

**ORGANIZATIONAL AND INDIVIDUAL LEVEL ANTECEDENTS OF PROCEDURAL
GOVERNANCE IN KNOWLEDGE SHARING ALLIANCES**

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1. Introduction

Inter-organizational collaboration is an organizational form that is used by an increasing number of firms to meet a wide range of organizational aims (Hagedoorn 1996; 2002; Narula, 2004; Casson and Mol, 2006). Inter-organizational alliances are a preferred way of sourcing a variety of resources (Eisenhardt and Shonhoven, 1996; Gulati, 1999; Van de Ven and Walker, 1998), and a prominent view of the strategic alliance literature suggests that inter-firm collaboration has a special strength in serving as a mechanism by which a firm can leverage its skills, acquire new competencies, and learn (e.g. Kogut, 1989; Hamel, Doz, and Prahalad, 1989; Huber, 1991; Larsson, Bengtsson, Henriksson, and Sparks, 1998; Lyles, 1988; Powell and Brantley, 1992; Inkpen and Tsang, 2008). As firms collaborate at an increasing rate (Khanna *et al*, 1998) it becomes still more important to understand how these firms can be instrumental in organizing and governing the various collaborative knowledge processes that take place in alliances.

In their quest to better understand the dynamics of strategic alliances, researchers have relied on numerous theories, including transaction cost economics, organizational learning, strategic behavior, options theory, resource-based theory, social exchange theory, institutional economics, and agency. Common for most of this research, however, very little attention has been directed to understanding how exactly firms may differ in their ability to succeed at collaborating. Although some researchers have pointed to the importance of prior experience (e.g., Lei and Slocum, 1992) in general and collaborative know-how in particular (e.g., Simonin, 1997; 2002), very little is known about the individual level preconditions of successful knowledge exchange in strategic alliances (Inkpen and Tsang, 2008; 2005). Indeed, while Simonin's (1997; 2002) important work on collaborative know-how is among the most comprehensive attempts to isolate the knowledge and

learning components linked to collaboration (see also Lyles, 1988; Pisano, 1988), the focus is exclusively on identifying, mapping, and measuring firm level collaborative know-how.

In this article we argue that in order to provide a better understanding of how valuable knowledge is successfully shared between alliance partners specific focus must be devoted to the role of procedural governance. Procedural governance refers to the structuring of the mutual knowledge flows between the partners in a given alliance. As such, procedural governance pertains to frequency, timing, directionality and means of knowledge flows *ex post* alliance formation and is concerned with how joint problem-solving is carried out. Previous research has distinguished between procedural and contractual inter-organizational coordination mechanisms (for a review, see Sobrero and Schrader, 1998). Contractual governance is concerned with the distribution of rights. The main vehicle for this kind of control is the alliance contract, which seeks to minimize disputes among partners and resolve these when they arise. The threat of legal recourse encourages parties to an alliance to perform their promises with a minimum of prompting and prodding, in order to avoid the costs of litigation or other modes of dispute resolution. As such, contractual governance is the essence of formal alliance formation as it defines the legal boundaries within which joint problem-solving activities will occur. However, as noted by Kanter (2002), alliances “cannot be ‘controlled’ by formal systems but require a dense web of interpersonal connections and internal infrastructures that enhance learning” (Kanter 2002:100). This underlines the importance of continuous coordination of processes among parties, typically accomplished via mutual exchange and embeddedness of knowledge (Nielsen, 2005) through which the partners learn to adjust their activities to each other (Sobrero and Schrader, 1998: 590-591). This focus on effective multi-directional knowledge flows between partners is the essence of procedural governance.

We contribute to research on effective management of knowledge in alliances by proposing that (1) procedural governance is positively related to knowledge sharing in alliances, and (2)

antecedents of procedural governance are either individual or organizational in nature. Our main contention is that some of the core mechanisms fostering successful procedural governance may be individually held while others may be organizational in form. As Friedman and Podolny (1992) note, boundary spanners are more closely involved in the inter-organizational relationship than other members of the organization, and tend to interact with their counterparts to a greater extent. Hence, when examining the characteristics of an inter-organizational relationship, we need to study the individual and organizational levels simultaneously (Rousseau, 1985). In the eyes of some scholars, theory-driven research on multilevel phenomena is what “sets [this] field apart from its parent disciplines in that most of what we study in and about organizations are phenomena that are intrinsically mixed-level” (Rousseau, 1985: 2). In Gulati and Gargiulo’s view (1999), the social structure of interorganizational relations as a “macro” phenomenon emerges out of the “micro” decisions of organizations seeking to gain access to resources and to minimize the uncertainty associated with choosing alliance partners.

It is worth noting that the majority of strategic alliance research is employing quantitative methods with a strong deterministic bias (Parkhe, 1993a; Doz, 1996). Assuming that alliances correspond to the implementation of clear-cut strategic objectives to be carried out via the alliance, most studies consider initial alliance conditions and partner characteristics as determinants of outcome (see Nielsen, 2007 for a review). However, it is likely that the requirements and antecedents of performance observed at one level of analysis (for instance the firm-level) are not consistent with those observed at other levels of analysis (for instance the individual or dyadic level). Hence, a more fruitful avenue for future strategic alliance research warrants an investigation of the nature and form of these cross-level interactions. Yet before we turn to the analysis of how the antecedents of procedural governance mechanisms span analytical levels we outline key

characteristics of the core activity that is at stake in this study, namely knowledge sharing in alliances.

2. Sharing Knowledge: Creating Value through Alliances

Knowledge sharing is understood as ‘a process in which an organization recreates and maintains a complex, causally ambiguous set of routines in a new setting’ (Szulanski, 2000:10). According to various scholars knowledge sharing has become a core activity in many firms as it contributes substantially to various desirable organizational outcomes, as for example new product development or dissemination of best practice across business units (Hansen, 1999; Szulanski, 1996). The ability to share knowledge is often considered a source of competitive advantage for organizations (Arrow, 1974; Kogut and Zander, 1996). Hence, inter-organizational relationships have increasingly become a core component of strategy as they provide access to capabilities and resources that may otherwise be unavailable. The underlying logic for this argument lies in the view that organizations are heterogeneous entities that are differentially endowed with capabilities and important resources (Wernerfelt, 1984). Finding that a firm’s critical resources may span firm boundaries and may be embedded in inter-firm resources and routines, Dyer and Singh (1998; 2004) developed a relational view of competitive advantage. They proposed the idea of relational rents, which is “...a supernormal profit jointly generated in an exchange relationship that cannot be generated by either firm in isolation and can only be created through the joint idiosyncratic contributions of the specific alliance partners” (Dyer and Singh, 2004: 351-352). Relational rents are determined by; inter alia, the degree of knowledge sharing between two firms.

The literature has produced an impressive list of reasons for why organizations enter into an alliance, including categorizations such as “X form” and “Y form” coalitions (Porter and Fuller and 1986), “scale” and “link” alliances (Hennart, 1988). Another general classification is “learning alliances”, where the objective is to learn and acquire from each other products, skills, and

knowledge (Lei and Slocum, 1992) and “business alliances”, intending to maximize the utilization of complementary assets (Harrigan, 1985). A review of this literature shows a strong similarity in the motives identified, ranging from risk/cost sharing via shaping of competition to institutional concerns with attaining legitimacy from the external environment. In relation to knowledge some authors argue that an alternative to the firm specific view of strategic renewal is to acquire new knowledge-related capabilities through strategic integration and mobilize it vis-à-vis the existing knowledge developing activities (e.g., Jemison, 1988). The strategic behavior perspective recognizes that sourcing knowledge externally is driven by long term competitive considerations and not only by minimization of transaction costs (Tidd and Trewhella, 1997). In addition scholars point to the fact that collaborative R&D projects are often set up with the aim of learning rather than minimizing cost (Hamel, 1991; Kogut, 1988; Grant, 1996). This illustrates that the acquisition of external knowledge or technology *complements* internal R&D rather than serving as a *substitute* for it (Tidd and Trewhella, 1997). Additionally, it highlights the importance of building and maintaining fruitful relations to core partners via close relations. In fact, supply chain management, an integrated approach to the planning and control of materials, services and knowledge flows from suppliers through factories to the end customer, represents one of the most significant paradigm shifts of modern business management by recognizing that individual businesses no longer compete as solely autonomous units, but rather as collaborative supply chains (Chen and Paulraj 2004).

In this vein Dyer and Singh (1998) has convincingly emphasized the importance of a firm’s investment in relation specific assets, their ability to engage in substantial knowledge exchange as well as the process of combining complementary but scarce resources. They also provide evidence for the importance of firms employing effective governance mechanisms that lower transaction costs in their quest for gaining relational rents. One of the specific factors that is leading to

relational rents is the development of knowledge sharing routines, defined as ‘a regular pattern of inter firm interactions that permits the transfer, recombination, or creation of specialized knowledge’ (Grant, 1996). These routines are institutionalized inter-firm processes that are purposefully designed to facilitate knowledge exchange between alliance partners (Dyer and Singh, 1998), and the existence of knowledge sharing routines is suggested to be the factor that divides the successful collaborations from the less successful (Dyer and Hatch, 2006). The development and employment of these routines constitute a firm’s dynamic capabilities that is the ability to ‘integrate, build and reconfigure internal and external competencies’ in rapidly changing environments (Teece *et al*, 1997), where the use of knowledge resources are especially critical (Grant, 1996).

The character of the knowledge at stake in a given collaboration is very influential on a firm’s ability to make use of the knowledge (Dyer and Singh, 1998). A characteristic of knowledge is fostered by its degree of transferability: explicit knowledge can easily be communicated and hence is easily transferred between individuals, across space and time (Grant, 1996: 111). Tacit knowledge, on the other hand, is not articulated (codified) and thus more difficult to transfer. Tacit knowledge transfers more slowly across organizational borders than codified knowledge (Zander and Kogut, 1995). As allying is a preferred way of acquiring and creating knowledge in many firms (Katz and Allen, 1982; Ring and Van de Ven, 1994; Powel, Koput, and Smith-Doerr, 1996) a focus on inter-organizational knowledge sharing mechanisms supporting for example knowledge diffusion, information retrieval or shared problem solving, has proliferated in praxis as well as theory (Berends *et al*, 2006).

Regardless of whether the motive for entering into a collaborative relationship is cost related, based on a wish for sharing resources, a need to learn new competences, or a combination, the success of the alliance relies on the ability to share knowledge across organizational borders and

contribute to new either local or joint knowledge production. However, inter-organizational knowledge sharing activities create various strategic issues to be handled (Contractor and Ra, 2002). The dilemma of how much knowledge to disclose in the project (Carter, 1989), the difficulty of codifying and valuing knowledge (Tsoukas and Mylonopoulos, 2004), and the existence of various knowledge related asymmetries between partners (Dussage and Garette, 1995), are examples of challenges that meet a focal firm when entering into an inter-organizational collaborative project. This points to the importance of deploying deliberate governance mechanisms related to knowledge sharing in the alliance. Yet, contractual governance of knowledge sharing activities in an alliance is a less fertile approach to mitigate these challenges. This is so due to the often asymmetric distribution of knowledge combined with the tacitness of knowledge that prevents other individuals than those who possess the knowledge (that is the core employees, not the top managers) from taking part in the exchange. It is therefore important to ensure that the managers involved in the actual knowledge sharing activities are engaged in the contractual processes in order to ensure that the procedural governance mechanisms are not neglected. Additionally, contractual governance mechanisms are often only applied in the *ex ante* negotiation processes of the alliance formation process. Yet, in the later stages of alliance relationship development, *ex post* alliance formation, the need for explicit attention to design and implementation of procedural governance mechanisms pertaining to knowledge sharing arise. In order to avoid a disconnection of the *ex ante* alliance contractual negotiations and the *ex post* alliance coordination activities, these governance processes must be seen as two interrelated parts of the knowledge sharing activities. Furthermore, it is important to perceive the knowledge sharing activities as ongoing through the entire alliance relationship that is knowledge sharing is not only to be seen as an end product. As a result, procedural governance mechanisms are highly important during all phases of interfirm collaborative relationships and may serve as complements to more formal control systems, such as contracts.

3. The Importance of Procedural Governance for Knowledge Sharing

Contractual coordination mechanisms provide institutions for achieving the alignment of incentives among the partners. However, from the availability of these institutions, it is impossible to deduce how they are actually employed to coordinate the activities of the partners during the evolution of the relationship. Even if two organizations have contractually agreed on governing institutions for coordination at the outset of the alliance, it does not imply that these necessarily do coordinate their actions as the relationship matures (Sobrero and Schrader, 1998). Hence, a recurring criticism of the transaction cost literature as it has been applied to strategic alliance governance choice is that it fails to acknowledge the role that non-transactional attributes play in influencing the choice of governance mode. In particular, relational capital is suggested to be an important determinant of strategic alliance governance, where relational capital has been defined as encompassing mutual trust, respect, understanding and friendship between individuals in a business relationship (Thuy and Quang, 2005). Consistently, Doz, Hamel and Prahalad argue that the *actual* coordination is not achieved through contractual mechanisms but, rather, is realized by the day-to-day interaction of the employees involved in the activities of the relationship; ‘Top management puts together strategic alliances and sets the legal parameters for exchange. But what actually gets traded is determined by day-to-day interactions of engineers, marketers, and product developers’ (1989: 136).

The study of strategic alliances has emphasized the use of transaction cost economics and resource dependence theories to explain the governance structure of alliances (Kogut, 1988; Contractor and Lorange, 1988). These theoretical formulations do not explicitly address the issue of new knowledge created in an alliance as they view alliances as just another form of organizing exchange. Other research has pointed out that effective alliance governance can significantly enhance firms’ joint learning and knowledge creation (e.g. Dutta & Weiss, 1997; Larsson et al.,

1998). From a learning perspective, equity joint ventures are considered to be better suited than alternative governance mechanisms to the transfer and learning of tacit and embedded know-how because they align incentives for cooperation, permit a replication of the organizations themselves and provide prolonged and intense social interaction that facilitates the replication of organizational routines (Dutta & Weiss, 1997). Moreover, equity participation generates a governance structure in which companies can monitor the activities of the alliance as they are represented on the board of directors. Equity sharing might also align the motivation of the partners, thereby creating mutual interests that reduce the likelihood of opportunistic behavior by partners (Oxley, 1997; Pisano, 1989).

Mjoen and Tallman (1997), on the other hand, argue that the relative degree of control of partners in a joint venture is determined by a bargaining process based on the importance of the resources that each partner contributes, rather than ownership level. Poppo and Zenger (2002) argue that the “right” mix of trust and formal contracting enhances cooperative interactions; however, they fail to specify precisely how this right mix is attained. To this end, some studies show that more complex alliances tend to be governed through more hierarchical forms, with the nature of complexity being identified by various measures including number of partners, scope of product and/or technology, nature of functional activities covered by the alliance, and technological intensity of industries (e.g. Oxley, 1997; Hagedoorn & Narula, 1996). Hence, while promising, research in this area has not sufficiently demonstrated that alliances influence the development of new knowledge-related resources nor has it identified the conditions under which such development occurs.

Network theory argues that embeddedness shifts actor’s motivation away from the narrow pursuit of immediate economic gains toward the enrichment of relationships through trust and reciprocity (Powell, 1990; Smitka, 1991). According to Uzzi (1999), governance arrangements of social embeddedness appear to come before, rather than follow from, the attributes of transactions.

Following this, embeddedness is not a result of an exchange relationship; rather it preexists and shapes exchange relationships. This indicates the existence of an important underlying latent construct, procedural governance, which needs to be explicitly recognized and integrated in the explanation of knowledge sharing in strategic alliances.

Decisions on the frequency, timing and directionality of knowledge flows, as well as the means through which these flows occur (e.g., cross-functional team, alliance unit or simply a knowledge management system), identify the operational dimensions of procedural coordination mechanisms. The purpose of procedural coordination is that actors exchange sufficient information so that they can adjust their mutual behavior in a meaningful way for any given associated distribution of rights among the partners. The degree to which parties can achieve procedural coordination will influence the patterns of knowledge exchange between partners to an alliance. It is likely that the nature of the tasks to be carried out during the alliance relationship will influence the expected outcome. Furthermore, the nature of tasks is likely to change constantly during the course of the alliance relationship and thus procedural coordination mechanisms will have to be adjusted accordingly. Maintaining the relational quality after the contract has been signed is an important activity positively related to performance (Büchel and Killing, 2002). Above all it is important to constantly consider how the procedural coordination mechanisms need to be adjusted in order to facilitate the knowledge sharing activities of the alliance. Notwithstanding, the level and quality of procedural governance in collaborative exchange relations is likely to influence the degree of knowledge sharing among alliance partners in the following general way:

Proposition 0: Procedural governance is positively related to knowledge sharing in strategic alliances.

Multiple factors determine the level and quality of procedural governance in strategic alliance relationships. As postulated in figure 1 below, several capability factors at different analytical levels

are hypothesized to affect the level and quality of procedural governance in an alliance. At the organizational level, variables associated with strategy and processes, are likely to influence the way the alliance is procedurally governed. At the individual level, variables associated with willingness and skills among employees involved in the exchange relationship are of primary importance. While the individual importance of most of these variables has long been recognized in both strategic alliance and social exchange literatures, their simultaneous effects have thus far been ignored. As noted by Inkpen (2002), now that a solid base of antecedent research exists, the next step is theoretical and empirical work that integrates the diverse categories¹ and establishes some causal links across the variables. In line with this observation, we go one step further and introduce cross-level effects in order to fully account for the complexity of knowledge sharing in strategic alliances. Thus, the aim of this paper is to identify the multi-level determinants of procedural governance, and how they relate to knowledge sharing, in strategic alliances, and derive a series of testable propositions to guide future empirical investigation.

FIGURE 1 ABOUT HERE

4. The Antecedents of Procedural Governance

We have indicated that the antecedents are either organizational or individual in nature. A central reason for the importance of dealing with the individual-level antecedents of procedural governance

¹ According to Inkpen (2002), antecedents of alliance learning can be classified into five categories: (1) learning partner characteristics, (2) teaching partner characteristics, (3) knowledge characteristics, (4) relationship factors, and (5) alliance form. In the model presented in this article, category 1 and 2 are collapsed and included together with 3 and 4. Alliance form is considered a control variable for testing purposes.

mechanisms is that they are necessary for providing a complete understanding of the organizational-level phenomenon that we study, i.e., procedural governance (Coleman, 1990; Abel, Felin and Foss, 2007). Adding individual-level antecedents to the organizational level antecedents accomplishes at least three things: First of all, it enables us to delineate the various alternative individual-level explanations that can not be disentangled in an organizational-level explanation. Second, it provides an opportunity to be precise about prospective managerial interventions as we deal with the need for interventions at the level where they ought to be directed that is at the level of individual action. Third, since the phenomena we study are likely to be an outcome of the action of their components (for example the behavior of individuals of a given strategic alliance), knowledge of how the actions of these parts combine to produce the collective level outcome can be expected to give greater predictability than will aggregate relations of surface characteristics of the system. In other words, “an explanation based on internal analysis of system behavior in terms of actions and orientations of lower level units is likely to be more stable and general than an explanation which remains at the system level” (Coleman, 1990:3). In this context it is particularly important to note that it is not the explanations of the individual level antecedents as such that interests us; rather it is the understanding of the interaction between the individual and the organizational level antecedents which is essential. This interaction, being for example the way that individual alliance capabilities support organizational level collaborative initiatives, must be brought into focus as it will assist in providing both a better theoretical understanding of the construct of procedural governance and a productive ground for outlining potential managerial implications.

4.1 Organizational level Antecedents of Procedural Governance

The relational capability of a firm – i.e. its capability to interact with other companies – may increase its access to external knowledge and potentially increase knowledge transfer (Lorenzoni

and Lipparini, 1999). Both transaction and production costs can be lowered through multiple, repeated, trust-based relationships, and well managed alliances are likely to support a firm's access to complementary capabilities and specialized knowledge (Lorenzoni and Lipparini, 1999). At the organizational level it is important that the organizational strategy supports the development of procedural governance mechanisms. The strategic antecedents of procedural governance mechanisms are associated with anchoring the alliance strategy within the overall organizational strategy, for example, by fostering routines that assess the task-related and partner-related fit (Geringer, 1991) in relation to the strategic objectives. Other examples are post-alliance formation routines pertaining to speed of knowledge transfer and development of effective ways to capture synergies among complex, dispersed knowledge-related resources (e.g. via rotation of scientists or joint reward systems).

At the same time some structural elements are likely to affect procedural governance. These structural elements pertain to developing effective practices for procedures that allow for standardization of knowledge sharing, such as designing IT infrastructures and setting up communication channels for the interaction between partners. Another example is the establishment of an alliance unit that facilitates the technical aspects of the interaction, which may significantly reduce the cost of setting up, monitoring and managing an alliance (Simonin, 1997; 2002). By the same token, the important role of the alliance manager as a coordinating device in collaborative relationships is widely accepted (Spekman *et al.*, 1998). For instance, Draulans, deMan and Volberda (2003) found that organisations with a specialist, positioned at middle-to lower levels of management, are considerably more successful with alliances than those lacking one. Moreover, the design of a specific knowledge management system, organized around the content and complexity of knowledge to be shared in conjunction with organizational structural characteristics (Nielsen and Michailova, 2007), ensures effective knowledge sharing across organizational boundaries. Hence,

to the extent that the organizational strategy-structure configuration is aligned with knowledge sharing intent, we would expect the following:

Proposition 1: Strategies and structures that are aligned with knowledge sharing intent are positively related to procedural governance in strategic alliances.

The organizational level governance mechanisms are often closely related or formed by the culture or climate of the organization. Organizational culture is believed to be the most significant input to effective knowledge management and organizational learning. Corporate culture determines values, beliefs, and ultimately work systems that may encourage or impede coordination of knowledge sharing efforts (e.g., Alavi and Leidner, 2001; Leonard-Barton, 1995). The importance of a knowledge-centered organizational culture which supports knowledge exchange and accessibility is evident (Janz and Prasarnphanich, 2003). Nevertheless, within the field of knowledge management, relatively little research has been conceptually and empirically conducted that seeks to identify what constitutes a knowledge-centered culture – that is which key organizational characteristics encourage and facilitate both the creation and dissemination of knowledge. Moreover, although the importance of socialization, face-to-face relationships, embeddedness, and cooperative interaction among *individuals* for the purpose of knowledge sharing is well established (e.g., Nonaka and Takeuchi, 1995; Senge, 1990), relatively little is known about the influence of a collaborative climate on knowledge management in strategic alliances.

A collaborative climate is best defined as the observable behavior in regards to collaboration in a given group; or put more colloquially it can be said to be ‘what people do around here’ (Sveiby and Simens, 2002:421). On the basis of a large scale theoretical study, Sveiby and Simens (2002) developed a categorization of how the composition of collaborate climate can be understood. Three

of the components are organizational level issues, such as fostering *employee collaborative attitude*; *work group knowledge sharing support*; and *organizational culture*, relating to the leadership factors outside the specific alliance group. We propose that collaborative climate is an important prerequisite to drive a propensity for high knowledge sharing because such a climate form the organization's retentive and nurturing capacity. Organizations with a collaborative climate are typically equipped with an extensive set of routines and learning competencies designed to retain and nurture knowledge transferred from an alliance partner. This is consistent with (inter)organizational learning theory (Levitt and March, 1988; Huber, 1991), which is preoccupied with how learning processes can be structured or enabled, given the nature of the knowledge to be learned. The process approach to corporate coherence allows firms to solve the coordination of knowledge dispersal 'by various means, such as command, management information systems, routines and shared cognitive constructs' (Foss and Christensen, 2001, p. 222). Hence, collaborate climate and development of (inter)organizational learning processes are likely to be conducive to coordination of alliance knowledge management activities and thus constitutes the very bedrock upon which governance rests. Hence:

Proposition 2: A collaborate climate and organizational learning processes are positively related to procedural governance in strategic alliances.

4.2 Individual level Antecedents of Procedural Governance

Discussions in existing organizational literatures lack attention to levels in general and micro-foundations in particular (for a discussion see Felin and Foss, 2005; Dansereau *et al.*, 1999). Despite the growing use of collaborative alliances in a wide variety of settings, much of the organizational literature still treats the organization as the centerpiece of theorizing. Various studies

have examined the acquisition of capabilities and knowledge through alliances (e.g. Inkpen and Dinur, 1998; Inkpen and Pien, 2006; Kale *et al.*, 2000; Tsang, 2002). However, the vast majority of these studies have the organization or the alliance (dyad) as the unit of analysis, thereby lacking attention to individual level antecedents of knowledge sharing. The application of diverse theoretical approaches, such as resource dependence theory, microeconomics and strategic management, identify specific (industry or firm-level) preconditions for collaboration and use these to predict organizational outcomes, however, without regard to the underlying, individual level mechanisms that conditions these outcomes. Although studies have recognized the importance of individuals for alliances and learning more generally, few studies have incorporated the role of individuals into explanations for knowledge sharing in alliances. Research has found that the bonds between key individuals are central mechanisms that initiate alliance formation (e.g. Larson, 1992) and sustain inter-firm relationships (Seabright, Levinthal and Fichman, 1992). Individuals also embody the knowledge-based resources that evoke problem solving and learning and contribute the most to a firm's ability to utilize information (Allen, 1977; Simon, 1985). Moreover, the primary basis of the firm's ability to capitalize on external information rests on the ability of individuals to access, assimilate and utilize information (Cohen and Levinthal, 1990: 131). Despite these insights, researchers of strategic alliances have placed much greater emphasis on environmental conditions, and organizational level resources, practices and tendencies than individual level mechanisms as explanations for knowledge sharing in alliances.

We argue that by redirecting the focus towards the individual level mechanisms that condition knowledge sharing we provide a more solid analysis based on knowledge about how the actions and abilities of the individuals impinge on organizational level outcome. We concur with Leung and White who state that, 'so much is at stake in an alliance, as reflected by the voluminous firm-level research on this topic, but we know so little about the relevant people issues that make or break

alliances' (Leung and White 2006: 203). Challenges may crop up due to conflicting ideas about how and when to collaborate or because the individuals' abilities do not match the task. Other challenges may stem from in-group favoritism (Salk and Shenkar, 2001) or divergent perception of group members (Leung and White, 2006).

Realizing the importance of the individual's knowledge sharing behavior we turn towards the issue of work motivation, which can be defined as the set of psychological processes that initiate work related behavior and determine its form, direction, intensity, arousal, and duration (Latham and Pinder, 2005; Mitchel, 1982). Motivation is an invisible, internal, hypothetical construct (Ambrose and Kulik, 1999) which is affected by external factors such as rewards, punishment, rules, norms etc. and internal factors such as needs, values, cognition etc. Whether employees are willing to engage in collaborative projects is an outcome of their motivational orientation; they may collaborate because they are rewarded for this specific effort or they may collaborate when the opportunity arises because they find collaborative activities more interesting than the ordinary tasks they otherwise would have done—or as a mix of the two. People that are intrinsically motivated to engage in collaboration (due to e.g. personal beliefs or traits) may be specifically chosen to be a part of a given collaborative project. In this way the manager can design a group of people for a given collaborative project that are especially keen on collaborating.

It is especially important to focus on the employees' *willingness* to collaborate as not all employees see the potential gains of collaboration at first sight. Certain individuals may be opposed to collaboration for numerous reasons which may give rise to an attitude mirrored in the 'not invented here'-syndrome (NIH). According to the NIH-syndrome employees traditionally resist accepting knowledge produced externally, and favor internal solutions to a given problem even though external solutions do exist (Katz and Allen, 1982). Various kinds of knowledge hoarding behaviors may lead to rejection of knowledge sharing. The term 'hoarding' suggests a premeditated

attempt to hide something away for own future use, yet a hoarding behavior may also be the result of an unconscious attitude. Conscious or unconscious, people hold back their knowledge if they anticipate to be punished for sharing it, in one way or another. An employee may, by way of example, fear to be blamed if she shares knowledge with a partner and what is shared is misused by the partner. Additionally she may be anxious about losing her status; if she shares her knowledge there will be no need for his expertise any longer and he may not even be recognized for his contribution. These factors may all lead to behavioral barriers to collaboration. Thus, to the extent individuals are motivated and willing to collaborate, coordination of knowledge related activities in strategic alliances is likely to improve:

Proposition 3: Individual collaborative intent/willingness is positively related to procedural governance in strategic alliances.

Whereas behavioral barriers to collaboration may be rooted in lack of motivation, cognitive barriers are typically related to the absence of *ability* to share or collaborate. For instance, lack of ability to articulate the required knowledge or incapability of understanding the context in which the knowledge is to be applied may constitute cognitive barriers to coordination and transfer of knowledge. An employee's wide range of abilities is a very important condition for his or her behavior in a collaborative project. The most central abilities that are needed in a given collaborative project are, naturally, the ones related to the task that is to be carried out in the collaborative project. The extent to which an individual understands a specific domain of knowledge defines whether he is an expert in this area. Individuals with a high level of expertise are better at understanding the laws, logic and rationales underlying the function or processes of a

specific knowledge domain. This understanding provides the individual with the ability to identify critical configurations or complexes that contains several pieces of information such as information about the solution in a complex situation (Lofstrom, 2000, Camerer and Johnson, 1991). Individuals who are experts are better at integrating new knowledge in existing domains than individual without expertise, and as a consequence individuals with high level of expertise are more likely to learn from collaborative activities. Thus, by way of example, a project about developing answers to challenges in the field of cancer research will be better off if a number of oncologists are core members of the collaborative group. In staffing collaborative project the manager need to keep the central knowledge in focus and assign employees that hold the right expertise. Still, employees with other professional profiles will also be needed. A collaborative project will most often need a legal officer (or a patent worker) closely connected to the project as well as inclusion of employees from other functional areas, such as business development or marketing.

In addition to possessing the proper disciplinary skills employees may benefit from additional skills that are directed towards the specific challenges pertaining to collaborating as such. An ability to designate and understand the various phases of a collaborative project and to spot the potential problems that may occur at a given time in the project may be beneficial to employees engaged in alliances. Firms that collaborate frequently tend to make this kind of knowledge explicit in manuals or a codex that can guide the employees through the phases of the project. Still, the ability to maneuver skillfully is often a question of experience and may thus be a personally held ability. Abilities that relate to understanding and aligning to the partner's goals or being good at working in trans-disciplinary teams are often gained through experience. This goes for many of the individual capabilities which can be characterized as collaborative capabilities, such as interpersonal communication skills. An important ability in regards to procedural governance is the ability to absorb external knowledge. In fact, one of the most important learning processes in collaborations

is the process of *recognizing* the value of new, external information, *assimilating* it and *applying* it to commercial ends in the firm. Essentially, the skills and abilities associated with appropriation and utilization of external knowledge are central individual capabilities for employees engaged in collaborative projects.

Proposition 4: Individual collaborative skills/abilities are positively related to procedural governance in strategic alliances.

5. Conclusion: The Interaction of Organizational and Individual Level

Antecedents

The dominant rationale behind the increase in strategic interfirm collaboration is that firms engaged in alliances can enjoy synergistic effects by combining knowledge resources and related capabilities (Doz and Hamel, 1998; Ring and Van de Ven, 1994; Powel, Koput and Smith-Doerr, 1996; Contractor and Lorange, 2004; Bamford, *et al* 2003), and that they additionally can foster opportunities to learn, and to access knowledge that can then be shared and used to create innovative solutions (Grant and Baden-Fuller, 2004). Yet as we have argued knowledge sharing must be supported by the implementation of procedural governance mechanisms that are directed towards the structuring of mutual knowledge flows. We have shown that procedural governance in strategic alliances is positively affected by a number of factors of which some are organizational and some are individual in nature. Although the identification and specification of these factors are important, it is the interaction between levels that exposes the true complexity of knowledge sharing and governance in strategic alliances. Only by studying the combined effects of

organizational and individual level antecedents of procedural governance can we arrive at an understanding of how to facilitate more effective interorganizational knowledge sharing.

Since knowledge ultimately resides within the individual and collaboration is a result of interpersonal socialized interaction, we argue that a strategic view on collaborations needs to be accompanied by a more fine-grained analysis of the individual level perceptions and behaviors that affect the various collaborative activities of a given firm. As is clear from the above discussion, organizational strategies and structures, as well as cultural processes, form the preconditions for procedural governance and interorganizational knowledge sharing. However, organizational conditional factors, such as for instance governing policies for knowledge transfer or application of incentive systems designed to encourage collaborative behaviors, do not ensure effective coordination of knowledge related activities in strategic alliances. The extent, to which such organizational level collaborative capabilities enhance procedural governance, and ultimately collaborative knowledge sharing, is likely to vary widely with the behavioral and cognitive characteristics of the individuals involved in a collaborative agreement:

Proposition 5: Organizational-level and individual-level antecedents exhibit interactive effects on procedural governance in strategic alliances.

In this paper, we have argued that procedural governance is formed by the interplay between strategic and structural resources at the organizational level *and* willingness and abilities at the individual level. This puts a premium on studies that distinguish between factors at the organizational and individual level which may influence procedural governance, as well as the potential moderating effects of one level on the other. The proposed framework leads to several propositions that may guide future research in the pursuit of a more complete understanding of the

interdependent roles of organizational-level and individual-level antecedents of procedural governance in strategic alliances. It may also provide strategic decision makers with a better framework for evaluating the potential tradeoff or substitution effects of different types of coordinating mechanisms.

In many organizations, the group initiating inter-firm relationships and involved in the drafting of the original contracts is quite different from the group in charge of the implementation of the agreement. The contractual coordination mechanisms are frequently negotiated by top-management and a group of lawyers, while the setting up of procedural coordination is left to business-unit managers, who have usually been involved in similar alliances in the past. Whenever such functional separation is not carefully bridged, however, the negotiation and the implementation aspects of inter-firm relations are de facto detached, increasing the chances that the relationship will fail. Hence, from a managerial perspective, it is important to recognize the interactive effects of organizational strategic policies and individual level human resource management issues. For instance, organizations that engage frequently in collaborative projects and where a large part of company revenues accrues from strategic alliances should invest resources not only in building organizational structures and processes that may facilitate more effective collaboration and knowledge sharing, but also devote adequate attention to hiring and further training individuals with behavioral and cognitive characteristics conducive to interfirm knowledge sharing.

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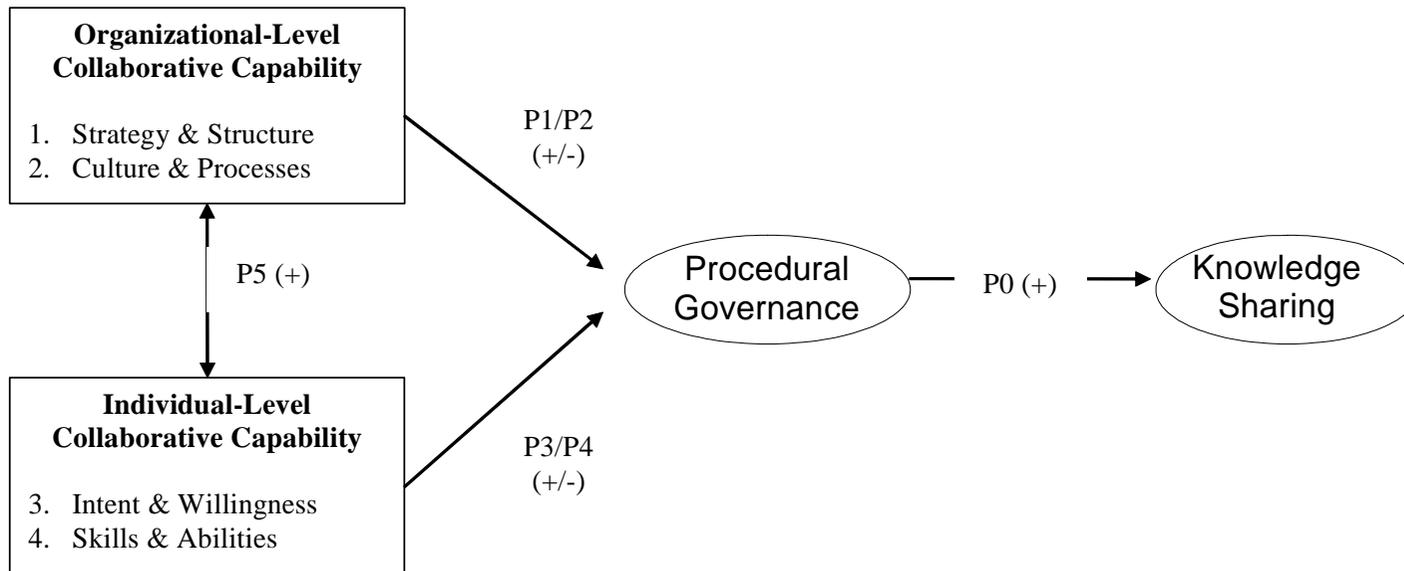
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Figure 1: Conceptual Model



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