



## **Alliance Capability, Collaboration Quality, and Alliance Performance: An Integrated Framework**

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## **ABSTRACT**

Building on the complementary nature of transaction cost theory and the resource-based view, this study examines alliance capability and collaboration quality as antecedents of alliance performance. Although various researchers have investigated the individual concepts' influences on alliance performance, an integrated view is missing. Building on earlier research, we propose an integrated framework, which links the firm-level concept of alliance capability with the dyadic level concept of collaboration quality, thus, increasing the understanding of the relationship between the theoretical concepts used to explain alliance performance. The framework suggests that both alliance capability and collaboration quality are antecedents of alliance performance, but more importantly that collaboration quality is an intermediate outcome of alliance capability.

## **INTRODUCTION**

In their struggle to adapt successfully to the rapidly changing environment, many companies rely increasingly on alliances to overcome competence limitations, to leverage capabilities and to be flexible while focusing internal resources on core competencies. Given the need for a multitude of competences to achieve competitive advantage, the flexibility offered by alliances often prove to be more effective than internal development (see e.g. Afuah, 2001). We define strategic alliances as voluntary, inter-firm agreements aimed at achieving competitive advantage for all

partners involved (Das and Teng, 2000). Both the number of newly established strategic alliances per year (Harbirson and Pekar, 1997; Hegert and Morris, 1988; Narula and Hagedoorn, 1999) and the percentage of revenues that comes from alliances (Harbirson and Pekar, 1998b, Margulis and Pekar, 2001) have increased significantly in recent years. In addition, research shows that successful interfirm activities outperform industry in terms of return on investment. Alliance experienced companies achieve 20% for ROI compared to 11% of US industry average (Harbirson and Pekar, 1998b). However, scholars and practitioners alike have pointed at the poor track record of alliances reporting high failure rates, ranging from 30 to 70 percent (see for an overview Duysters et al., 1999a). A striking fact is that some firms within and across different industries, sizes and nations, are more successful in their overall alliance activity than others. Scholars and practitioners have been eager to learn more about this issue. Nevertheless, research results regarding the factors critical to alliance performance are scattered and have been little specific as to how to solve the problem (Park and Ungson, 2001). We propose a framework wherein alliance capabilities and collaboration quality are antecedents of alliance performance.

Studies analyzing factors explaining alliance performance have been manifold and can be categorized in two groups. First, studies analyzing the dyadic relationship wherein specific relationship characteristics are found to positively influence alliance performance (e.g. Doz, 1996; Dyer et al., 2001; Dyer and Singh, 1998; Kale et al., 2000; Mohr and Spekman, 1994; Parkhe, 1993; Young-Ybarra and Wiersema, 1999). Although empirical evidence confirms that these factors of collaboration quality can create relational-specific rents (Kale et al., 2000; Khanna et al., 1998; Madhok and Tallman, 1998), this evidence remains scattered and cannot explain the differences in

individual firms alliance performance (Park and Ungson, 2001). Second, other studies suggest that alliance capability influences alliance performance and its antecedent success factors. Moreover, they propose that alliance experience and micro-level mechanisms explain the considerable fixed-firm effects in individual firm's alliance performance (e.g. Kale and Singh, 1999; Nault and Tyagi, 2001; Kale et al., 2002; Simonin, 1997). So far, however, research analyzing antecedents of alliance performance have produced scattered results (Park and Ungson, 2001) and the relationships between collaboration quality, alliance capability and alliance performance has been left almost untouched.

In order to understand how firms can outperform competitors in alliances and the significant differences in individual firm's alliance performance, this study's objective is twofold. First, we postulate that both alliance capability as well as collaboration quality are essential in enhancing alliance performance. Second, and more importantly, we propose collaboration quality is an intermediate outcome of a firm's alliance capability. The paper is organized as follows: we will first develop an overview of related literature. Thereafter, we consecutively discuss collaboration quality and alliance capability and their impact on alliance performance. Finally, we develop the relationship between alliance capability and collaboration quality and outline some suggestions for an empirical investigation of the topic at large.

## RESEARCH ON ALLIANCE PERFORMANCE

In traditional strategy literature, firms were submitted to market forces as postulated by the transaction cost (TC) literature and traditional industrial organization (IO) theory. Firms were considered to be individual, self-fulfilling units (Williamson, 1975, 1991) that favored going alone over cooperative agreements (Contractor and Lorange, 1988). In the 1980s, Porter's industrial organization literature looked partly at industry characteristics and partly at firm conduct (Spanos and Lioukas, 2001) to explain firm performance. It builds on TC and IO theory, but suggested firms were no longer entirely dependent on environmental forces. Therefore, early research into alliances considered cooperative agreements as single transactions between industry rivals in need to overcome market failure. Alliances were viewed as separated business cases that were to be studied primarily from a dyadic perspective (Greenhalgh, 2001). This literature suggested a set of success factors that described what factors should be considered to optimize performance in the dyadic relationship. For instance, high levels of trust and commitment as well as information sharing and communication are suggested to be important variables in nurturing a sound relationship between the partners, thereby enhancing the chances of success (e.g. Kanter, 1994; Lorange and Roos, 1990; Mohr and Spekman, 1994; Young-Ybarra and Wiersema, 1999). Collectively, research of this kind refers to collaboration quality as the critical factor to foster alliance performance. By nature, the dyad is the issue under investigation.

With the spurt in alliance activity occurring since the 80s, many firms found themselves in a constant flux of cooperative agreement and abandonment (Barney, 1997; Doz and Hamel, 1998) in order to get access to the desired resources and

achieve sustainable competitive advantage. In line with these developments, scholars suggested that alliance capability could be viewed as a rare, valuable and difficult to imitate resource at the company level (e.g. Gulati, 1998; Kale and Singh, 1999). From this viewpoint, alliance capability consists of firm-specific resources or micro-level mechanisms, which not only help companies to raise the performance of its entire alliance portfolio, but also provide a candidate explanation for the fixed-firm differences in alliance performance. In order to investigate the influence of alliance mechanisms on alliance performance, a firm's alliance portfolio can be used as a unit of analysis. This logic has been both explicitly suggested (Duysters et al., 1999b; De Man, 2001) and implicitly applied by various scholars (Kale and Singh, 1999; Kale et al., 2000; Kale et al., 2002). Recently, various scholars have empirically confirmed the positive relationship between higher-order alliance capabilities and alliance performance (Kale et al., 2002; Powell et al., 1996; Simonin, 1997; Sivadas and Dwyer, 2000). Thus, while issues raised by collaboration quality tend to remain scattered and cannot explain how to achieve this quality (Park and Ungson, 2001), alliance capability can on the one hand provide more specific insight as to what mechanisms are critical in raising collaboration quality and alliance performance and on the other hand help explain the fixed firm effects in individual firms' alliance performance.

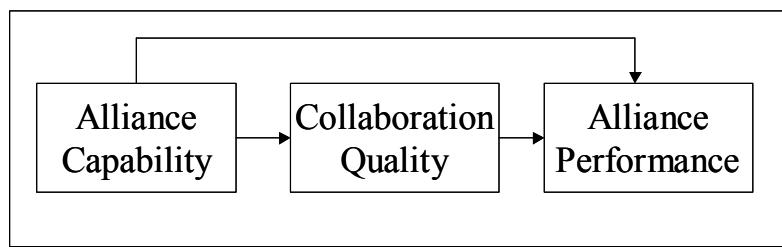
Given the complexity surrounding antecedents of alliance performance, this issue has proven a challenging one for both alliance practitioners and researchers. Various obstacles related to measurement problems and data access have hampered investigation efforts (Gulati, 1998). Over time, a shift has occurred regarding the measurement of alliance performance. Since the early 1970s, under influence of TC

and industrial economics theory, scholars measured performance most often based on financial criteria or stability criteria (see for a critical review Gulati, 1998; for an overview Park and Ungson, 2001). As alliances were acknowledged to provide access to specific resources of partner firms enabling firms to leverage competitive advantages, performance measurement in alliances needed to be adjusted accordingly. Consequently, more recent studies focus on a firm's ability to acquire partner resources through the alliance (Das and Teng, 2000; Hamel, 1991; Hamel et al., 1989; Khanna et al., 1998; Koot, 1988; Madhok and Tallman, 1998), thereby assessing the achievement of objectives by individual partners (e.g. Jap, 2001; Kale and Singh, 1999; Kale et al., 2000). Since, with the latter approach, each partner can evaluate the performance of an alliance differently, still others used the alliance per se as unit of analysis and measured performance in terms of e.g. new products developed, product innovativeness or combined indices of profitability and qualitative measures (e.g. Deeds and Hill, 1996; Kotabe and Swan, 1995; Parkhe, 1993). Still other studies use relational performance as a measure, referring to the social, interactive nature of alliances (e.g. Jap, 2001; Lin and Germain, 1998). The relational performance is sometimes referred to as the creation of relational rents (Lane and Lubatkin, 1998), relational capital (Kale et al., 2000) or collaboration-specific rents (Madhok and Tallman, 1998). Although the assessment of individual objectives achieved is limited to one partner's evaluation, in this paper, we adopt and extend this approach. We view alliance performance as individual objectives achieved, measured over all strategic alliances in a firm's portfolio.

To date, little effort has been devoted to linking the separate concepts important to alliance performance. As these two concepts originate from distinct theoretical

backgrounds and this study intends to integrate them, we acknowledge the complementary nature of traditional theories (e.g. TC, agency theory and theories from the social science) and more recent theories (e.g. RBV and dynamic capabilities) (see for an overview Madhok, 2002). Whereas the former increased the understanding of antecedents of alliance performance at the dyadic level, the latter point to firm-specific micro-level mechanisms that are critical to alliance performance. Consequently, although different in origin, the concepts of collaboration quality and alliance capability are intrinsically related. This study analyses the relationship between collaboration quality and alliance capability. In this way, it intends to increase understanding of the antecedents of alliance performance. We propose the framework as presented in figure 1 to guide an increased understanding of alliance performance. First, it suggests that collaboration quality positively influences alliance performance. Second, alliance capability is postulated to enhance alliance performance. Third, we propose that collaboration quality is an intermediate outcome of alliance capability.

Figure 1: An integrated framework for alliance performance



The next sections will discuss each consecutive relationship between these three items of the framework.

# COLLABORATION QUALITY AS DETERMINANT OF ALLIANCE PERFORMANCE

## *Dimensions of Collaboration Quality*

Every single alliance can be described by a set of general characteristics, which specification either enhance or prevent the likelihood of a high alliance performance. We define collaboration quality as specificities of alliance characteristics, which have significant positive effects on alliance performance. Researchers from various disciplines have devoted considerable effort in identifying factors, which influence alliance performance at the alliance level. Their investigations are mainly led by two complementary theoretical perspectives often applied together in conceptual investigation and empirical research (e.g. Cullen, et al., 2000; Das and Teng, 2000; Doz, 1996; Kale, et al., 2000; Mohr and Spekman, 1994; Parkhe, 1993; Young-Ybarra and Wiersema, 1999): (1) Economic theories like transaction cost, agency theory, or game theoretic approaches have been used to determine favorable conditions and contingency approaches for design and structure of alliances, (2) Theories from the social science are used to explain patterns of social interaction and exchange, which occur within the process of allying. A synthesis of dimensions of collaboration quality, which have repeatedly emerged as their key components and which are based on a convincing theoretical fundament, include (1) resource configuration, (2) compatibility of partners, (3) coordination features, (4) level of trust, (5) level of commitment and (6) level of information sharing and communication.

The first dimension of collaboration quality is resource configuration. The fundamental thesis of the RBV is that firm resources are to varying degrees

significantly heterogeneous and imperfectly mobile (Wernerfeld, 1984). This heterogeneity leads to competitive advantage, when resources are valuable, rare, difficult to imitate and persistent (Barney, 1991). Accordingly, the configuration of resources is one of the most important *ex ante* factors for alliance performance. As Dyer and Singh (1998, p. 667) propose, the greater the proportion of synergy sensitive resources owned by the alliance partners, that, when combined, increase the degree to which the resources are valuable, rare, and difficult to imitate, the greater the potential to generate relational rents in the partnership. Lambe et al. (2002) show that the complementarity and idiosyncrasy of resources positively influence alliance success. In addition, alliances building on the complementary instead of rivalry core competencies of the partners have a better performance expectation because disturbing competitive tendencies remain weak (Das and Teng, 1998; Khanna et al., 1998; Park and Ungson, 2001; Silvadas and Dwyer, 2000). Despite the complementarities of resources their dedication to and specialization for the considered alliance is important. Parkhe (1993) found that the commitment of non-recoverable investments is positively related to performance.

The second dimension called compatibility accounts for partner fit in terms of operational strategy, corporate culture, management style and nationality (Parkhe, 1993). Significant differences in structures and procedural routines hamper the understanding of each other and place severe difficulties while executing the alliance (Doz, 1996). In contrast, organizational compatibility and similarity facilitate the creation of relational rents out of complementary assets, thus, alliance success (e.g. Dyer and Singh, 1998; Geringer, 1991; Johnson et al, 1996; Kale et al., 2000). Partners might find it easier to deal with each other. Consequently, the alliance is

more likely to be successful than otherwise. On the other hand, alliance formation, trust building and reconciliation even between partners with different “ways of doing things” are eased by cultural sensitivity of the partners (De la Sierra, 1995; Johnson et al., 1996). This implies that not similarity in itself but the awareness of cultural differences and the conscious management of differences is of major importance for achieving high performance in alliances.

Coordination is the third dimension and is the specification and execution of roles with minimal redundancy and verification and refers to the extent to which different “units” function according to the requirements of other units and the overall system (see Georgopoulos and Mann, 1962). Appropriate coordination allows the effective deployment of the resources brought to the alliance whereas transaction costs and administrative “noise” are kept to a minimum. Hence, it secures the efficient realization of the value proposition. High levels of coordination in the alliance provide clarity and certainty about roles and procedures for decision-making and clearly determine the scope of input of each partner (Mohr and Spekman, 1994; Sivadas and Dwyer, 2000). This eases management in the ambiguous authority structure of an alliance, secures responsiveness, allows managing moving targets, thus, enhancing the effectiveness and efficiency of alliance processes. Likewise, coordination between partners for appropriate, proactive conflict handling and escalation procedures are needed. Consequently, appropriate coordination structures are key to alliance performance.

The fourth and one of the most essential characteristics of high performance alliances is mutual trust (e.g. Johnson et al. 1996; Kale et al., 2000; Morgan and Hunt, 1994;

Mohr and Spekman, 1994). Mutual trust is the confidence of partners that the other will behave in a predictable manner without acting against the partner (Barney and Hansen, 1994). This applies to the ability to fulfill competence obligations (credibility trust) as well as to the partners' beliefs that the other will act in interest of the alliance without opportunistic behavior (goodwill trust). The importance of trust basically derives from the fact that contractual safeguards are not able to account for all possible contingencies that may occur during the lifetime of the relation (Williamson, 1991). Hence, trust acts as a deterrent to opportunistic behavior (Axelrod, 1986; Bradach and Eccles, 1989; Stinchcombe, 1986), an alternative governance mode to pure hierarchy and pure market (Bradach and Eccles, 1986; Dwyer et al., 1987) and has significant efficiency implications (Bleeke and Ernst, 1991; Parkhe, 1993).

The fifth dimension is commitment. It refers to the willingness of the partners to exert effort on behalf of the relationship (Porter et al., 1974). Anderson and Weitz (1992) acknowledge that commitment goes beyond a simple, positive evaluation of the other party based on a consideration of the current benefits and costs associated with the relationship. Following Dwyer et al. (1987) they argue that commitment implies the adoption of a long-term orientation toward the relationship – a willingness to make short-term sacrifices to realize long-term benefits from the relationship. Hence, commitment incorporates two dimensions: calculative commitment and attitudinal commitment (Cullen et al., 2000). Calculative commitment refers to the investment in relation-specific, non-recoverable assets in the alliance (e.g. Dyer and Singh, 1998; Parkhe, 1993). This investment is needed to create a significant specialization, which in turn lead to a competitive differentiation potential. Accordingly, calculative commitment is driven by the business proposition of the alliances and enhances the

likelihood of significant value creation. The second dimension of commitment refers to an emotional or affective component. It relates to feelings and to attitudes of the participants to the specific relation. From this perspective, commitment means that the partners have a high psychological identification with the relationship and contribute a high level of importance and willingness to care and nurture the relation (Cullen et al., 2000; Khanna, 1998; Mohr and Spekman, 1994). This form of commitment goes beyond the contractual agreements and incorporates an emotional obligation to engage for the success of the alliance.

The sixth dimension of collaboration quality is communication. According to Anderson and Narus (1990, p. 44) communication “can be defined broadly as the formal as well as informal sharing of meaningful and timely information between firms”. To realize the potential benefits of the collaboration, effective communication between partners is crucial (Cummings, 1984). Information sharing is strongly related to communication and can be defined as the extent to which critical and often proprietary knowledge is communicated to the partner (Mohr and Spekman, 1994, p. 139). Thus, it encompasses formal and informal procedures by which either information lines are fuelled or the alliance partner is enabled to recognize and monitor the partners’ decisions, actions and behavior related to the alliance. Several researchers found that better communication and a high level of information sharing lead to better alliance performance because it allows for the development of an understanding between parties, goal adjustment, a better tasks coordination and execution, an integrative conflict management and interfirm learning (Kale et al., 2000; Mohr and Spekman, 1994; Parkhe, 1993; Sivadas and Dwyer, 2000). It is also strongly related to the building of trust, because individuals build informal

psychological contracts that form stronger glue than formal contracts (Ring and Van de Ven, 1994) and which depend on the interaction quantity and quality.

In taking a comprehensive perspective, the described characteristics can be viewed as different quality dimensions of alliances, which need to be actively managed by the partners. Although one might argue that mutual development lies in the responsibility of both partners, prior research on the influence of unilateral action suggests that at least to some extent one partner alone is able to influence the quality dimensions via selection processes and start reciprocal development cycles via unilateral behavior (e.g. Cullen et al., 2000; Parkhe, 1993; Shamdasani and Sheth, 1995). Thus, we propose:

*Proposition 1: High levels of relational quality are positively related to high levels of alliance performance.*

## ALLIANCE CAPABILITY AS A DETERMINANT OF ALLIANCE PERFORMANCE

The micro-level mechanisms that can positively influence alliance performance constitute alliance capability. Following Makadok (2001) and Thomke and Kuemmerle (2002), an alliance capability is a special kind of resource which is non-transferable and has the potential to enhance the performance of other resources owned by the firm. This capability allows firm's to efficiently deploy its other resources and, as it cannot be transferred nor bought, it should be built (Makadok, 2001). We refer to these former type of resource as micro-level mechanisms that can increase a firm's ability to, for instance, identify partners, initiate relationships or

restructure individual alliances as well as an alliance portfolio (Kale et al., 2001; Spekman et al., 2000). We argue that this capability is valuable at the firm-level, which supports the firm in raising and maintaining the alliance performance of their entire alliance portfolio. Whereas collaboration quality investigates factors related to the alliance itself, alliance capability looks at micro-level mechanisms that potentially enhance alliance performance.

Recently, scholars suggested that an alliance capability can be viewed as a rare, valuable and difficult to imitate resource at the company level in order to explain the differences in alliance performance between firms (Dyer et al., 2001). Various theoretical viewpoints have analyzed how firms can develop capabilities. Evolutionary economics (Lewin and Volberda, 1999; Nelson and Winter, 1982), knowledge-based view (Conner and Prahalad, 1996; Grant, 1996; Nonaka and Takeuchi, 1995), organizational learning theories (Dyer and Nobeoka, 2000; Fiol and Lyles, 1985; Lei et al., 1997; Senge, 1990), resource-based view (Barney, 1991; Grant, 1991, 1996; Peteraf, 1993; Wernerfelt, 1984), dynamic capabilities (Eisenhardt and Martin, 2000; Teece et al., 1997) and competence-based theory (Sanchez et al., 1996) have all increased our understanding on the relationship between capabilities and performance. Of these theories, we consider theories of dynamic capabilities, knowledge and resource-based view and organizational learning most valuable for the explanation of the development and consequences of alliance capability.

Applying these theories, various researchers have investigated the relationship between experience levels, learning in alliance management achieved, investments in specialized resources and mechanisms and alliance performance (Draulans et al.,

1999; Dyer, et al., 2001; Kale and Singh, 1999, Kale et al., 2002; De Man, 2001; Reuer et al., 2002). Experience can be critical for firms to better anticipate and respond to contingencies (Anand and Khanna, 2000; Pisano et al., 2001; Spekman et al., 2000). From this perspective, earlier trials and tribulations in alliances have been suggested to enhance a firm's alliance capability. Some evidence has been found for the positive relationship between learning mechanisms in organizations related to alliances and alliance performance (Kale and Singh, 1999). Other studies found that experience levels –in terms of number of past alliances- and alliance capabilities between firms differ (Anand and Khanna, 2000).

In addition to experience, scholars have suggested organizational routines (Nelson and Winter, 1982) and absorptive capacity (Cohen and Levinthal, 1990; Lane and Lubatkin, 1998) can foster differentiated learning effects (Larsson et al., 1998) and create unobserved heterogeneity (Das and Teng, 2000). In the end, past learning behavior is proposed to influence future learning abilities, making learning in alliances a path dependent phenomenon (Anand and Khanna, 2000). Firms indeed differ in their ability to derive value from alliances (Anand and Khanna, 2000; Khanna et al., 1998; Madhok and Tallman, 1998) and some firms simply seem to be more effective in applying their knowledge to other alliances (Spekman et al., 2000).

Given these intriguing findings, researchers have increasingly paid attention to features of internal organization, such as managerial processes, routines and values as a basis for firm-specific capabilities and competencies that are difficult for other firms to buy or imitate (Eisenhardt and Martin, 2000; Henderson and Cockburn, 1994; Leonard-Barton, 1992; Teece and Pisano, 1994). Alliance capability research has

build on these findings by focusing on alliance mechanisms that firms implement and develop internally to enhance alliance performance. Despite the empirical investigations, the transition from experience to capability has remained obscure (Kale et al., 2002). Furthermore, an in-depth investigation of the various mechanisms used in practice and their impact on alliance performance is missing.

In practice, firms have accumulated experience and started to invest in mechanisms that support dissemination of experience with alliances throughout the company in order to overcome performance disturbances. Based on the kind and number of alliances formed, different levels of alliance experience or activity (Anand and Khanna, 2000) can be used to categorize alliance mechanisms, which can enhance alliance performance. Based on Draulans et al. (1999), *Alliance Analyst* (1996) and Harbison and Pekar (1998b), we identify three levels of alliance experience. At each level, different alliance mechanisms are suggested to increase alliance performance. Table 1 summarizes the main issues regarding the different levels of alliance experience.

Table 1 Levels of alliance experience

	Level 1	Level 2	Level 3
<b>Number of alliances</b>	Small	Reasonable	Large
<b>Importance</b>	Operational	High for certain units or divisions	Strategic for the entire company
<b>Geographical reach</b>	Regional/national	Starting with internationalization	International
<b>Management tools</b>	-Legal knowledge	-Best practices	-Partner program
<b>(Cumulative examples per level)</b>	-Checklists for partner selection & monitoring -Evaluation of individual alliances	-Alliance specialist -Cultural trainings	-Alliance department -Alliance knowledge dispersed via trainings -Alliance database

*Source: (Adapted from) Draulans et al., 1999.*

At the first level, firms are in a situation that one of several alliances demands corporate attention. The firm has limited experience in preparing for interfirm activities as well as the actual implementation of an alliance. Therefore, in-house knowledge consists mainly of general, non-specific contractual, organizational and cultural know-how related to partner selection. At this level, firms tend to favor learning-by-doing (Harbison and Pekar, 1998b), rather than opt for a structural approach to accumulate alliance-related knowledge. As a result, the firms will often encounter restricted success with their strategic cooperative movements.

In order to prevent firms from unsatisfactory results, firms can use a number of mechanisms at this level. First of all, simple tools such as alliance evaluation and a partner selection approach are easy ways to increase awareness and decrease ad-hoc

decision making in alliances. Second, a culture program or external alliance trainings may help firms increase alliance know-how (Spekman et al., 2000). The mechanisms should be aimed at gaining a proper understanding of the most relevant principles in alliances for the particular firm.

At the second level, a firm's alliance portfolio starts to comprise more and more interfirm activities. Firms start to create standard procedures to manage alliances and often experience greater success in the established alliances. Standardization of alliance procedures facilitates interfirm learning. Though mainly at top management level, it is at this level that firms actually start to build specific alliance knowledge. This partly generalized knowledge, however, resides in the minds of a small number of specialists who are active in the firm. A primordial and detrimental drawback of this position is that it may prohibit the dissemination of alliance knowledge to the employees in need. The importance of alliances for the firm has increased at this level, therefore more resources should be allocated to build capabilities.

Various mechanisms can help do so. First, firms can gather best practices based on their own experiences and those of other firms and evaluate their alliances. This will allow firms to learn in a more efficient manner. Second, to stimulate sharing of these lessons, alliance trainings and use of external specialists may help extend and disseminate specific knowledge. Third, firms can use alliance metrics and reward and bonus systems to motivate business unit managers to increase the success. Fourth, firms can assign an alliance specialist (Draulans et al., 1999), manager or gatekeeper at this level. These can be used to monitor the environment and translate information into applicable knowledge (Cohen and Levinthal, 1990; Doz and Hamel, 1998;

Leonard-Barton, 1995). The prohibition of unnecessary knowledge leaks (Lei et al, 1997) and protection of intellectual property (e.g. Grindley and Teece, 1997) can prove a useful means to decrease conflict situations. It is therefore critical for firms to prevent use of a weak liaison involved in its alliances (Doz and Hamel, 1998; Kanter, 1983). At this level, these mechanisms may help extend the body of knowledge in order to achieve a higher level of alliance capability (Simonin, 1997).

At the third level, alliances have become a top management priority. This phase requires alliances to be thoroughly embedded in business strategy, reflecting the highest level of alliance capability attainable. The essential characteristic of this stage is that the firm is consciously building and dispersing its alliance experience and knowledge throughout the firm in a structural way. No longer does alliance knowledge reside in a few professionals, but dedicated investments are made to disperse knowledge throughout the firm. To this end, top management is dedicated to build and maintain a distinct set of mechanisms to optimize alliance performance. Thus, alliances are not merely of operational or business unit concern, but instead are given attention at the strategic or corporate level (Draulans, De Man and Volberda, 1999).

Several mechanisms can support firms to build capabilities at the third level. First, central coordination becomes important as a means to facilitate knowledge sharing on a structural basis (Dyer et al., 2001; Kale and Singh, 1999; Kale et al., 2002). For instance, an alliance department or function can act as a central coordination mechanism (Harbison and Pekar, 1998a) to increase coordinative capacity (Kale and Singh, 1999). In the same vein, this mechanism may positively influence the

absorptive capacity of the firm and help overcome the factors that impede learning, such as fragmentation of knowledge, conflicts, tacitness, memory or too small sample sizes (see e.g. March et al., 1991; Zollo and Winter, 2002). Using an alliance department together with a gatekeeper, alliance manager or vice-president combines external and internal coordinative capabilities at the same time. In alliances, internal and external coordination should both be appreciated (Teece and Pisano, 1994; Takeishi, 2001). Second, an alliance database can help accumulate and assemble experience in such a way that it is easily transferable (Khanna et al., 1998). In general, these mechanisms can increase a firm's ability to learn (Spekman et al., 2000). Based on these arguments, we make the following proposition:

*Proposition 2: The level of alliance capability is positively related to alliance performance.*

## COLLABORATION QUALITY AND ALLIANCE CAPABILITY

As mentioned earlier, researchers have studied alliances either from a traditional perspective, paying attention to the factors relating the dyadic relationship, or followed a more recent approach by analyzing the influence of specific resources on alliance performance. The latter approach almost completely ignored the effect on the intermediate outcome, while researchers favoring the former approach neglected to consider the antecedent factors (for a recent exception see Lambe et al., 2002). However, investments in different mechanisms for alliance management serve different purposes, which can be related to the characteristics of high performance alliances. Underlining the complementarity of the two approaches, we propose that alliance capability positively influences each of the six characteristics of collaboration

quality – resource configuration, compatibility, coordination, trust, commitment and information sharing and communication.

#### *Alliance capability and resource configuration*

Resource-based theories state a favorable configuration and deployment of resources is the basis for sustainable competitive advantage. Companies use alliances to access resources, which augment their own strength or ameliorate its weaknesses, hence, to achieve a competitive edge through the combination of their own resources with complementary resources of an external partner. The combination with non-complementary or even similar resources to the company's own resources does not lead to the desired results because the value added through the partner's resources is low. Consequently, identification and selection of complementary resources is key to alliance performance.

In general, optimal choice is hampered by information deficits and asymmetries. Consequently, efficient processes for information selection and interpretation are needed, which supply an optimal amount of information needed for decision making at reasonable cost. Related to resource and alliance partner selection, different kinds of information are needed: information to identify potential partners with the desired resources and information about the strength of their resources.

Evidently, the investment in resources or mechanisms specialized to optimize this information selection and interpretation processes for an alliance partner, addresses the problem of optimal choice. On the one hand, alliance functions like specialized departments or alliance specialists can draw upon experience in defining what information is necessary. On the other hand, they can provide resources to facilitate

and support information search processes. Likewise, standardized tools and processes are able to enhance the efficiency of these processes for the managers involved in resource configuration and partner selection. For instance, a standard partner selection process is aimed at identifying the most suitable resource configuration and partner as to the desired capabilities (Geringer, 1991). As Simonin (1997) states partner-searching know-how, which can be captured by standard processes of partner selection and assessment, define a critical component of alliance capability. Summarizing, these mechanisms are to some extent designed to secure the complementarity of the resources brought to the alliance.

*Proposition 3: Alliance capability is positively related to the configuration of complementary resources in strategic alliances.*

#### *Alliance capability and compatibility*

Compatibility refers to the level of similarity between partners as well as the sensitivity with which a company accounts and manages differences between partners in terms of operational strategy, corporate culture, management style and nationality. As Doz (1996) argues, each partner brings “a set of action routines borrowed from the organizational contexts of each partner” to the alliance. The more unfamiliar the partners are with each other’s “way of doing things” the greater the potential for misunderstandings, conflict and the need for coordination and mediation (Bucklin and Sengupta, 1993). The development of trust and the evolution of an interpartner relationship are hampered (Gulati, 1995). Consequently, in a broad sense transaction costs over the alliance lifecycle and the overall propensity to fail in the alliance rise.

The negative effects of missing compatibility between alliance partners can be decreased or offset in two different ways. First of all by an ex ante approach, in which partner compatibility can be assessed by relevant criteria to secure similarity of the partner to choose (Geringer, 1991). Second, compatibility can be increased by raising awareness for differences between alliance partners and to prepare for dealing and managing these differences. Both approaches require a fairly deep understanding of the partner. This requires investments in terms of money, managerial effort and time (Johnson et al., 1996) to get the information needed and develop managerial capability to manage these differences. The investment in and creation of several alliance mechanisms are explicitly addressing this issue. For instance, standard partner selection processes include the assessment of partner characteristics to assess compatibility and detect differences, which have to be accounted for in operational management. Likewise, local alliance managers, country specific alliance policies and cultural programs are used to bridge cultural differences in cross-national alliances. All these mechanisms and resources are geared to foster awareness and sensitivity to facilitate alliance execution by increasing understanding, enhancing trust building, and reducing conflict potential. As a result, we expect a positive influence of these mechanisms on collaboration quality in terms of compatibility.

*Proposition 4: Alliance capability is positively related to the configuration of complementary resources in strategic alliances.*

#### *Alliance capability and coordination*

Alliances as an organizational form are per se complex forms of organization because of the need to coordinate within and across company boundaries and the ambiguous authority structure in the relationship (Doz and Hamel, 1998). For the efficient

deployment of resources appropriate coordination structures are needed to ensure effective governance and to minimize transaction costs. The negative effects of low levels of coordination are clearly shown in the rich description of Browning et al. (1995) of the SEMA TECHs consortium formative years, which were characterized by a high level of confusion and ambiguity about roles and responsibilities.

To achieve a high level of coordination a clear definition of tasks and assignment of roles and responsibilities for different tasks are needed. This applies in two different areas of coordination and two different tasks sets. In the first place, alliance partners need to specify which tasks and process steps are executed by which partner, relating to the division of tasks, roles and responsibilities between the partners. Likewise in a second step, each partner has to assign roles and responsibilities in his own company to appropriate people. Second, the division and assignment is needed for alliance content tasks, which are the tasks that have to be accomplished to realize the alliance objectives, and alliance management tasks, which are the different tasks and processes related to the alliance as an organizational form. We expect that a systematic approach to alliance management implemented through different mechanisms is helpful in defining and realizing an appropriate coordination structure, because this allows to capitalize on prior experiences. For instance, an alliance department or an alliance specialist can aid in defining and realizing suitable structures and procedures. Likewise, they can support the optimization of the value of the alliance by supporting the creation of a system of close relationships, both intra and inter-organizational (Madhok and Tallman, 1998). To determine whether the potential partner will be capable of executing its tasks and responsibilities (Medcalf, 1997), a partner program can be a helpful mechanism.

*Proposition 5: Alliance capability is positively related to high levels of coordination in strategic alliances.*

#### *Alliance capability and trust*

Mutual trust includes a set of expectations between the partners regarding each other's behavior and the fulfillment of the perceived obligations in the light of such anticipation (Madhok, 1995; Thorelli, 1986). Guided by the past behavior of exchange partners, mutual trust is a product of investments in numerous interactions between partners (Cullen et al., 2000; Ring and Van de Ven, 1994). Despite the initial trust needed to start preliminary negotiations, the development of benevolent and credibility trust builds on the accumulation of interactions, which are judged to be efficient and appropriate by the partners (Ring and Van de Ven, 1994).

These mechanisms to build trust imply that ex ante expectations regarding actions and behavior of the partner are clearly defined and communicated between the parties. In an ongoing process of assessment and evaluation of the partner's actions, sufficient information to achieve an objective judgment are needed. Thus, alliance mechanisms and resources, which help to provide the partner with relevant information to develop expectation, judge the following action and evaluate the result, are crucial for developing trust in the partner. For instance, joint business planning, joint evaluation sessions or a shared Intranet can provide possibilities for congruent sense-making, exchange positions and detect potential conflicts. Process as well as outcome discrepancies can be detected early and appropriate measures may prevent vicious cycles, which defect the alliance (Kumar and Nti, 1998). Furthermore, the investment in a dedicated alliance department is likely to help the company to develop and disseminate behavioral rules for interaction processes. These "codes of conduct for

alliances” are developed over time and summarize the essence of what is seen to be appropriate behavior in alliances. Despite the formal processes, they are disseminated and transferred in implicit socialization processes, official guidelines or explicit alliance trainings. They give managers advice how to avoid pitfalls in behavior, which might undermine trust building in relationships.

*Proposition 6: Alliance capability is positively related to trust in strategic alliances.*

#### *Alliance capability and commitment*

Although theoretically related and practically intervened, commitment and trust are distinct concepts (Cullen et al., 2000). The willingness to exert effort, thus, ensuring that agreed upon decisions are implemented and verified is an essential characteristic of a high degree of commitment. Furthermore, from a social exchange perspective, both parties enhance commitment to the relationship in a positive reinforcement cycle that increases the level of mutual commitment over time (Anderson and Weitz, 1992). The positive effect of commitment on value creation in interfirm relationships has been shown in several studies (e.g. Holm, Ericson, and Johanson, 1999; Mohr and Spekman, 1994; Parkhe, 1993). Consequently, getting people, groups or organizations to focus and commit to a common goal is a pathway to competitive advantage (Greenhalgh, 2001).

Commitment needs to be achieved at two levels: internal commitment of manager and employees to the alliance and, as perceived by the partner, direct commitment to the alliance. Both require the dedication of resources and a general appreciation of collaborative action. The creation of distinct mechanisms is an internal investment, which reflects corporate commitment. Likewise, e.g. the assignment of a vice-

president for alliances or apt incentive systems signals the appreciation and importance given to alliances within the company, thus, influencing the motivation to engage in the alliance (Kale et al., 2002; Lambe et al., 2002). Regarding the commitment revealed within the alliance, these alliance mechanisms have different impacts. First, systematic alliance management approaches per se secures that alliance management is given the needed resources and time, which acts also as a signal to the partner. Second, as Kale et al. (2002) argue, the creation of an alliance department is helpful in organizing resources within the company, which are required to foster alliance performance. Given that the alliance department is equipped with appropriate decision making power and intrafirm connections, they can directly contribute and assist in mobilizing resources from other company units in the formation phase of the alliance lifecycle as well as during the evolution of the alliance. In addition, systematic alliance management mechanisms like alliance metrics and evaluation processes are useful in determining, which contributions are actually deemed necessary.

*Proposition 7: Alliance capability is positively related to commitment in strategic alliances.*

#### *Alliance capability and information sharing and communication*

Communication and information sharing are important for the assessment of competencies, development of a shared understanding, efficient coordination and execution of tasks, conflict management, interfirm learning, flexibility in alliances, and the ability of the alliance counterpart to evaluate and judge a partner's behavior in the alliance (Jap, 2001; Ring and Van de Ven, 1994).

Sub-optimal information channels, insufficient resources to fuel these channels, missing opportunity and reluctance of people to share information, hinder an optimal flow of information and adequate communication. Therefore, the quality and quantity of communication and information sharing is augmented by measures to overcome these limitations. Different mechanisms address the problem of deficient communication and information sharing. First, e.g. a partner program, alliance gatekeepers and alliance managers as well as alliance departments are direct measures to offer information channels. Furthermore, alliance specialists can aid in designing appropriate information and communication structures within an alliance. Second, these mechanisms also tackle the problem of insufficient resources in terms of management capacity. Third, joint business planning and joint evaluation, organization of meeting events within a partner program or processes for knowledge exchange between the partners secure that there are sufficient opportunities and management time reserved to engage in frequent interaction. Fourth, reluctance of people to share information cannot be addressed directly by these measures, because this is often deeply rooted within the people and informally expressed within these formal measures. However, reluctant information sharing is often caused by uncertainty, which information and knowledge is to be shared, and which not. Therefore, to remain on the safe side, people give less information than might be needed and engage less in communication. Drawing upon their alliance knowledge, alliance departments may provide managers and employees with advice how to handle this issue. This allows for better sharing of information and knowledge while preventing the loss of critical, proprietary knowledge, which need to kept inside the firm.

*Proposition 8: Alliance capability is positively related to high levels of information sharing and communication in strategic alliances.*

## CONCLUSIONS

Having examined the relationships between alliance capability, collaboration quality and alliance performance, this study proposes a framework that integrates these concepts. In doing so, we built on distinct but complementary theoretical approaches and suggest that collaboration quality is an intermediate outcome of alliance capability. This insight adds to our current understanding as different alliance studies have come up with different factors critical to alliance performance. This has caused research into antecedents of alliance performance to remain scattered in nature.

Based on our investigation there are several fruitful avenues for future research. First, empirical research should investigate whether collaboration quality is indeed determined by the set of characteristics suggested in this paper. Identification of the quality dimensions, which have to be actively managed by alliance partners, will help managers in investing in the most suitable resources and selecting the appropriate mechanisms for management. Furthermore, research on the interaction effects between these different qualities can reveal whether a high level of one characteristic can substitute for a low level of another, e.g. prior research suggest that formalized structures can be minimized in relationships governed by high levels of mutual trust.

Second, by investigating the various alliance mechanisms and their influence on alliance performance in different industry contexts, future research can determine whether alliance capability can indeed be viewed as a stage model and which

contingencies determine which capability level is appropriate for different companies. Furthermore, from a learning perspective, it would be interesting to explore, whether a higher level of alliance capability of one partner influences the capability development of the other partner and if partners are adopting favorable practices from one another.

Third, the importance of different mechanisms for alliance management in different alliance tasks and phases of the lifecycle can be explored. Business firms might use the resulting set of appropriate mechanisms to aid managers to develop and measure alliance capability, to ascertain an appropriate mixture of resource dedication and mechanisms and to emphasize the application of specific mechanisms in different circumstances. In addition, contingency theory suggests that different types of alliances need different mechanisms for managing them. As research on innovation indicates, uncertainty is highest in early innovation stages and in radical innovation projects. Thus, one might conclude that mechanism allowing for flexibility, aimed at achieving high levels of mutual trust and commitment and transparency between partners need to be highest.

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