otherwise.

**Tacitness.** The tacitness of the technology transferred is measured with a scale adapted from Simonin (1999, 2004) that consists of two questionnaire items: (i) the licensed technology is easily codifiable
(in blueprint, instructions, formulas, etc.) and (ii) the licensed technology is more explicit (easy to explain and describe to others) than tacit. These two items were recorded on a 5-point Likert scale ranging from 1, ‘Strongly disagree’ to 5, ‘Strongly agree’ and reverse-coded. The coefficient of reliability (Cronbach’s alpha) for this scale is 0.8339.

**Relationship-specific investment.** To create a measure of the level of investment in specific assets, we average the level of investment made by the licensor to develop the technology and the level of investment made by the licensee to implement it. For the specific investment made by the licensor, two questionnaire items were adapted from previous research (Simonin, 1999): (i) to develop this technology, the licensor had to invest significantly in specialized equipment and facilities and (ii) to develop this technology, the licensor had to invest significantly in skilled human resources. Responses were recorded on a 5-point Likert scale ranging from 1, ‘Strongly disagree’ to 5, ‘Strongly agree’. The Cronbach’s alpha is 0.6759 for this scale. One might argue that the two questionnaire items used for the licensor’s investment reflect more the level of specialization than the level of specificity to a particular licensing agreement. We therefore multiply this scale by the regime of exclusivity characterizing the licensing agreement. Indeed, it makes sense to consider that the regime of exclusivity signals the extent to which the licensor’s investment is specific to a particular licensing agreement. The regime of exclusivity ranges from 1 to 4: 1 if the license is a ‘non exclusive license’, 2 if it is a ‘co-exclusive license’ (with exclusivity granted to a small number of firms), 3 if it is a ‘sole license’ (licensor keeps the right to exploit its patent and know-how) and 4 if it is an ‘exclusive license’ (licensor fully sells its right to exploit).

For the specific investment made by the licensee, we used four survey questions (Artz and Brush, 2000; Reuer and Arino, 2007): (i) the licensee’s investment in tooling, equipment and/or plant dedicated to this licensing agreement is […]; (ii) the licensee’s commitments of time and money involved in this licensing agreement are […]; if the licensing agreement were to terminate before its contractual end: (iii) the difficulty the licensee would have in redeploying its people and facilities presently serving the licensing agreement to other uses would be […] and if the licensing agreement
were to terminate before its contractual end: (iv) the licensee's non-recoverable investment in equipment, people, etc. would be [...]. Again, a 5-point Likert scale was used from 1, ‘Negligible’ to 5, ‘Substantial’. The Cronbach’s alpha is 0.7871.

To obtain the final and single variable relationship-specific investment, we average the level of investment made by the licensor to develop the technology (adjusted to include the regime of exclusivity) and the level of investment made by the licensee to implement it. This requires us first to standardize both scales given that the scale for the licensee’s investment goes from 1 to 5 and the scale for the licensor’s investment goes from 1.5 to 20 after the multiplication by exclusivity. Finally, in order to avoid negative levels of investment after standardization, we add the value of 3 to each standardized scale and then average these scales to form the single measure, relationship-specific investment.

Institutional environment uncertainty. For our variable institutional environment uncertainty, we use the Worldwide Governance Indicators developed by Kaufmann, Kraay and Mastruzzi (World Bank, 2008). These scholars define governance as “the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them”. These indicators measure six dimensions of governance in 212 countries: voice and accountability²¹; political stability and absence of violence/terrorism²²; government effectiveness²³;

²¹ “Measuring perceptions of the extent to which a country’s citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.” (Kaufman et al., 2008).
²² “Measuring perceptions of the likelihood that the government will be destabilized or overthrown by unconstitution or violent means, including politically-motivated violence and terrorism.” (Kaufman et al., 2008).
²³ “Measuring perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies.” (Kaufman et al., 2008).
regulatory quality\textsuperscript{24}; rule of law\textsuperscript{25}; and control of corruption\textsuperscript{26}. Given that the respondent’s firm is always Belgian in our database of licensing agreements, we use the value of these six dimensions of governance in the country of the other licensing partner. These licensing partners are also Belgian in 8 cases, European (and non-Belgian) in 52 cases, North-American (United States of America and Canada) in 30 cases, Japanese in 7 cases, Chinese in 4 cases and Thai, Russian, Pakistanis, Australian, or Algerian in the other cases. Moreover, as the Worldwide Governance Indicators are measured for 1996, 1998, 2000, and annually for 2002-2007 and our questionnaire asked the date of the signing of the contract (‘When has this licensing agreement been signed? Less than 1 year ago, 1-2 years ago, 3-5 years ago, 6-10 years ago, more than 10 years ago’), we consider the value of these six dimensions for the year the contract was signed. We then form a unique scale based on these six dimensions that we reverse-code. The Cronbach’s alpha is 0.9762.

**Scope and depth of joint activities.** In order to assess the scope of joint activities, four variables - each dummy variable – are aggregated\textsuperscript{27} as follows:

\[
\text{Scope of joint activities} = (\text{provision of goods or services to the licensor} + \text{joint efforts in R&D} + \text{joint efforts in manufacturing} + \text{joint efforts in marketing})
\]

The variables provision of goods or services to the licensor, joint efforts in R&D, joint efforts in manufacturing and joint efforts in marketing are equal to 1, respectively, if the licensee must provide

\textsuperscript{24} “Measuring perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.” (Kaufman et al., 2008).

\textsuperscript{25} “Measuring perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as a the likelihood of crime and violence.” (Kaufman et al., 2008).

\textsuperscript{26} “Measuring perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests.” (Kaufman et al., 2008).

\textsuperscript{27} We have checked the level of correlation between these four variables and did not detect multicollinearity issue.
goods or services to the licensor; if the licensing agreement involves joint efforts in R&D; in manufacturing and supply; and in marketing; and to 0 otherwise. This sum enables us to assess the scope of joint activities. The variable depth of joint activities is equal to 1 if, in addition to the right to use a patent, the licensor provides the licensee with technical assistance, consultancy services and personnel delegation; and to 0 otherwise.

**Inter-partner diversity.** Different dimensions can be used to assess inter-partner diversity; for instance, the diversity in terms of strategic goals and objectives (Doz, 1988), in terms of formal and informal organizational processes (de Rond, 2003; de Rond and Bouchiki, 2004) or in terms of organizational and national culture (Mowery, Oxley and Silverman, 1996). Our database enables us to use as measure of inter-partner diversity the cultural distance existing between the national culture characterizing Belgium and the national culture characterizing the licensing partners’ country. This variable has been measured in different ways in previous studies (Ronen and Shenkar, 1985; Anderson and Gatignon, 1986; Kogut and Singh, 1988; O’Grady and Lane, 1996; Shenkar, 2001). In this paper, we adopt Kogut’s and Singh’s (1988) measure of cultural distance, because it has most frequently been used in past studies. Based on Hofstede’s ‘dimensions of culture’ (Hofstede, 1980), inter-partner diversity is measured as the deviation across each of the four dimensions of culture (power distance, uncertainty avoidance, individualism and masculinity), corrected for variance differences among the dimensions. Country scores were taken from Hofstede (2001) and, for the countries not included in the original Hofstede list, from the website of the consulting firm ITIM (www.itim.org), which is utilizing Hofstede’s concepts and is supported by him.

To ensure the robustness of our results, four control variables are added to the equation. First, the variable out-licensing agreement is equal to 1 if the questionnaire was completed by a licensor (i.e., describing an out-licensing agreement) and to 0 if the questionnaire was completed by a licensee (i.e., describing an in-licensing agreement). In fact, some firms have exclusively participated in only one type of licensing agreements, out-licensing agreement vs. in-licensing agreement, while others have participated in both types. If the respondent’s firm was exclusively a licensor or has negotiated more
out-licensing than in-licensing agreements, we asked the respondent to describe one of its out-licensing agreements. Similarly, if the respondent’s firm was exclusively a licensee or has negotiated more in-licensing than out-licensing agreements, we asked the respondent to describe one of the firm’s in-licensing agreements. Finally, in case the respondent’s firm has negotiated as many out-licensing agreements as in-licensing agreements, we asked the respondent to select and describe one of them (in- or out-licensing agreement). We include the variable out-licensing agreement as it is likely that licensors and licensees will not have the same propensity to resort to services proposed by third parties. One might think, for instance, that the process of identification and selection of a licensing partner is more often undertaken by the licensor than the licensee; hence, the resort to third-party services at this stage should be more frequent for licensors than for licensees. The variable licensing department is also introduced and equal to 1 if the firm has an IP or licensing department, and 0 otherwise. It makes sense to think that the presence of an IP or licensing department and its accumulated experience can decrease the need for assistance from third parties. The variable European partners is equal to 1 if both partners are Europeans and 0 otherwise. The resort to third parties depends directly on the existence of third parties themselves, which is contextual and varies with countries and regions. Introducing a variable for European partners enables us to partly control for these contextual aspects. Being both European, firms should have a more precise knowledge about the existence of third parties in Europe and about the services these third parties might provide and their ability to deal with pan-European licensing relationships. Finally, the variable size ratio corresponds to the ratio between the sizes of the two licensing partners. To build this variable, the firms’ size is first distributed according to employment in 5 categories: 1 less than or equal to 100 employees, 2 between 100 and 250 employees (250 included), 3 between 250 and 500 employees (500 included), 4 between 500 and 1,000 employees (1000 included) and 5 more than 1,000 employees. Then, we divide the size of the licensor by the size of the licensee.
RESULTS

The description of our sample presented in Table 1 provides a first indication of the contractual stages at which the firms in our sample resort to third-party services. In this table, each contractual stage is separately reported. In the full sample of 113 licensing agreements (row 1), we first see that third-party services have been used in 47 licensing agreements (41.59%). We can also see that use of third-party services is more frequent for negotiation of the contract than for identification and selection of a partner or for monitoring of the contractual relationship. Second, comparing rows 2 and 3, we see that, in general, licensors resort to third-party services more frequently than licensees. The exception is for monitoring of the contractual relationship, for which resort to third parties is almost similar for licensors and licensees (11.36% for the licensors and 10.14% for the licensees). This can be explained by the fact that the decision to use third parties for monitoring performance, unlike identification of partners and contract negotiation, is necessarily bilateral in nature. Finally, when the respondents answered that their firm used third-party services, our questionnaire asked the exact name of the third parties solicited. We know that firms composing our sample tend to rely on collective research centers, law firms, technology brokers and consulting firms for the first contractual stage; on patent attorneys, law firms, collective research centers, technology brokers, consulting firms and trade associations for the second contractual stage; and on trade associations, consulting firms, collective research centers and auditing firms for the third contractual stage (row 4).
Table 1
Sample description

Table 2 reports the number of observations, mean and standard deviation for each study variable. Table 3 reports the correlation matrix. The maximum variance inflation factor (VIF) in the model is 1.47. This statistic is well below the guideline of 10, which Neter, Wasserman and Kutner (1985) suggest as indicative of a multicollinearity problem. Given that correlations between the independent variables reported are less than 0.50 and all the VIFs are equal or less than 1.47, multicollinearity should not impact the stability of the results.
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<th>Max</th>
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<td>1.124</td>
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Table 2
Descriptive statistics

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<td>.08</td>
<td>1.00</td>
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<td>.096</td>
<td>.208**</td>
<td>-.066</td>
<td>-.144</td>
<td>-.337***</td>
<td>-.171*</td>
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</table>

p*<0.1, p**<0.05, p***<0.01

Table 3
Correlation matrix
In the following, we first present four probit regression models where the dependent variable is the global dummy variable *resort to third-party services* (Table 5). Then, we investigate the impact of our explanatory variables on each contractual stage separately: identification and selection of a licensing partner; negotiation of the licensing contract; and monitoring of the contractual relationship (Table 6). Our unit of analysis is the licensing agreement. The size of most samples used in the regressions is somewhat smaller than 113 due to missing values. Before testing the hypotheses, it is important to ensure the absence of systematic differences between the questionnaires completed by licensors and questionnaires completed by licensees. To this end, we conduct “difference of means” tests (Table 4). Moreover, as some respondents described more than one licensing agreement, we must adjust the standard errors to consider the possible inter-dependence between licensing agreements negotiated by a same firm (White, 1980).

**Resort to third-party services at one or more contractual stages**

As mentioned before, it is important to ensure the absence of systematic differences between the questionnaires completed by licensors and questionnaires completed by licensees. Out of the 113 usable questionnaires, 44 were completed by licensors and 69 by licensees. In order to determine whether these two sets of questionnaires are statistically different from each other, we conduct “difference of means” tests (*t*-Test) on the eight questions recorded on a Likert scale. These questions, referring to the level of tacitness (2 questions) and the level of licensor’s and licensee’s investments (6 questions), may imply some degree of subjectivity. The results shown in Table 4 provide no evidence that the answers to these questions are systematically different when the respondent describes an in-vs. out-licensing agreement.
Table 4

“Difference of means” tests: out-licensing agreements vs. in-licensing agreements

In the model 1, we regress the variable *resort to third-party services* on the four control variables alone (Table 5). Our dependent variable is a global variable in the sense that it is equal to 1 if there is use of third-party services at one or more contractual stages. In order to ease the interpretation of the results, we report the marginal effects in the tables, i.e., how much a change in a variable changes the probability of the focal outcome (Hoetker, 2007). Showing the marginal effects conveys an
impression of the order of magnitude of the different effects. First, with respect to the variable *out-licensing agreement*, we find a positive and significant effect. In accordance with Table 1, this result shows that firms have a higher tendency to resort to third-party services when they are licensors than licensees. Second, the positive and significant effect for *European partners* suggests, as expected, that the resort to third-party services will be more likely when both partners are Europeans. This positive relationship can be explained by the more precise knowledge of European firms about the existence of European third parties, their specific services and their ability to ease and secure pan-European partner-relationships. As an indication of the magnitude of these two effects, we note that when the licensing agreement is an *out-licensing agreement* and when it involves *European partners*, there is respectively an increase of 18% and 20.8% in the probability of resorting to third-party services. The results show no significant effect of *licensing department* and *size ratio* on the use of third parties.

Turning to **model 2**, we test our first three hypotheses relative to the costs of control. These hypotheses address the impact of the transaction attributes, *tacitness, relationship-specificity* and *uncertainty*, on the likelihood of resorting to third-party services at one or another contractual stage. As expected, the impact of *relationship-specificity* is positive and significant. This suggests that firms tend to use services offered by third parties when they fear possible hostage situations caused by the level of their specific investments (hypothesis 2). However, hypothesis 1 and hypothesis 3 are not confirmed in model 2; meaning that *tacitness* and *uncertainty* do not significantly impact the resort to third-party services when we do not distinguish the contractual stages.

Our variable *relationship-specificity* has been adjusted to integrate the effect of the regime of exclusivity on the licensor’s investment. However, we must address the potential for endogeneity between the variable *exclusivity*, which is a contractual variable and thus a choice variable, and the variable *resort to third-party services*. To test whether *exclusivity* is exogenous, in which case we do not need to correct for endogeneity, we perform a bivariate probit regression with *resort to third-party services*. 
services and exclusivity as dependent variables (Greene, 2003; Monfardini and Radice, 2008). The value of rho can be interpreted as a test of exogeneity; if rho is equal to 0, then exclusivity is exogenous. This requires us to first transform the variable exclusivity in a dummy variable equals to 0 if the original variable exclusivity is equal to 1, and to 0 otherwise. The test fails to reject the null hypothesis (prob>chi2 = .1092) and confirms that exclusivity is exogenous.

In model 3, we test our three hypotheses relative to the costs of coordination. As expected, the greater the scope and depth of the joint activities and efforts in the licensing agreement, the higher the likelihood that licensors and licensees will resort to third-party services at one or another contractual stage. Model 3 confirms our hypothesis 4 and hypothesis 5. However, we can see that the variable inter-partner diversity does not significantly affect the resort to third-party services. This means that when partners show strong cultural differences, they do not consider the resort to third parties as a means to temper their differences and ease the coordination. Hypothesis 6 is, therefore, not confirmed.

Finally, in the model 4, we test all of our hypotheses. The variables scope of joint activities and depth of joint activities influence positively and significantly the resort to third-party services. Therefore, when we regroup the three variables relative to the use of third-party services in one global dependent variable, our results show that the need to coordinate rather than the need to control drives the decision to use third-party services.

---

28 We have included all of our explanatory variables in both equations and also included exclusivity in the third parties equation.
<table>
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<th>Model2</th>
<th>Model3</th>
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p*<0.1,  p**<0.05,  p***<0.01 – marginal effects are reported - standard errors in brackets

Table 5
Use of third-party services - Probit regression models

Resort to third-party services at each contractual stage

We now consider separately the three contractual stages: identification and selection of a licensing partner; negotiation of the licensing contract; and monitoring of the contractual relationship. Our dependent variables are dummy variables, which are equal to 1 if third-party services were used, and
to 0 otherwise. Here, we regress our three dependent variables on the two sets of explanatory
variables relative to the need to control and to need to coordinate using the probit regression. Marginal
effects are reported in Table 6.

With respect to the first stage, identification and selection of a licensing partner, we find a positive
and significant impact for relationship-specificity and for depth of joint activities (model 1 and model
2). Licensors and licensees tend to ask for assistance from third parties to identify a partner when the
risk of hostage situations caused by specific investments is important and when the contract requires
close interactions. Indeed, third parties can help firms find trustworthy partners that have the
necessary skills, resources and capabilities to allow successful collaboration.

At the second stage, negotiation of the licensing contract, the variables relationship-specificity and
scope of joint activities impact positively and significantly the dependent variable (model 3 and model
4). This suggests that the decision to resort to third-party services for negotiation of the licensing
contract is driven by both the need to control and need to coordinate. In line with our hypotheses 2
and 4, third parties can help firms negotiate a contract that protects them against the risk of
opportunism and simultaneously allows the flexibility necessary when the scope of joint activities is
broad. Surprisingly, the variable tacitness affects significantly but negatively our dependent variable.
Getting a negative effect is not what we expected (see our hypothesis 1). This result means that third
parties cannot help partners negotiate a contract enabling them to be protected against risks associated
with a transfer of tacit know-how (i.e., the licensee could opportunistically take advantage of the
unprotected tacit know-how and the licensor could renege on its commitment in terms of quality and
extent of tacit know-how’s transfer).

Finally, at the third stage, monitoring of the contractual relationship, the variable scope of joint
activities affects positively and significantly the variable resort to third-party services (model 5 and
model 6). This means that licensors and licensees tend to use third parties for assistance in monitoring
more ‘relational’ contracts, which may require further communication and adaptation. The variable
inter-partner diversity has also a significant but negative effect. Again, getting a negative sign is not what we expected (see our hypothesis 6). This result suggests that it is difficult for a third party to help partners overcome their inter-cultural differences, particularly when they are important.

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p*<0.1, p**<0.05, p***<0.01 - marginal effects are reported - standard errors in brackets

Table 6
Use of third-party services at each contractual stage - Probit regression models

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DISCUSSION

While previous research has mainly studied the choice of governance structure as a means to deal with the risk of opportunism and the coordination of inter-dependent tasks, little attention has been devoted to the role of third parties like technology brokers, consulting firms, collective research centers, patent attorneys, auditing firms, law firms and professional associations in this respect. In this essay, we have developed and tested a theoretical framework aimed at increasing our understanding of firms’ motives for the use of third-party services in the licensing context and, in particular, at determining the extent to which these motives are driven by the costs of control and costs of coordination imposed by the management of licensing transactions.

As mentioned previously, licensing agreements do not form a homogeneous set of contracts; instead, there exists a wide variety of licensing agreements governing an as wide variety of transactions. We argue that the main motive for the use of third-party services is their ability to help partner firms face two main managerial imperatives: the need to control and the need to coordinate. In light of this, we have focused on various transaction attributes that are likely to increase the need to control, on the one hand, and the need to coordinate, on the other hand. Our results show that, according to the contractual stage - identification and selection of a licensing partner, negotiation of the licensing contract, or monitoring of the licensing relationship - , either the need to control or the need to coordinate or both will motivate the use of third-party services.

When we consider the three contractual stages together, the results suggest that the use of third-party services is driven by the need to coordinate rather than the need to control. In particular, the scope and depth of joint activities influence positively the resort to third-party services in the licensing context. When either scope or depth of joint activities increases, the coordination needs and, therefore, coordination costs increase. In this context, it is important to select a partner with the required pool of resources and competences and also to implement managerial mechanisms that promote the efficient sharing of information and communication, the establishment and maintenance of an inter-
organizational interface, and the realization of internal adjustment in response to partners’ action. First, third parties can provide licensors and licensees with assistance regarding the identification and selection of partners that have the appropriate set of resources, skills and capabilities to provide the needed technology (for the licensee) or to implement the technology (for the licensor). Second, third parties can assist them in negotiating a contract that allows the flexibility imposed by the high inter-dependency. Third, third parties can provide licensors and licensees with assistance in monitoring the more ‘relational’ contract, which requires communication, continuity, and adaptation.

Turning to each contractual stage separately; at the first stage, licensors and licensees tend to ask for assistance from third parties to identify a partner when the risk of hostage situations caused by specific investments is important and when the contract requires close interactions. Need to control and need to coordinate come therefore into play at this first stage. This is also the case at the second stage since the decision to resort to third-party services for negotiation of the licensing contract is positively influenced by the level of specific investment and the scope of joint activities. Finally, at the third stage, monitoring of the contractual relationship, the scope of joint activities tends to increase licensors’ and licensees’ propensity to use third-party services. Need to coordinate is, therefore, the main motivation for solicitation of third parties at this last stage.

CONCLUSION

Our intent in this essay has been to investigate the factors motivating firms to resort to third parties for a range of services in the licensing context. While the mechanism under which more hierarchical governance structures mitigate opportunism and facilitate coordination has been extensively studied, knowledge about the influence of third-party services on these issues is extremely limited. Hence, our approach has been to ‘position’ these third parties in a theoretical framework that considers both the conflict and coordination aspects in inter-firm agreements.
While licensing agreements are essentially dyadic arrangements, our study shows that licensing partners frequently decide to resort to services proposed by such third parties as technology brokers, consulting firms, collective research centers, patent attorneys, auditing firms, law firms, or professional associations. These services may be supplied at one or more contractual stages: (1) the identification and selection of a licensing partner, (2) the negotiation of the licensing contract, and (3) the monitoring of the contractual relationship. We have argued that third parties help partners reduce the risk of opportunism and ease their coordination; hence, they help them reduce their costs of control and costs of coordination. When we consider the three contractual stages together, our findings provide partial support for our main argument: on the one hand, resorting to third-party services is more likely to occur when the licensing transaction is characterized with high costs of coordination (wide and deep joint activities) but, on the other hand, we do not find clear support for our argument relative to the costs of control. At the individual contractual stage, our results show that the use of third-party services is driven by both the need to control and the need to coordinate for identification of a licensing partner and negotiation of the licensing contract, and essentially driven by the need to coordinate for monitoring of the licensing relationship.

Clearly, there is a need for further theoretical and empirical investigations. First, the limited size of our sample did not enable us to investigate separately the behavior of licensors and licensees regarding the use of third parties. However, our descriptive table (Table 1) delivers some interesting insights in this respect. Second, our approach has been to study the use of services and not the types of third parties solicited for these services. One reason motivating this approach is that different third parties may similarly be labeled and still provide firms with distinct services; thus focusing on the third parties themselves would be misleading. For instance, European trade associations\textsuperscript{29} provide a

\textsuperscript{29} As defined by Tucker (2008) : “Trade associations usually have voluntary membership, are not-for-profit organizations formed by policy entrepreneurs within firms located in the same industry to collect, share and disseminate industry-relevant information and provide a platform for collective representation and lobbying (Lorenzoni and Lipparini, 1999; Streech and Schmitter, 1985). Although competing firms are legally forbidden from forming cartels or colluding in the US and Europe, they have been historically encouraged to form associations to present their industry’s interests (Aldrich and Staber, 1988). Trade Associations often serve a self-regulatory function, embody shared values and articulate shared norms for their members, cohering the
very diverse set of services according to the sectors and the countries they cover. Another reason is that the third parties being solicited for a specific service can be very different according to the context. In our questionnaire, we asked respondents who indicated use of a third party the exact name of this third party. We know that firms composing our sample tend to rely on collective research centers, law firms, technology brokers and consulting firms for the first contractual stage; on patent attorneys, law firms, collective research centers, technology brokers, consulting firms and trade associations for the second contractual stage; and on trade associations, consulting firms, collective research centers and auditing firms for the third contractual stage. Finally, we have investigated the decision to resort to third parties in the licensing framework. Needless to say, this resort is also observed in other types of agreement and future research should compare the factors motivating firms to resort to third parties in distinct types of agreement.

REFERENCES


members of the industry by drawing them together around common interests like lighter regulation, easier access to markets, and more flattering media profile. Put more formally, trade associations operate as the centralized cooperative component of inter-organizational relationships“.

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