

**LEARNING VERSUS HAZARD MITIGATION IN INTER-FIRM ALLIANCES:  
A FALSE DICHOTOMY?**

It has been suggested that attempts by alliance participants to mitigate the hazards of opportunism undermine their ability to learn from partner firms. In this paper I argue that this *false dichotomy*, between learning and hazard mitigation, relies on a straw man version of transaction cost economics (TCE). Critics overlook the role of “credible commitments” that enhance learning opportunities by discouraging opportunistic behavior. Important complementarities nonetheless exist between TCE and the resource-based view of the firm. These complementarities are highlighted in a proposed research agenda for exploring learning and hazard mitigation in alliances.

## INTRODUCTION

"...the analysis [of inter-firm relationships in the development of innovation] demonstrates a clear trade-off between short-term efficiency-increasing and long term learning-enhancing outcomes." (Sobrero and Roberts, 1996:1)

"...the pursuit of greater joint value [in inter-firm arrangements] requires the use of governance structures that are *less* efficient from a transaction cost perspective... strategic and learning gains often increase transaction value while simultaneously increasing transaction costs." (Zajac and Olsen, 1993:132,143)

"Theorists must adopt long-term efficiency as the criterion, and they must address such variables as innovation, learning and asset redeployability" (Ghoshal and Moran, 1996: 41) "...a normative use of the TCE [transaction cost economics] framework within organizations only serves to *heighten* the potential conflict, *reduce* the potential for mutual gains, and *limit* the means by which order can be accomplished." (Moran and Ghoshal, 1996: 61, italics in original)

These quotations reflect ideas voiced increasingly by researchers studying strategic alliances and other inter-firm arrangements from a knowledge-based or resource-based perspective: i.e., that alliance participants face a fundamental conflict between the desire to learn from alliance partners, or to innovate within the alliance, and attempts to mitigate the hazards associated with opportunistic behavior by those same alliance partners. Such hazards may include the risk of technology leakage (i.e., "appropriability hazards,"), where a firm makes unauthorized use of a partners' technology or know-how (Teece, 1986; Hamel *et al.*, 1989; Oxley, 1997), or ex-post extraction of additional rents

from a partner that has made irreversible relationship-specific investments in the alliance (so-called “hold-up” hazards).

In this paper, I argue that this dichotomy, between learning and hazard mitigation in alliances, is in fact a *false* dichotomy, based on a “straw man” version of transaction cost economics (TCE). Implicit in these characterizations of alliance organization is the assumption that transaction cost economics relies on a narrow, short-term view of efficiency and that “hierarchy” is synonymous with increased monitoring, which in turn constrains learning. Critics overlook the role of *credible commitments* (e.g., irreversible investments) in enhancing learning opportunities, through the lowering of incentives to engage in opportunistic behavior.

My defense of the transaction cost framework is not meant to imply that transaction cost economics alone explains all important facets of inter-firm alliance behavior. Indeed, I argue that the resource-based view of alliance organization contributes substantially to our understanding of inter-organizational arrangements by addressing a set of questions that has largely been ignored by researchers in TCE; questions relating to the nature of capabilities developed and acquired within alliances, to the impact of external environmental shocks on alliance activities, and to the design of organizational processes necessary to support inter-firm learning. Nonetheless, the comparative lens of TCE remains an indispensable tool in determining the relative efficacy of different forms of organization for learning or capabilities development.

I argue that it is vital for research in alliances that we pursue a *combined* approach, melding the insights of transaction cost economics with those of the resource-based view. Only in this way can we build and test models which explicitly acknowledge the presence of significant heterogeneity in the capabilities brought together within alliances. This is important, since such heterogeneity has implications for the type of interaction necessary to support learning and other performance-enhancing activities, which in turn has implications for the hazards facing partner firms, and the types of

governance structures necessary to support cooperation within the alliance. Following discussion of the complementarities between the resource-based view and transaction cost economics, I make suggestions for a research agenda to further our understanding of learning and hazard mitigation within inter-firm alliances, based on this premise.

### **TRANSACTION COST ECONOMICS AS "STRAW MAN."**

In his introduction to the *Organization Science* special issue devoted to the resource-based theory of the firm, Barney (1996) notes that the controversy raised by this emerging theory is unsurprising, given the existence of "a widely accepted theory of the firm" within the organizational economics literature, dating back to Coase (1937) and Williamson (1975). Barney (1996) suggests that, in these circumstances, any newly proposed theory must explain not only the phenomenon of interest, but also why a new theory needs to be developed at all. Such an explanation "necessarily involves discussing the limitations and weaknesses of traditional transaction cost theories of the firm" (Barney, 1996: 469). This is undoubtedly true, and the critiques and counter-arguments of such a debate play a valuable role in the development of organization theory (and of social science more generally). However, there is an attendant danger, that in trying to carve out a space for new theory, one ends up attacking a straw man version of the existing framework and raising false areas of conflict, where in fact a combined approach may be more fruitful.

The following discussion highlights aspects of transaction cost economics that have been reduced to such straw man proportions in some research on inter-firm arrangements by knowledge- and resource-based scholars, with arguably unfortunate consequences. Attention is limited here to research on inter-firm arrangements for several reasons. First, some of the more distorted characterizations of transaction cost economics can be found in this literature, and the research agenda appears to be driven, at least in part, by the resulting false dichotomy drawn between learning and hazard mitigation in

alliances. Second, alliances by definition involve a relationship between entities with separate identities, communities and cultures; we can thus sidestep some of the debate regarding social identity as a determinant of firm boundaries (Kogut and Zander, 1992, 1996). Furthermore, the broader debate on the theory of the firm is quite complex and nuanced, and goes well beyond the scope of this paper.<sup>1</sup> Observations on this debate are therefore limited to instances where direct connections are apparent.

### **Efficiency versus learning**

Traditionally, transaction cost economic analysis has focused on the single transaction, typically in a make-or-buy decision in the intermediate goods market. Transactors are expected to structure the transaction in such a way as to minimize the sum of production and transaction costs, by designing governance structures that support any necessary investments in relationship-specific assets, while guarding against the hazards of opportunism by transaction partners. The simplest way to avoid the negative impact of potential opportunism is to employ only general-purpose assets which can easily be redeployed, without loss of value, should this particular trading relationship break down. Under these circumstances it is unproblematic to govern the relationship between the buyer and seller through an arms-length relationship, since any defection from the agreement can be remedied via termination and, if necessary, relatively straightforward action in a court of law.

There are many situations, however, where investments in general-purpose assets are inadequate for the production of a particular good, or are a costly way to achieve a given level or quality of output. In this instance, transaction cost logic suggests that

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<sup>1</sup> The ideas proposed by Conner and Prahalad (1996), for example, are not discussed. While of considerable interest and importance, the emphasis in that work on the role of the employment relationship in shaping the way that knowledge is used within firms precludes straightforward application to inter-firm arrangements (which often do not involve changes in employment relations).

investments will be made in specialized (i.e. transaction-specific) assets to enhance quality and/or lower production costs, provided that the investments can be cost-effectively safeguarded against the hazards of opportunism. Examples of transaction-specific assets include physical assets such as specialized dies used to make customized castings, for example in automobile manufacture, as well as "human assets," such as engineers who have accumulated experience in the idiosyncrasies involved in the design and manufacture of these customized dies. In either case, the relationship-specific part of the investment will be lost should the transaction be terminated. An arms-length spot-market arrangement is problematic here, because of potential haggling over quasi-rents (equal to the difference in value between this and alternative uses of the asset) and difficulties in resolving disputes before a court. Thus, additional safeguards are warranted. These safeguards, which can take many forms, include governance structures such as long-term contracts supported by flexible adjustment mechanisms and alternative dispute resolution mechanisms, hybrid arrangements such as equity joint ventures or, in the extreme, internalization within the firm – the so-called "hierarchical" mode of governance.

Complex governance structures are progressively more expensive to set up, however, and involve a reduction in the power of incentives, so that there is the potential for shirking problems or other bureaucratic costs. Thus, such structures will only be used in situations where hold-up hazards are significant, where there is sufficient uncertainty and complexity to rule out fully-contingent contracting, and where the transaction occurs with sufficient frequency to justify the initial set-up costs of the complex governance structure.

One could argue, given this simple sketch of the basic transaction cost logic, that the design of an appropriate governance structure for a particular transaction is indeed an exercise in pursuit of "short-term efficiency" (Sobrero and Roberts, 1996) and that there is little room here for notions such as "strategic and learning gains" (Zajac and Olsen,

1993) or "long-term learning enhancing outcomes" (Sobrero and Roberts, 1996). Does this mean that transaction cost economics is an inappropriate lens for addressing such concerns? I suggest not.

Consider the following example. Two firms are faced with outsourcing decisions for the manufacture of a new component. Firm A conceives of the component as a modular innovation that can most economically be produced in a large-scale plant equipped with relatively general-purpose equipment. There are existing producers available, operating at an efficient scale, and since little relationship-specific investment is foreseen on either side of the transaction, a simple supply contract is adopted.

Firm B is considering the outsourcing of a similar component, but foresees a learning process occurring, with fine-tuning in the way that the component interfaces with other parts of the product. This learning process is expected to require frequent interactions among the various functional areas involved in the manufacture of the component and other parts of the final product, leading to development of considerable relationship-specific know-how. Firm B, taking the long-term contracting perspective of transaction cost economics, predicts that a stand-alone manufacturer with only a short-term contract may be unwilling to invest in the development of relationship-specific know-how that could become subject to hold-up in the future (since the value of the investments would be lost in the event the agreement is terminated). In anticipation of these problems, Firm B offers the manufacturer a long-term contract (perhaps with additional safeguards, such as an arbitration provision), or possibly an equity-sharing arrangement.

Among these two scenarios, which is the more "efficient" from a transaction cost perspective? Which results in the best "learning-enhancing outcomes?" Which maximizes "transaction value?" Zajac and Olsen (1993) clearly associate transaction cost economizing only with Firm A's decision to pursue a narrowly defined transaction and a short-term contract. This leads them to argue that "interorganizational strategies having

greater joint value will typically require the use of *less* efficient (from a transaction cost perspective) governance structures" (Zajac and Olsen, 1993: 138). This in turn implies that only transactions with very low levels of asset specificity are correctly viewed as efficient from a transaction cost perspective. This need not, of course be the case, since transaction cost economizing implies minimizing the sum of transaction *plus* production costs, for a given value-creating transaction (Riordan and Williamson, 1985; Williamson, 1985: 92-93).

Perhaps a more useful way to think about the firms' strategic decision making is to first consider the choice of products, etc., that create value in the marketplace, and then to consider what types of investments should be put in place to support efficient production and delivery of those products. [See, for example, Ghosh and John, 1999]. If investments in relationship-specific assets – including relationship-specific know-how – produce a sufficiently large decrease in production costs for the desired portfolio of product offerings, such assets will be adopted. However, since there is a concomitant increase in transaction costs, we would expect a move to a more hierarchical governance structure for these transactions.

The normative implication of transaction cost logic is thus that firms should look forward and identify those situations where there is the likely potential for valuable learning (or other requirements for bilateral adaptation), and craft governance structures that facilitate the necessary development of relationship-specific know-how and other assets in an efficient (i.e. transaction cost economizing) way. Where such opportunities are not foreseen, and general-purpose assets are predicted to be sufficient to support the transaction then, indeed, a narrowly defined transaction and simple contractual governance are advocated. Of course, foresight in these matters is imperfect at best, and learning is often an "emergent" process, as emphasized in the literature on organizational learning (e.g., Huber, 1991). However, as argued in more detail below, lack of precision



in forecasting does not warrant an abandonment of hazard mitigation as a consideration in inter-firm arrangements.

Building on ideas regarding the dynamic nature of learning, Ghoshal and Moran (1996) suggest that managers following the logic of transaction cost economics are inevitably concerned with only static cost efficiencies and will therefore forego many of the opportunities for innovation and learning that are efficient only in a dynamic sense and that therefore require firms to "hold off" market forces, at least temporarily (Ghoshal and Moran, 1996: 34). Certainly, it is true that, absent compelling reasons to do otherwise, the transaction cost logic implies that the scope of transactions should be restricted so that simple (contractual) governance structures will suffice in inter-firm relationships (Oxley, 1997). However, where investments in learning and other relationship specific assets are expected to yield high future returns, this will be factored into the (efficient) governance decision (Williamson, 1996b: 52). Thus, to argue that firms adopting transaction cost economics will emphasize efficiency-seeking at the expense of learning or innovation opportunities requires a very myopic view of firm behavior, such that managers are unable to predict with any confidence which relationships are likely to provide learning opportunities. If this is the case, then Ghoshal and Moran's (1996) argument implies that the only strategy to enhance learning and dynamic efficiency is to continually expand the scope and flexibility of transactions with *all* transaction partners, in the hope that these unspecified potential learning benefits will outweigh the ongoing production and governance cost penalties. But this begs the question – what limits the scope of the firm in this case?

Sobrero and Roberts (1996) suggest a somewhat different characterization of the trade-off between efficiency and learning, at least within manufacturer-supplier relationships. As defined by these authors, efficiency objectives are embodied in the search for the organizational arrangement that will result in the lowest total cost for the project or transaction in question. Learning objectives, on the other hand, relate to the

organization of relationships to facilitate the transfer of capabilities between the two parties.<sup>2</sup> They find that higher "learning outcomes" for the manufacturer are associated with projects where significant aspects of the design concept definition are delegated to the supplier, and where there is a high level of interdependence between the supplier's task and the project as a whole. Conversely, high "efficiency" is observed where the supplier provides essentially a modular component that has little task interdependence with the rest of the project.<sup>3</sup> Contrary to the authors' interpretation (i.e., that this demonstrates a trade-off between efficiency and learning) I contend that what we see here is a similar trade-off to that facing our hypothetical Firm A and Firm B; i.e., between current cost minimization and investments in relationship-specific knowledge that have high expected payoffs in the future.

Sobrero and Roberts' (1996) study nonetheless highlights an important additional insight, that payoffs to relationship-specific investments may come not in the context of the current project or transaction, but in future projects. This gives support to recent arguments in the transaction cost literature, that the single transaction is not always the appropriate unit of analysis, and that transaction interdependencies should be explicitly included in the TCE framework (Argyres and Liebeskind, 1999; Ghosh & John, 1999; Nickerson and Silverman, 1997). In the extreme, it may be useful to consider the economic relationship (i.e. firm pair) itself as the unit of analysis (Dyer, 1996; Dyer and Singh, 1998; Kogut, 1989). However, since there is evidence of significant variation in patterns of governance across transactions involving the same firm as well as across

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<sup>2</sup> This is only one of many disparate definitions of "learning" used within the strategy and organization literatures, but one that is quite close to the central ideas in the knowledge-based view of the firm (Kogut and Zander, 1992; 1996). Other types of learning in inter-firm alliances are discussed on pp. 12-13, below.

<sup>3</sup> Sobrero and Roberts (1996) measure learning by whether the project manager in the focal firm feels that his organization learned something new from the interaction such that solutions developed were subsequently used in other projects. Efficiency on the other hand is measured as the ability to meet schedule deadlines, cost objectives, and quality levels.

different firms (e.g., Monteverde and Teece, 1982), a combined level of analysis is indicated.<sup>4</sup>

### **Monitoring, safeguards and credible commitments**

The second aspect of the straw man version of transaction cost economics prevalent in writing on inter-organizational relationships is the identification of "hierarchy" with bureaucratic apparatus and "big brother" monitoring mechanisms that impede innovation and learning. Moran and Ghoshal (1996: 61), for example, argue that adoption of a transaction cost economics perspective serves to "heighten conflict, reduce potential for mutual gains, and limit means by which order can be accomplished." Drawing on arguments from psychology, and citing research on the impact of surveillance on motivation at work and at play (Enzle and Anderson, 1993; Lepper and Greene, 1975; Strickland, 1958), they suggest that hierarchical controls create a "negative feeling for the entity" (Ghoshal and Moran, 1996: 23). Their focus on surveillance is consistent with Ghoshal and Moran's (1996) view of hierarchy, which explicitly identifies hierarchical controls with surveillance and fiat. However, as argued below, this is a somewhat misleading characterization of the nature of hierarchical governance as conceived by transaction cost economists. By elaborating on the governance mechanisms found in inter-organizational alliances I suggest that moving to more hierarchical control generally has the effect of *increasing* rather than decreasing cooperation, and enhancing the ability to learn from alliance partners.

Although there is general acceptance of the importance of learning in alliances, there is much variety in the theoretical interpretation and empirical operationalization of learning in the alliance literature. One common interpretation of alliance learning is the

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<sup>4</sup> This issue represents an opportunity for future research, and is thus discussed further in the final section of the paper (pp. 28-29).

transfer of skills and capabilities from one partner firm to another (Hamel, 1991; Kogut, 1988; Sobrero and Roberts, 1996). In this case, alliances serve as vehicles for partner firms to internalize capabilities that are difficult to acquire through alternative channels. However, through its alliance activity, a firm may also learn more general lessons about how to design and manage alliances, so increasing the effectiveness of subsequent alliances (Lyles, 1988; Simonin, 1997) and perhaps creating a unique “relational advantage”(Dyer and Singh, 1998). Alternatively, a firm may learn about the prospects for success of a particular project, or about the behavioral tendencies of a particular alliance partner (Kogut, 1991; Mody, 1993). Finally, learning may refer to the pooling of knowledge-based resources by alliance partners in order to create entirely new knowledge, for example within an R&D alliance or consortium (Inkpen and Dinur, 1998; Olk and Young, 1997; Sampson, 1999).

Despite this diversity in interpretations, one common requirement for learning in alliances is the need for both partners to commit significant resources (including open access to information) to the venture, and to be responsive to changing resource needs as circumstances develop. The question then becomes; does moving towards hierarchy in an alliance impede or facilitate such processes?

The transaction cost view of an inter-organizational alliance is that of a hybrid governance form, lying between the polar forms of market and hierarchy. While markets are argued to be superior in terms of high powered incentives and autonomous or “Hayekian” adaptability (e.g. unilaterally responding to a change in price or other demand signal), internal organization promotes the ability to effect *bilateral* adaptation, or a coordinated response to disturbances that result in a potential conflict of interests between the transacting parties. Where significant uncertainty is present (in conjunction with relationship-specific investments), autonomous adaptation can have perverse effects and so internal organization is favored. Alliances meld some of the governance attributes of

these two polar governance forms, and thus lie between market and hierarchy in terms of their ability to support the two different types of adaptation.

Given the myriad of different inter-organizational alliances employed by firms today, it is of course apparent that all alliances are not created equal in terms of their governance attributes. Inter-organizational arrangements that are gathered under the rubric of alliances include organizational forms as diverse as technical training and start-up assistance arrangements, production, assembly and buy-back agreements, patent or know-how licensing, franchising, management or marketing service agreements, non-equity cooperative agreements in R&D, development or co-production, and equity joint ventures (Contractor and Lorange, 1988). Conceptually, these alliances may nonetheless be viewed as lying along a “market-hierarchy continuum” of governance forms, with some forms exhibiting governance features closer to those of the market and some approaching the governance properties of firms. The key dimensions that distinguish such a continuum are the degree to which the partners’ fortunes are tied together (i.e. incentive alignment), the administrative controls available, and the nature of the legal supports (Oxley, 1997).<sup>5</sup>

One of the key features of transaction cost economics is its focus on “discrete structural alternatives” (Williamson, 1991). The idea is that, although there is significant variety in the governance arrangements that firms adopt, it is useful to identify discrete categories of governance, within which there is admittedly variation, but which nonetheless represent tight clusters, in governance terms. This allows careful comparative analysis of the incentive and adaptive features of different governance modes. At the

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<sup>5</sup> This conceptualization of alliances as lying on a market-hierarchy continuum is not uncontroversial. Critics include sociologists emphasizing the embeddedness of all economic exchange in social and cultural forces (e.g., Granovetter, 1985), those who argue that all forms of exchange involve a complex intermingling of hierarchy and markets (e.g., Eccles, 1985), and those identifying the “network form” as a distinct organizational phenomenon unconnected to pure market or hierarchical forms (Powell, 1990).

simplest level, for inter-firm alliances, the market-hierarchy continuum can be reduced to a choice between contracts and equity-based alliances (joint ventures).

In “learning alliances” (for example, technology sharing or R&D alliances) where success demands that both firms are willing to commit substantial firm-specific resources and to jointly adapt resource commitments to changing needs, contractual governance is problematic, for the reasons discussed earlier – potential leakage of proprietary information and/or hold-up problems, and difficulties in settling complex disputes in court. One response to these contracting problems is for firms to limit information sharing, by reducing the transparency of their operations or employing elaborate gate-keeping mechanisms (see, for example, Hamel, *et al.*, 1989), or to write ever-more complex contracts defining in ever-increasing detail the rights and responsibilities of the partner firms.

This response, often associated with a transaction cost approach to alliance governance<sup>6</sup> appears to exemplify the very dichotomy – between hazard mitigation and learning – that I contend is false. And indeed, if it were the case that contracts exhausted the governance choices available to alliance participants, then managers would face a troubling dilemma: incomplete contracts could be remedied only by progressively more elaborated contractual terms, more vigilant monitoring of alliance partner activities, and narrowing of the transfers of technology and know-how among partners. Such a narrowing would inevitably reduce opportunities for learning. However, transaction cost economics in fact suggests an alternative response: to look to alternative methods of

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<sup>6</sup> Madhok (1998), for example, distinguishes between “Type I TC” (transaction costs) associated with transaction cost economics and “Type II TC” associated with knowledge-based constraints on organization. He then suggests that, “the resolution of differences between firms can be attempted through further strictures on firms’ behavior and actions through contractual safeguards (Type I TC). On the other hand, another avenue for resolving differences is through Type II TC...oriented towards “education” in the form of cognitive convergence in the pursuit of value” (1998, pp. 18-19).

governing the relationship or transaction that enhance bilateral adaptation – in this simple illustration, by moving to an equity joint venture.

The equity joint venture is perhaps the archetypal inter-firm organization, and as such has been the focus of much prior research (e.g., Geringer and Hebert, 1989; Gomes-Casseres, 1989; Harrigan, 1986; Hennart, 1991; Killing, 1983; Pisano, *et al.*, 1988). In governance terms, the shared equity in the new venture creates a hostage exchange, or exchange of *credible commitments* between the alliance partners to the alliance: because the value of the joint venture depends critically on continued operation, each firm effectively posts a bond equal to its equity share (the value of which is at best only partially redeemable should the venture terminate prematurely.) Since the ongoing returns to each partner are also based on the profits of the venture as a whole, the incentives of the partners to strive for jointly optimal outcomes are enhanced.

In addition to aligning incentives in this way, a joint venture structure improves the *ability* of alliance partners to adapt resource commitments in a coordinated manner as changing circumstances demand. Along with the pooling of financial resources, joint venture partners also pool managerial control by having a board of directors that typically includes members from partner firms in proportion to equity holdings. This provides a direct communication link with senior management of the parent companies, and is a conduit for strategic directives. Note, however, that in contrast to in-house activities (or an arms-length arrangement), these directives are translated into action via negotiation and compromise between the parent companies. Indeed, the right of veto over strategic decisions is often explicitly incorporated in the formal agreement accompanying the creation of a joint venture (Geringer and Hebert, 1989; Killing, 1983). This ensures that the interests of both partners are recognized in the adaptive moves of the venture.

Together these features of the equity joint venture structure create a strong bilateral dependence, and the incentives to “cheat” on the agreement (i.e. to behave opportunistically) are thus reduced (Pisano, 1989; Williamson, 1983). By making credible

commitments, each firm benefits from the greater confidence engendered in the partner, which promotes a willingness to share information and know-how more freely on both sides. The ability to coordinate adaptations is also facilitated through the administrative structure of the joint venture. It is in this sense that greater hierarchical control in an alliance promotes learning, contrary to Ghoshal and Moran's (1996) characterization.

Many researchers studying alliances do not see the alternative to an equity joint venture as a simple contract, but as a more informal, open-ended alliance, based on notions such as "trust" and norms of reciprocity (Barney and Hansen, 1995; Casson and Nicholas, 1989; Powell, 1990; Shane, 1994), which are particularly effective when an alliance is embedded in a network of relationships (Granovetter, 1985; Gulati, 1995b). This type of alliance has not received much attention in traditional transaction cost analysis, although it is quite compatible with the idea that hybrid governance modes are supported by neo-classical or relational contracting (Williamson, 1991). Indeed, relational contracting provides a useful lens for bringing together research on informal alliances with the governance perspective: the development of trust and norms of reciprocity can be interpreted within the transaction cost framework as a combination of several informal governance instruments – behavioral screening, exchange of hostages, and reputation effects.

The "highly adjustable framework" of neoclassical or relational contracting (Llewellyn, 1931, cited in Williamson, 1991: 272; see also Macneil, 1978) itself involves the development of norms of reciprocity. The notion is that small disturbances or movements off the "contract curve" will not be renegotiated on a case-by-case basis, but rather will be absorbed by the alliance partners on the understanding that such disturbances will either even out between the partners over the medium- to long-term or, if unbalanced differences persist, adjustments will subsequently be made, either through a previously designated adjustment process, or possibly through arbitration. In part, these norms of reciprocity, and the implied trust between the partner firms, are supported by the



hostage exchanges implicit to a bilateral arrangement. Such norms will be further enhanced where partners have multiple ongoing cooperative ventures together since, in this case, the payoff to opportunism within each individual alliance is lower, because of the risk that continued gains from cooperation in all of the alliances will be withdrawn if opportunism is detected (Gulati, 1995a; Kogut, 1989).

In addition to attenuating such moral hazard problems, repeat alliances may act as a screening device, reducing adverse selection problems in partner choice. Improved information is developed over the course of cooperative projects regarding a partner's propensity to engage in opportunistic behavior (Balakrishnan and Koza, 1993). With greater confidence in the ability to work things out with the partner, without recourse to formal dispute resolution mechanisms, the need for hierarchical controls in subsequent alliances is reduced. Similarly, firms embedded in a dense relational network will be better able to screen potential alliance partners (at least when drawn from the same network) and can themselves effectively commit to desist from opportunistic behavior – evidence of such behavior will predictably damage the firm's reputation, and the negative consequences may spill over into its other relationships within the network, so exacting a high cost.

These informal alliances, involving hostage exchange arrangements and relational contracts, are generally superior to a simple tightly-specified contract for promoting learning, since they support coordinated adaptation by the partner firms. At the same time, they do not necessitate all of the additional start-up and bureaucratic costs associated with an equity joint venture.<sup>7</sup> However, looking at these alliances through the lens of transaction cost economics also suggests important limits inherent to informal

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<sup>7</sup> The bureaucratic costs referred to here include the direct and indirect costs of operating formal dispute resolution procedures and the costs associated with long communication paths through the joint venture's management structure and board of directors, necessary for agreement on major adaptive changes in the venture's operations.

alliances: since the partners retain a greater degree of legal and structural autonomy than is the case in a joint venture, the zone of “self-enforcement” of the contract is lower than is the case for a joint venture (all else equal). Furthermore, for first-time collaborators – who cannot rely on the opportunism-attenuating effects of related investments or reputation – the greater commitment and incentive alignment properties of an equity joint venture will be particularly attractive.

Of course, one could argue that there is an additional offsetting cost to the learning advantages of joint ventures – that is, that the increased commitment and interdependence inherent in the establishment of an equity joint venture (relative to a more informal alliance) undermines the ability of a firm to change course, should there be a radical environmental shift – for instance in technology (Afuah, 1999; Balakrishnan and Wernerfelt, 1986; Hayes and Abernathy, 1980). This issue of strategic flexibility lies at the very intersection between transaction cost economics and the resource-based view of the firm, and is discussed below as an example of the complementarities between the two perspectives. Before we turn to that discussion, however, there is one other salient criticism of the transaction cost framework, often invoked in research on inter-firm alliances (e.g. Madhok, 1998; Zajac and Olsen, 1993), which must be addressed – its alleged excessive focus on opportunism.

### **Tacit Know-how, Learning and Opportunism**

Many critiques of the transaction cost economics paradigm are based on the premise that, while plausible in certain circumstances, TCE relies on an overly legalistic view of organization and reflects an unnecessarily jaundiced view of human nature (Conner and Prahalad, 1996, Madhok, 1996). Indeed, the argument has been advanced elsewhere that opportunism is quite unnecessary to explain variety in the way that inter-firm alliances are structured. For the choice between a contract-based alliance and an equity joint venture, for example, Kogut (1988) argues that joint ventures are the

preferred vehicle by which tacit knowledge is transferred, and contractual modes are ruled out, "not because of market failure or high transaction costs as defined by Williamson and others, but rather because the very knowledge being transferred is organizationally embedded" (Kogut, 1988: xx).

This argument, which does not rely on opportunism of the partners in an alliance, is apparently at odds with the transaction cost framework described so far. However, I would suggest that the two approaches are in fact complementary. Kogut and Zander's knowledge-based theory offers many important insights into the process of (and obstacles to) know-how transfer within and between firms that have been overlooked within TCE, but it falls short of explaining the choice among different governance alternatives for inter-firm alliances.

According to Kogut and Zander (1996: 503), the way that a firm should be understood is as a "social community specializing in the speed and efficiency of creation and transfer of knowledge." Knowledge is more effectively created and transferred within a firm than through the market because firms provide "a sense of community by which discourse, coordination and learning are structured by identity." Kogut and Zander (1992, 1996) draw several inferences from this insight that have relevance to the choice of organizational form for know-how transfer. First, the most important factor in a make-or-buy decision is the differential capabilities of the firm and its suppliers (1992: 394). Second, know-how transfer requires "frequently interaction within small groups, often through the development of a unique language or code<sup>8</sup>...It is the sharing of a common stock of knowledge, both technical and organizational, that facilitates the transfer of knowledge within groups" (1992: 389). Furthermore, communication *across* groups (for instance across functional areas within the firm, or across firm boundaries) is facilitated

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<sup>8</sup> A similar idea is advanced in Kogut and Zander, 1996: "...communication is characterized by discourse based on rich codes and classifications, and learning is situated." (1996, p. 511).

by certain individuals occupying pivotal roles as “boundary spanners” (1992: 389). Finally, identity facilitates the development of “convergent expectations” (1996: 511), through which coordination is achieved.

When we look at the choice between an equity joint venture and a contract-based or informal alliance for transferring know-how, the limits of this argument come into sharp focus. Here, the partners cannot be assumed to share a “unique language or code” in either case since they are, by definition, autonomous firms. Similarly, there is no a priori reason to expect that individuals in each organization will identify more with the partner firm in the case of a joint venture. Still, one appealing implication of Kogut and Zander’s (1992, 1996) argument is that difficulty in transferring tacit know-how requires that personnel are co-located for a nontrivial time period to facilitate learning by doing, experimentation, demonstration, feedback, etc. – processes that are necessary for effective organizational learning (Garvin, 1993). Thus, “to the extent that close integration within a supplier or buyer network is required, long-term relationships embed future transactions within a learned and shared code” (Kogut and Zander, 1992: 390). Support for this premise can be found in previous studies of the direct costs of technology transfer within and between multinational firms (Teece, 1977, 1981), as well as in studies indicating that inter-partner knowledge transfer is greater in equity joint ventures than in contract-based alliances (Mowery, *et al.*, 1996).

The question nonetheless remains; why is the necessary co-location and/or long-term interaction of personnel most effectively achieved within an *equity joint venture* (Kogut, 1988)? After all, absent opportunism, the two firms could simply write a simple general clause contract agreeing to pool personnel, say in a separate facility (as is the case in many joint ventures), share know-how, and distribute benefits based on some pre-agreed sharing rule. In reality, it is apparent that such an arrangement is fraught with hazards related to the misappropriation of know-how, or hold-up in the face of relationship-specific investments. And it is precisely the governance features of the equity

sharing and joint managerial control in a joint venture that mitigate these hazards and imbue the relationship with the confidence necessary for the commitment of resources, know-how sharing and consequent “learning.”<sup>9</sup>

## COMPLEMENTARITIES BETWEEN THE RESOURCE-BASED VIEW AND TRANSACTION COST ECONOMICS, WITH SUGGESTIONS FOR RESEARCH

Although I have argued that Kogut and Zander's (1992, 1996) knowledge-based theory does not contain a full set of *sufficient* conditions for an explanation of organizational (and governance) structure in inter-firm alliances, it nonetheless contributes greatly to our understanding of one of the central *necessary* conditions for alliance activity in many contexts, i.e., the organizational challenges associated with learning (with their roots in the nature of know-how) and the process of development of the stock of knowledge which, in large part, defines “what firm’s do” (Kogut and Zander, 1996).<sup>10</sup> Furthermore, this aspect of organization has been largely underdeveloped within transaction cost economics, reflecting the early focus on make-or-buy decisions in relatively mature industries. While the oversight has been partially corrected in recent years (e.g., Oxley, 1997, 1999; Pisano, 1988, 1990; Teece, 1986), Kogut and Zander (1996) probe much more deeply into how a firm's knowledge base develops over time, and how this translates into sustained competitive advantage.

This is but one example of the areas where researchers adopting a knowledge- or resource-based view of the firm have made valuable contributions to research on inter-

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<sup>9</sup> Poppo and Zenger (1998) find evidence consistent with this argument in their study of governance performance in make-or-buy decisions in information services. They nonetheless note that empirically differentiating transaction cost and knowledge-based explanations of firm boundaries is difficult.

<sup>10</sup> For analysis of the challenges encountered in learning from alliance partners, and design of effective organizational responses to these challenges, see, for example, Inkpen (1996) and Makhija and Ganesh (1997).

organizational alliances. In contrast to the governance view of the firm adopted in transaction cost economics, the resource-based view conceives of the firm as a collection of “sticky” and hard-to-imitate assets (Conner, 1991; Penrose, 1959; Wernerfelt, 1984). Research in this tradition has analyzed the processes by which rents can be captured through protection and deployment of idiosyncratic resources (Barney, 1986; Dierickx and Cool, 1989). More recently the dynamic process of change in capabilities underpinning firm-specific resources has been explored (Teece and Pisano, 1994; Teece, *et al.*, 1997), as well as the role of inter-firm alliances in the acquisition of new capabilities through organizational learning (e.g., Teece and Pisano, 1994: 545).

The resource-based view brings two fundamental insights to the analysis of inter-firm alliances, prompting researchers to ask questions that hitherto have been neglected by transaction cost economists. These insights are (i) that there is persistent and economically significant heterogeneity in firm capabilities and (ii) that this heterogeneity – particularly as it relates to “core competence” (Prahalad and Hamel, 1990) – drives the differential ability of firms to generate rents from their productive activities. Furthermore, shocks to the external environment (such as technological change) can radically shift the relative value of different capabilities. Below, suggestions for future research on inter-firm alliances motivated by these two key insights and capitalizing on the complementarities between transaction cost economics and the knowledge- and resource-based views of the firm, are proposed.

*When do (should) firms collaborate?* In transaction cost economics, little attention is given to the heterogeneity of potential partners' capabilities, *ex ante*, except to the extent that the lack of a “thick” market in the needed assets leads to small-numbers problems when structuring the transaction. The decision to collaborate turns primarily on the nature of the assets to be combined and the resulting contractual hazards – as discussed above, where assets are particularly idiosyncratic and hazards are severe, the transaction cost

logic suggests that organizing the activity within a single firm is preferred (either by acquiring the assets in question, or by developing them in-house.) However, as research in the resource-based view stresses, it is precisely these idiosyncratic firm-specific assets that may be difficult to imitate (Barney, 1991; Teece, 1986) and that also may not be alienable from their organizational context (Kogut and Zander, 1992), at least in the short to medium term. This means that, in circumstances where rents accruing to a particular combination of idiosyncratic resources are sufficiently high, an alliance that brings these resources together may be initiated, even in the presence of high transaction costs.

This argument (which is in the spirit of Zajac and Olsen's (1993) emphasis on "transactional value") is not inconsistent with transaction cost logic where, as argued above, efficient governance implies minimization of the sum of transaction and production costs for a given value-creating transaction.<sup>11</sup> However, thinking about the problem from the resource-based perspective highlights the fact that there may be instances where the costs of internal production for a given end product are prohibitive (effectively infinite), because of the inability of the firm to develop the necessary capabilities in-house in a timely manner, or to acquire them other than through an inter-firm alliance.<sup>12</sup> Furthermore, the choice of *who* to partner with becomes an important issue to consider in the presence of heterogeneous capabilities.<sup>13</sup>

Bringing together the insights from the resource-based view and transaction cost economics reveals additional relevant factors in the decision to collaborate, however.

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<sup>11</sup> See the discussion on p. 9, plus Ghosh and John (1999).

<sup>12</sup> The issue of "real-time responsiveness" has been raised in TCE research, but has not been developed in any depth (Williamson, 1996a).

<sup>13</sup> Work has begun here, combining the RBV's focus on capabilities and resources with issues of reputation, hostage exchange and behavioral screening from transaction cost economics, along with sociology's emphasis on the "embeddedness" aspects of networks that impact alliance partner choice (e.g., Gulati, 1995b; Mowery, Oxley and Silverman, 1998).

Consider the notion of “core competence” (Prahalad and Hamel, 1990). By definition, core competencies represent investments in highly idiosyncratic assets (generating correspondingly high quasi rents), and their continued value to the firm requires that competitors (or potential competitors) cannot easily imitate these resources. Efforts to leverage such assets through alliances are fraught with hazards. First, the hold-up problem is particularly severe because of the large quasi rents at stake. Second, if achievement of the alliance objectives necessitates pooling of firm-specific capabilities and learning among partner firms, then the inimitability of the core competence may be compromised.<sup>14</sup> Thinking through when the potential rents generated by new resource combinations can outweigh the potential costs of hold-up and/or leakage of the know-how underpinning core competence represents an opportunity for future research.

*How does alliance organization evolve?* Transaction cost logic is also useful in thinking through how this potentially expanded set of alliances should be organized, by alerting us to the hazards associated with capabilities combinations in alliances *and* highlighting ways in which they can be mitigated. Taken to its extreme, the resource-based view of the firm may encourage a form of *resource autarky*, as firms attempt to protect the uniqueness of their existing resources, while replicating those of competitors. For example, Hamel, *et al.* (1989) suggest that companies will benefit most from alliances by limiting knowledge transfers to partners, limiting the transparency and scope of resources and capabilities contributed, while simultaneously maximizing learning from partners and systematically diffusing new knowledge throughout the organization. One limitation of this advice is that, while it certainly highlights the hazards associated with collaboration, it views the outcome as essentially a zero-sum competitive game between the alliance

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<sup>14</sup> This may lead to the phenomenon of a “learning race” within an alliance, as discussed by Hamel (1991) and Khanna, Gulati and Nohria (1998).



partners, with each trying to maximize knowledge flows in one direction and minimize flows in the other. Unless one of the partners is more myopic than the other, this strategy is not sustainable beyond the short-term, and is unlikely to lead to significant learning for either partner. The logic of transaction cost economics emphasizes that it is only through the crafting of a governance structure which allows partner firms to commit credibly to work within the intended parameters of an agreement that meaningful cooperation will be supported.

Thus, for capabilities combinations involving idiosyncratic resources and high risk of opportunism, the partners must take extra care in designing safeguards that support cooperation and commitment of resources by both (or all) partners. Furthermore, if internal organization has significant transaction cost savings (or, to put it differently, if alliances pose sufficiently severe hazards), then one might expect that internal organization should emerge over time, as long as rents persist. Internal organization in this case may be achieved either through a business merger, or through internal development of the full set of necessary capabilities by one (or each) of the partners. Exploring and empirically testing the implications of this combined resource-based and transaction cost perspective for the evolutionary path of organizational arrangements is another promising research opportunity.

*What is the effect of radical environmental shifts on alliance activity?* One of the fundamental insights of the resource-based view is that success requires that a firm have access to the “right resources at the right time.” This highlights the issue of strategic flexibility and lock-in, raised in the earlier discussion of joint ventures. Balakrishnan and Wernerfelt (1986) argue, for example, that if the pace of technical change raises the probability that firm-specific assets will be rendered obsolete in their primary use – for example because of so-called “competence-destroying” innovation (Henderson and Clark, 1990) – then vertical integration is a less desirable strategy. One way to think about the

advantages of alliances in such an environment is that they provide access to others' firm-specific assets without the risk of being locked into an obsolescing technology. However, as Balakrishnan and Wernerfelt point out (1986: 348), transaction cost logic is necessary to drive this argument through:<sup>15</sup> as the likelihood of obsolescence goes up and the expected profitability of the investment goes down, the incentives of transacting partners to bargain over rents decreases; and since attenuation of such bargaining is a key advantage of hierarchy, the relative benefits of vertical integration are thereby reduced. By extension, in choosing among alliance governance modes, one might argue that rapid technological change would make contractual arrangements attractive for a wider range of transactions.

It is true, nonetheless, that transaction cost economists have in the past tended to hold the competitive environment and firm capabilities "constant" to facilitate comparative analysis of discrete structural alternatives, and applications to high-technology and other volatile environments have been limited. Researchers adopting the resource based view, on the other hand, have largely neglected the potential role of governance as an "isolating mechanism" (Dierickx & Cool, 1989) preserving rents generated by knowledge-based assets (Liebeskind, 1996). More integrative research is required (in the tradition of Balakrishnan and Wernerfelt, 1986; and Mitchell and Singh, 1992) to carefully delineate the effects of technological innovation and other environmental shifts on the value of a firm's core capabilities (and the need to combine resources with those of partner firms), and on the role of alliance governance in

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<sup>15</sup> Balakrishnan and Wernerfelt outline the shortcomings of previous arguments about the vulnerability of irreversible investments in the face of environmental instability: "A difficulty with this line of reasoning is...that it leaves unexplained why such an investment would look more appealing to an independent supplier than to an integrated firm. In other words, why won't a supplier demand the same expected return on his [sic] investment as would an integrated firm?" (1986, p. 348).

preserving that value, while maintaining the flexibility to augment and adapt resources to the changed environment.

*How does alliance participation change partner firm capabilities and core competence?*

Work has just begun in this area and has so far been restricted to either small-scale case studies (e.g., Hamel, 1991; Inkpen, 1996) or comparative static analyses (Mowery, *et al.*, 1996; Nakamura, *et al.*, 1996; Sampson, 1999). The limited evidence available provides preliminary support for the notion that participation in alliances can have lasting effects on firm capabilities, and that governance plays an important role in realizing the innovative potential of alliances (Sampson, 1999). However, there is a long way to go before we fully understand what characteristics of partner firms and alliance structures support change in different types of capabilities, and precisely what are the implications of these changes, particularly in core capabilities.

A further, more radical, research challenge would incorporate the feedback effects of changing capabilities on the evolution of alliance organization. This calls for longitudinal studies, paying careful attention to how shifting capabilities and alliance goals are reflected in changes to partner interactions and governance safeguards.

*What are the sources and implications of persistent inter-firm heterogeneity in the organization of external economic relations?* While the transaction cost economics framework has proven successful in explaining a large portion of the variance in governance structure for individual transactions, there remain large differences in the overall degree of integration adopted by different firms; differences which resist straightforward explanation (see, for example, Monteverde and Teece, 1982). Recent research provides several candidate explanations for this inter-firm heterogeneity – Kogut and Zander (1996) argue that the firm's stock of knowledge relative to potential suppliers or alliance partners is a first-order determinant of firm boundaries. Argyres and

Liebeskind (1999) agree that “history matters,” but focus instead on the effect of “*governance inseparability* -- a condition in which past governance choices significantly influence the range and types of governance mechanisms that it can adopt in future periods” (1999: 49, italics in original). Nickerson and Silverman (1997) look at another aspect of transaction interdependence, where investments made to support one transaction have implications for the investments and governance structure adopted in another transaction. Similarly, Ghosh and John (1999) explore the implications of product market positioning for the types of investments and governance mechanisms required in supporting transactions. Finally, Dyer and Singh (1998) suggest that the ability to manage complex inter-firm relationship is itself a valuable capability and a source of heterogeneity in how firms manage their external economic relations. Furthermore, while firms can change the way that they manage these relationships, such change is a complex and path-dependent process, as bundles of mutually reinforcing processes or routines must be adopted simultaneously (Dyer, 1997). Understanding these constraints on firms’ alliance behavior, and on their governance decisions more generally, is yet another fascinating and challenging avenue for research that can clearly benefit from a combined TCE/resource-based view approach. It also offers the potential to enrich each of the theories in the process, providing insight into the details and dynamics of governance mechanisms and the process of changing capabilities and resources.

The view of alliance organization that emerges from the above discussion is that of a complex, but systematic, interplay between several elements: alliance goals, firm capabilities, organizational interface design (to facilitate the appropriate level of interaction among partner firms) and implementation of governance mechanisms (both formal and informal safeguards) that imbue the relationship with the confidence necessary to ensure continued cooperation. This interplay, illustrated in Figure 1, is further complicated by the influence of the network of prior ties and features of the

broader competitive environment in which the alliance is embedded. Clearly, both capabilities (or other firm-specific resources) *and* governance are key considerations.

[Figure 1 about here]

## CONCLUSION

In arguing for continued and enhanced conversation between scholars adopting the resource-based view and those operating in related research areas such as strategic group theory, organizational economics and industrial organization, Mahoney and Pandian (1992) suggest that,

[while] a morality play of the virtuous resource-based theorists doing battle against the misguided strategic group theorists and industrial organization analysts may provide a crusading faith for the young and naive, a more balanced view...is needed. Intellectual isolating mechanisms which artificially reduce the trading of ideas are not best for the strategy field as a whole. (p. 374)

The arguments in this paper echo this sentiment with respect to transaction cost economics, highlighting areas where efforts to distinguish resource-based analysis of inter-firm alliances have on occasion led researchers to raise a straw man version of transaction cost theory. This is unfortunate for at least two reasons. First, a distorted view of transaction cost economics is disseminated in the strategy literature, potentially dissuading scholars from adopting what continues to be a useful lens for analyzing a broad range of issues relevant to firm strategy (Williamson, 1991, 1996a). Second, and perhaps more importantly, opportunities for research working out of a combined resource-based/transaction cost perspective are overlooked; opportunities which may

prove to be more fruitful in increasing our understanding of the role of inter-firm alliances in firm strategy.<sup>16</sup>

Despite some important progress in research into inter-firm alliances from the perspectives of transaction cost economics *and* the resource-based view of the firm (as well as other disciplines) there remain significant areas of incomplete understanding. This represents a challenge and an opportunity to conduct research on a phenomenon that has both great importance in itself in this age of "alliance capitalism" (Gerlach, 1992) as well as having implications for broader theoretical debates on the theory of the firm. The overall goal of such a research agenda, "writ large," is to systematically analyze how firms choose to enter alliances, with whom and for what, and how they organize to maximize benefits and contribute in the "continuing search for rent" that is the essence of strategy (Bowman, 1974: 47, cited in Mahoney and Pandian, 1992). As the brief sampling of research questions above suggests, complete answers to these questions require a more fundamental understanding of the nature of firm capabilities and learning, as well as the basic conflicts faced by alliance partners and the role of governance in managing these conflicts. This is a large undertaking, and requires, at a minimum, the combined power of both the resource-based and transaction cost perspectives, if not an even broader interdisciplinary attack.<sup>17</sup>

Of course this list of potential research questions is by no means exhaustive, and there will be new areas of inquiry that open up as we move ahead. Nonetheless, one can

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<sup>16</sup> Others who have called for a synthesis of the resource-based view and transaction cost economics in strategy research, and who have made strides in that direction, include Poppo and Zenger (1998) and Liebeskind (1996).

<sup>17</sup> Game theory, for example, brings many useful insights to the study of alliance behavior. [For general applications of game theory to strategy research, see e.g., Nalebuff and Brandenburger (1997). For application to alliances, see Parkhe (1993).] Adequate consideration of this and alternative views (e.g., sociology, cognitive psychology, organizational learning theory) is unfortunately not possible within the scope of this paper.

hope that the promise of greater understanding of inter-firm alliances will encourage increased cooperation among researchers in transaction cost economics and the resource-based view; and a continued constructive debate that serves to propel and refine theoretical development in each of these evolving fields.

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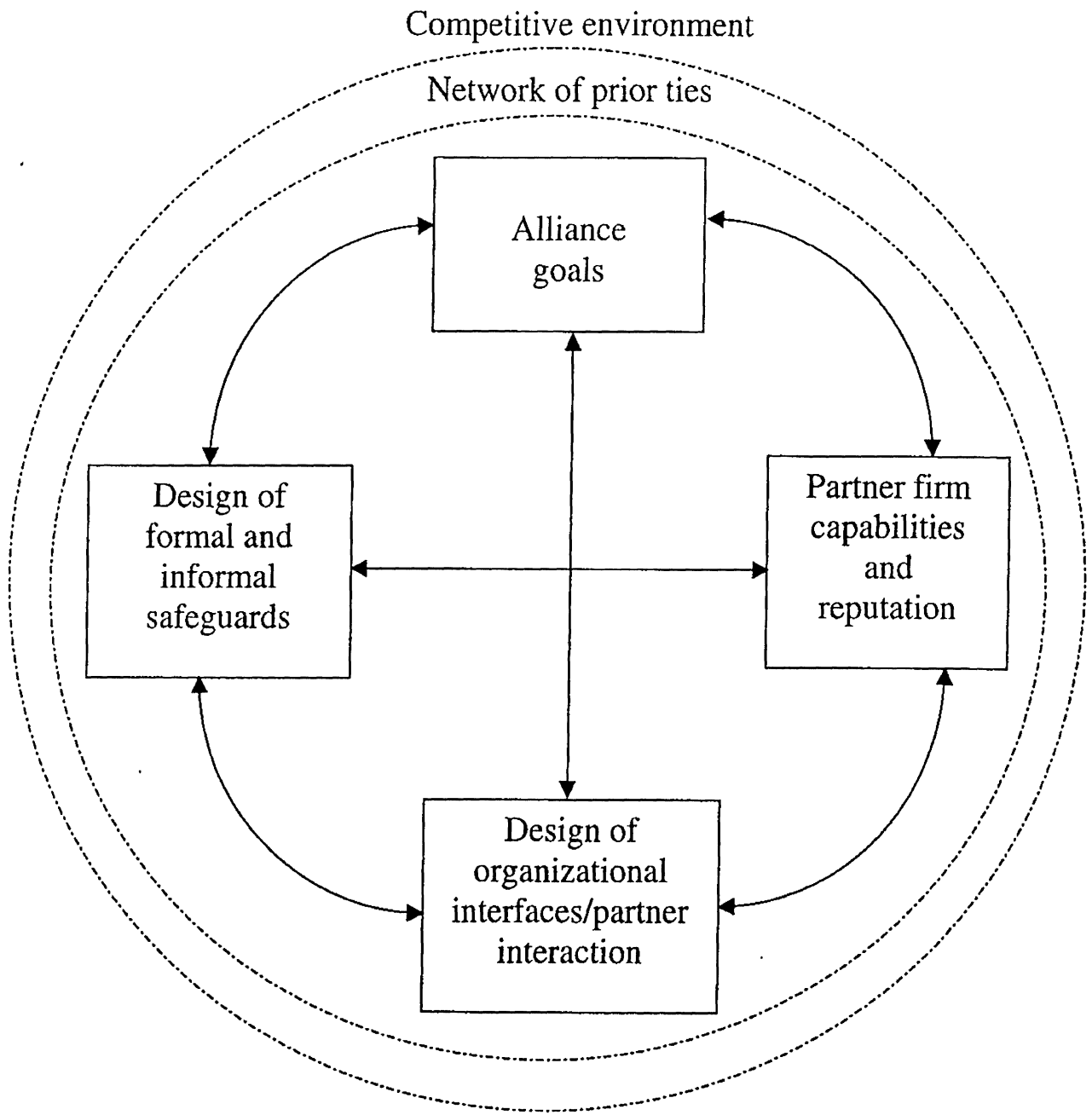


Figure 1: Elements of Alliance Organization