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## Alliance Management as a Source of Competitive Advantage

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*Strategic alliances are an important source of resources, learning, and thereby competitive advantage. Few firms have all of the resources needed to compete effectively in the current dynamic landscape. Thus, firms seek access to the necessary resources through alliances. We examine the management of strategic alliances using the theoretical frames of transactions cost, social network theory and the resource-based view. Alliances must be effectively managed for their benefits to be realized. Effective alliance management begins with selecting the right partner. Furthermore, alliances must be managed to build social capital and knowledge. To maximize cooperation among the partners, a trust-based relationship must be developed. Therefore, we conclude that managing alliances is crucial for firms to gain competitive advantage and create value with strategic alliances. © 2002 Elsevier Science Inc. All rights reserved.*

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Strategic alliances are cooperative arrangements between two or more firms to improve their competitive position and performance by sharing resources (Hitt, Dacin, Levitas, Arregle & Borza, 2000a; Jarillo, 1988). Effective alliances can be growth and profitability engines in both domestic and global markets (Ernst, Halevy, Monier & Sarrazin, 2001). Strategic alliances continue to grow in popularity, causing them to be viewed as a ubiquitous phenomenon (Gulati, 1998). Indeed, the formation rate of interfirm collaborations, such as strategic alliances, has increased dramatically in recent years (Dyer, Kale & Singh, 2001; Simonin, 1997). For example, the number of strategic alliances “exploded” to more than 10,200 in 2000 alone (Schifrin, 2001b). It is estimated that US firms with US\$ 2 billion or

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more in revenue each formed an average of 138 alliances between 1996 and 1999 (Schifrin, 2001a). Currently, the top 500 global business firms average 60 major strategic alliances each (Dyer et al., 2001).

These data suggest that increasingly competition occurs between sets of allied companies rather than between individual firms. Although popular as a potential value-creating strategic option, many alliances fail (Reuer, 1999; Spekman, Forbes, Isabella & MacAvoy, 1998; Young-Ybarra & Wiersema, 1999), suggesting that even with the presence of potential synergies, alliance success is elusive (Madhok & Tallman, 1998). Nonetheless, their flexibility and potentially lower levels of risk sometimes make alliances a preferred growth alternative relative to acquisitions (Harrison, Hitt, Hoskisson & Ireland, 2001).

The high failure rate notwithstanding, both domestic and international alliances are critically important to firm success (Glaister & Buckley, 1999). In the aerospace industry, for example, United Technologies is involved in over 100 worldwide collaborations. In agriculture, Cargill's Chief Technology Officer suggests that bringing something new to the marketplace requires "... so much cooperation and integration of knowledge that you just can't get it done unless you pick partners" (Forbes Magnetic 40, 2001, p. 66). Serving as a conduit through which knowledge flows between firms (Madhavan, Koka & Prescott, 1998) is one way strategic alliances facilitate knowledge integration. Complicating the difficulty of integrating knowledge is the fact that alliances are characterized by mutual interdependence, which means that each party is vulnerable to its partners. Mutual interdependence leads to shared control and management of the collaborative arrangement (Inkpen, 2001; Parkhe, 1993). The frequent simultaneous cooperation and competition between partners creates additional complexity for firms facing mutual interdependence. Thus, effective management of alliances is necessary for their benefits to be realized. While strategic alliances have the potential to enhance a firm's performance, doing so is challenging because of the difficulty in managing them. Thus, for various reasons, managing strategic alliances to achieve or maintain a competitive advantage and enhance the firm's performance is an important issue warranting further study (Arino, 2001).

### **The Focus of Alliance Research**

A simultaneous focus on content and process is required for firms to gain a competitive advantage through strategic alliances. To date, researchers have concentrated on theoretical and empirical explanations of alliance formation (primarily a content issue). This focus emphasizes why firms form certain alliances instead of others, why particular governance structures are chosen over alternative forms and so forth (Gulati, 1998). In contrast, relatively little research has analyzed "how" alliances are formed. Understanding how alliances are formed and successfully managed requires the study of processes, including those designed and used to effectively manage alliances (Barringer & Harrison, 2000; Doz, 1996; Gulati, 1998). Alliance process research concentrates on the dynamic aspects of collaborative arrangements (Ariño & de la Torre, 1998). Therefore, effective alliance management is a significant challenge and an underinvestigated phenomenon (Hutt, Stafford, Walker & Reingen, 2000; Spekman et al., 1998). Important in a domestic context, alliance management is perhaps even more critical for international cooperative ventures (Lam, 1997). Enhancing our

knowledge about the effective management of alliances should direct research and contribute to a reduction in alliance failures through improved managerial practices (Barringer & Harrison, 2000).

Evidence that investments in relation-specific assets are positively related to superior firm performance has been emphasized in previous alliance research and influences current work (Dyer, 1997; Dyer & Singh, 1998). To date, the primary focus of alliance research has been on examining and explaining anticipated alliance outcomes or benefits (Stuart, 2000). A key component of chosen corporate- and business-level strategies, effective alliances can create value (the net rent earning capacity of either tangible or intangible assets) (Doz & Hamel, 1998; Eisenhardt & Schoonhoven, 1996; Parkhe, 1993). In the case of alliances, value is reflected in the rents partners gain through synergy exceeding what could have been generated through alternative organizational configurations (Madhok & Tallman, 1998; Spekman et al., 1998). Thus, alliances integral to a strategy contribute to value creation through several sources, including scale economies, the effective management of risk, cost efficient market entries and learning from partners (Alvarez & Barney, 2001a; Kogut, 1988). In addition, alliances help firms minimize transaction costs, cope with uncertain environments, reduce their dependence on resources outside of their control, and successfully reposition themselves in dynamic markets (Das & Teng, 1996, 2000b; Porter & Fuller, 1986; Spekman et al., 1998; Young-Ybarra & Wiersema, 1999). Thus, alliance investments influence the firm's resource allocation patterns and resulting market positions as companies seek to effectively respond to the challenges of the new competitive environment (Bettis & Hitt, 1995; Das & Teng, 1996; Ireland, Kuratko & Hornsby, 2001b; Lei, Hitt & Bettis, 1996; Prahalad, 1999; Reuer, 1999).

Reuer (1999, p. 13) suggested that deriving value from alliances "... requires companies to select the right partners, develop a suitable alliance design, adapt the relationship as needed, and manage the end game appropriately." Recent analyses suggest that alliances are one of the most powerful enablers of value creation for both "new" and "old" economy companies (Gerhard & Odenthal, 2001). Thus, because of their value-creating potential, top executives should consider alliances as a key part of the firm's strategies (Schifrin, 2001b). An overview of recent empirical research on alliances is presented in Table 1.

Our purpose is to contribute to the knowledge about strategic alliances and especially their effective management as a source of competitive advantage. Effective alliance management is critical for alliances' benefits to be realized. Additionally, effective alliance management helps avoid opportunistic behavior and the resulting unintended outcomes for certain partners (Sivadas & Dwyer, 2000). We draw primarily from three theories—transaction cost economics (TCE), social network and the resource-based view—to examine alliances and their management.

### Theoretical Explanations of Alliance Formation and Value

Factors influencing strategic alliance formation have received considerable scholarly attention, especially at the dyadic level (e.g., Eisenhardt & Schoonhoven, 1996; Gulati, 1998; Stuart, 2000; Walker, Kogut & Shan, 1997). Different theories are used to derive theoretical rationales for alliance formation.

Table 1  
Recent empirical research on strategic alliances

Study	Main question	Theoretical focus	Data	Proposals/findings
Afuah (2000)	How does technological change affect a firm's relationship with alliance partners?	Resource-based view	Field data were collected between December 1992 and April 1994 in Silicon Valley and Massachusetts Route 128.	Technology obsolescence in supplier firms affects alliance outcomes and performance of buyer firms.
Ahuja (2000a)	The paper discusses the creation of firm linkages through collaboration.	Resource-based view, social network theory	Archival longitudinal data from 97 firms in the chemical industry were obtained for the period 1979–1991.	A firm's technical, commercial, and social capital, the number of important inventions it creates and the interaction among these variables determine the number of interfirm linkages formed by a firm.
Ahuja (2000b)	How do a firm's direct ties, indirect ties, and structural holes affect innovation?	Social network theory	Panel data were collected for firms from the chemicals industry for 1981–1991 (collaborations)/1982–1992 (patents).	The number of direct and indirect ties a firm has affects the firm's capacity to innovate and the effect of indirect ties on innovation is moderated by direct ties. Additionally, the number of structural holes spanned by the firm negatively affects subsequent innovation.
Anand and Khanna (2000)	Do firms learn to create value via alliances?	Resource-based view	Data were collected for the years 1990–1993 on firms classified in SIC codes as belonging to the manufacturing sector. The sample included 870 joint ventures and 1,106 license agreements.	The type of alliance affects learning from a firm's alliances. Learning effects stronger for JVs than for licensing contracts and for R&D JVs than other types (marketing or production) of JVs.
Ariño and de la Torre (1998)	What are the determinants of alliance failure? Proposed model explaining emergence, evolution and dissolution of alliances.	Evolutionary model of interorganizational collaboration	Longitudinal case study of JVCO, a 50/50 JV between US-based NAMCO and Europe-based Hexagon; Archival and interview data collected.	The renegotiation process between alliance partners is driven by an acceptable equity boundary, where minor deviations appear to be easily tolerated or subject to negotiation. However, for renegotiation of major changes that seriously disrupt one of the partner's sense of equity, trust and goodwill are necessary.
Barkema et al. (1996)	What cultural barriers exist related to type and mode of ownership? Does learning reduce cultural barriers? What are the locational patterns of learning?	Organizational learning theory	Data were collected from foreign ventures of 13 large nonfinancial Dutch firms between 1966 and 1988.	The longevity of a foreign venture is negatively related to the cultural distance of the venture partners and positively related to previous foreign expansion experience. These effects are stronger for JVs and acquisitions than for WOSS and startups.

Barkema et al. (1997)	How do firms learn to handle international joint ventures?	Evolutionary perspective	Event history analysis and data on 1493 expansions of 25 Dutch firms for 1966–1994.	The longevity of an international JV is negatively related to the cultural distance of the venture partners. The longevity of the international venture is also affected by the previous venturing experience of the partner firms.
Baum et al. (2000)	How is the early performance of startups linked to the founding network set-ups of the startup firm and what can be done to enhance outcomes?	Social network theory	Secondary data were collected on 142 Canadian biotechnology firms for the years 1991–1996.	The early performance of startups is linked to their founding-network composition and original alliances. Configuring their networks efficiently, and allying with potential rivals can enhance startups' early performance.
Baum and Oliver (1991)	How do the organizations' institutional linkages to legitimated community and public institutions affect their mortality rates?	Institutional theory	The sample included 1,028 Canadian child care service organizations, collected for the years 1971–1987 from secondary sources.	Institutional linkages reduce the likelihood of organizational mortality and the effect of competition on mortality rates and reduce risk of failure with transformation. This effect is more significant for younger, smaller, more specialized organizations, and for those linkages viewed as legitimate.
Boddy, Macbeth and Wagner (2000)	Studies the management of supply chain alliances.	Process theory—interactional model of partnering	Two-year qualitative case study was conducted by observation and interviews with Sun Microsystems and Birkbys Plastics.	The process of interorganizational collaboration is highly interactive but uncertain as players act within possibly contradictory contexts and partners have to be highly adaptive.
Browning, Beyer and Shetler (1995)	How did cooperation among firms arise in the semiconductor industry setting?	Complexity theory	The authors used a qualitative case study methodology and data were collected by observation, interviews and archival sources.	Three sets of social conditions enabled the development of cooperation within the semiconductor industry: early disorder and ambiguity, emergence of a moral community, and structuring of activities.
Chung et al. (2000)	Examines the effect of resource complementarity, status similarity, and social capital on alliance formation potential.	Resource-based view, social capital and the complementarity of resources	Secondary data were collected for the years 1980–1989 on 98 banks that had managed as a lead bank or had been a syndication partner for deals.	Firms with complementary resources and status similarities are more likely to become alliance partners and chances of alliances between two potential partners increase with reciprocal exchanges of alliance opportunities.
Cohen and Levinthal (1990)	The authors discuss the concept of absorptive capacity and its criticality to firm innovation.	Organizational learning theory and absorptive capacity	Data were obtained through a cross-sectional survey from 1,719 business units, representing 318 firms in 151 lines of business.	Firms are sensitive to the characteristics of the learning environment in which they operate. A firm's allocation of resources for innovation depends on its absorptive capacity.

Table 1 (Continued)

Study	Main question	Theoretical focus	Data	Proposals/findings
Doz (1996)	How does learning, along several dimensions in strategic alliances mediate the initial firm conditions and alliance outcomes?	Organizational learning theory	Examined two projects within each of three multipoint alliance cases, Ciba-Geigy—Alza, AT&T—Olivetti, and GE—SNECMA. Data were collected from archival sources and by interviews of executives.	The initial conditions in each of the alliance partner firms' were either facilitated or hampered by the partner's learning about the alliance's environment. Alliances can fail because: first, initial conditions may block or delay learning, thus breeding frustration, second, initial conditions may allow cognitive learning but may make alliance partners more aware of the difficulties of behavioral learning, and third, successful learning may be followed by negative reevaluation.
Dussauge, Garrette and Mitchell (2000)	Investigates the outcomes and durations of strategic alliances among competing firms.	Resource-based view	Data were collected from secondary sources on 227 alliances formed mostly in the automotive, aerospace, and telecommunication/electronics industries.	Link alliances among competing firms are more likely to undergo reorganization and takeovers than scale alliances. Additionally, link alliances among competing firms undergo reorganization or takeovers earlier than scale alliances. Scale and link alliances among competing firms are equally likely to dissolve with no takeover or reorganization.
Dyer and Nobeoka (2000)	Study how learning networks are created and implemented.	Social network theory and knowledge-based view	A multi-method case study on Toyota and its first-tier suppliers was done. The authors interviewed more than 30 Toyota executives and executives of 10 first-tier suppliers in Japan and 11 suppliers in the US. Archival and survey data for 38 Japanese suppliers and 48 US suppliers were also collected.	A network, with its greater diversity of knowledge, is more effective than the firm at the generation, transfer, and recombination of knowledge. The study provided insights into the coordinating principles that facilitate knowledge transfer among network members and asserted that a highly interconnected strong-tie network is better suited for the diffusion of existing knowledge than exploration of new knowledge (a strength of weak-tie networks). A network evolves from a collection of dyadic-weak ties to a web like structure with strong ties.
Eisenhardt and Schoonhoven (1996)	Why do firms form strategic alliances?	Resource-based view	Data were collected from archival sources from 92 semiconductor firms launched in the US from 1978 to 1985.	Alliance formation is higher in emergent-stage markets than growth-stage markets and in markets with highly innovative strategies. The rate of alliance formation is affected by the TMT's size and previous industry exposure, and the level of previous positions held by TMT members.

Glaister and Buckley (1996)	What are the strategic motivations for international alliance formation?	Transaction cost and resource dependency	Data were collected from archival sources and semi-structured interviews on both equity and non-equity JVs, for 94 UK firms with partners from Western Europe, US, and Japan.	The relative importance of the strategic motivation will vary with relative partner size, primary geographical location of the alliance, and the industry of the alliance.
Gulati and Singh (1998)	Why do firms choose different governance structures across their alliances?	Coordination costs perspective	Data were collected from archival sources on alliances announced worldwide between 1970 and 1989 in the biopharmaceuticals, new materials, and automobiles sectors.	Alliances with a higher anticipated interdependence, an expected technology component, and those in industries with weak appropriability regimes are more likely to be organized with greater hierarchical governance.
Gulati (1995)	What role does familiarity play in creating trust for repeated alliance formation?	Transaction cost economics and sociological theory	Data were collected from archival sources on 2400 publicly announced alliances between 1970 and 1989 in the biopharmaceuticals, new materials and automotive industries by American, European, and Japanese firms.	Alliances are more likely to be equity based if they have a shared R&D component and if they are between firms from different nations. The greater the number of previous alliances, and particularly equity alliances, between the partners, the less likely the alliance is to be equity based.
Gulati (1999)	What determines which firms enter into alliances and which do not?	Social network theory	Data were collected from field-interviews with 153 managers in 11 multinational companies and longitudinal secondary financial and alliance data for 2,400 alliances from 166 American, European, and Japanese firms in multiple industries.	The greater the extent of a firm's resources from the network of prior alliances and the greater the extent of a firm's alliance formation capabilities, the greater the likelihood that it will enter a new alliance in the subsequent year.
Hamel (1991)	What are the extent to which and the means through which the collaborative process might lead to a reapportionment of skills between the partners?	Resource-based view	Data were collected by qualitative interviews conducted with 74 managers from 11 companies across nine international alliances.	Not all partners are equally adept at learning and asymmetries in learning alter the relative bargaining power of partners. The stability and longevity of the partnership may be inappropriate measures of partner success. Partners may have competitive as well as collaborative aims and process may be more important than structure in determining learning outcomes.



Table 1 (Continued)

Study	Main question	Theoretical focus	Data	Proposals/findings
Hitt et al. (2000a)	What are the partner-selection criteria important to firms from emerging markets and those from developed markets?	Resource-based view	Survey data were collected from a sample of 202 firms: 89 firms in three developed countries: US, Canada & France, and 113 firms from three emerging countries: Mexico, Poland, & Rumania.	Executives from emerging market firms place greater emphasis on financial assets of partners, technological capabilities, intangible assets, and partner willingness to share expertise than executives from developed market firms. Executives from developed market firms emphasize market knowledge and access more than executives from emerging market firms. Executives from both emerging and developed market firms emphasize complementary capabilities.
Inkpen and Dinur (1998)	How can IJVs be integrated into a firm's dynamic system of knowledge creation?	Knowledge-based approach	Two-stage study: stage one included interview data from 58 managers of 40 two-partner JVs in the auto parts industry; stage two included multiple case studies with interview data from US and Japanese partner firms.	Although a variety of knowledge management strategies are viable, some strategies lead to more effective knowledge transfer than others. Organizations must be aware of the different types of knowledge and design appropriate systems to process the knowledge.
Kale et al. (2000)	What factors enable a firm to learn critical skills or capabilities from its alliance partner(s), and protect its core proprietary assets or capabilities from the partner?	Knowledge-based view and organizational learning theory	Survey data were collected from 212 managers, responsible or knowledgeable about their firm's alliances, in multiple industries.	The greater the relational capital between the alliance partners, the greater will be the degree of learning achieved and the greater will be the ability to protect core proprietary assets from each other. Managing conflicts in an integrative fashion leads to more learning and an enhanced ability to protect core proprietary assets from each other.
Kraatz (1998)	How do interorganizational networks affect organizational adaptive processes?	Social network theory	Data were obtained for the period 1971–1986 on a sample of 230 liberal arts colleges.	Organizations in smaller, older, and more homogeneous networks are more likely to adapt their core features in response to environmental change.
Kumar and Seth (1998)	The paper discusses the control and implementation of joint venture relationships focusing on the strategic interdependence between the JV and each parent and the environmental uncertainty faced by the JV.	Structural contingency, resource dependence, and agency theories	Data were obtained through a survey of 64 executives on a total of 128 JV-parent relationships.	Organizations will respond to environmental changes by adopting the response used most frequently by their network contacts, by imitating the network contacts' responses that have been more successful and those that are more similar to their own, especially when their own performance is substandard.

Lam (1997)	How does the socially embedded nature of knowledge impede cross-border collaborative work and knowledge transfer?	Knowledge-based approach	Case study of a Japanese–British technology partnership. Data were collected from interviews conducted with 50 staff members of the two firms between 1992 and 1995.	Governance forms and task structures are only partial determinants of partnership performance. Instead focusing on the knowledge structures and work systems of partner firms especially, in high-technology collaborations requiring the intense sharing and transfer of knowledge, will help firms devise appropriate strategies for effective collaboration.
Lampel and Shamsie (2000)	Does the firm's dominant logic affect the manner in which these firms enter into JV agreements?	Resource-based view	Data were collected from archival sources on 70 JVs formed by General Electric between 1984 and 1993.	When forming global JVs with partners of comparable power and scale of operations, GE business units attempt to restrict the scope of the collaboration. Whereas, forming JVs with smaller firms having less power, GE does not limit collaboration, allowing scope to be dictated by market needs. JVs that depart from GE's dominant logic are likely to be terminated more quickly than those more consistent with it.
Lorenzoni and Lipparini (1999)	The ability to interact and share knowledge with other firms is an competence for firms that are transactionally intensive.	Transaction cost, resource-based view, dynamic capability, knowledge-based view, and organizational learning perspectives	Longitudinal data (1988–1995) were collected through 19 field interviews with the CEOs, managers and technical workers in three mid-sized Italian manufacturers of automatic packing machinery.	Lead firms potentially can lower the overall coordination and production costs of a network through multiple, repeated, trust-based relationships with key suppliers. These relationships with key suppliers provide firms access to complementary capabilities and specialized knowledge with positive effects on the networks as a whole.
Lubatkin et al. (1998)	Explores the relationship between nations and the subsidiary control practices used by acquiring firms in the integration process of a merger or acquisition.	Universalist perspective	Data collected by a survey of 107 British and French managers.	The authors found evidence of differences between the British and the French that were consistent with the institutional heritage of the two nations.
Lyles and Salk (1996)	Examination of the organizational characteristics, structural mechanisms and contextual factors that influence knowledge acquisition from the foreign parent in IJVs.	Knowledge-based approach	Data were collected from archival sources on 201 small/medium sized IJVs based in Hungary.	Adaptation mechanisms such as capacity to learn, articulated goals, and structural mechanisms, such as the provision of training, technology, and managerial assistance by foreign partners are positively related to the amount of knowledge obtained from the foreign IJV partner. Cultural conflicts can impede knowledge acquisition.
Madhavan, Koka and Prescott (1998)	How do networks evolve in response to key industry events?	Social network theory	Data were collected from archival sources for 1977–1993 on the network of alliances of 130 firms in the global steel industry.	Central and dominant firms continue to be central in the network of interfirm relationships before and after a structure reinforcing event. Following a structure loosening event, central and dominant firms are likely to be less central in the network of interfirm relationships.

Table 1 (Continued)

Study	Main question	Theoretical focus	Data	Proposals/findings
McAlister (1995)	Role of individual affect in fostering trust.	Based on a theoretical model of trust from the sociological literature	Field data collected on cross-functional dyadic relationships from 194 managers and professionals (Executive MBA program at a major university in Southern California) in multiple industries.	Two dimensions—cognition-based trust and affect-based trust, characterize relationships of interpersonal trust among managers in organizations. A manager's affect-based trust in a peer is positively related to that peer's citizenship behavior directed toward the manager and the frequency of interaction. A manager having high affect-based trust in a peer engages in need-based monitoring of that peer. A manager with high affect-based trust in a peer directs much interpersonal citizenship behavior toward that peer. The level of a manager's need-based monitoring and interpersonal citizenship behavior directed towards a peer is positively related to supervisor assessments of the manager's performance.
McGee et al. (1995)	Should inexperienced managers cooperate to gain new knowledge and experience, or should they not cooperate unless they are experienced enough to know what they don't know?	Transaction cost and strategic behavior perspectives	Data were collected on 210 high-tech startup firms from multiple industries which had executed an IPO between 1980 and 1989. The sample firms' year of incorporation was not more than 8 years prior to the IPO, founding management was intact, and actually manufactured products, in addition to R&D.	In new ventures emphasizing marketing differentiation, and with more experienced marketing managers, marketing cooperative arrangements have a stronger effect on firm performance. In new ventures emphasizing technical differentiation, and with more experienced R&D managers, R&D cooperative arrangements have stronger effects on firm performance. In new ventures emphasizing low cost production, and with more experienced manufacturing managers, manufacturing cooperative arrangements have a greater effect on firm performance.
Mitchell and Singh (1996)	The paper investigates the survival of businesses that use collaborations with other firms to commercialize complex goods.	Collaborative approaches and environmental shocks	Data were collected for 1961–1991 on 973 businesses that commercialized software for US hospitals.	Businesses that have used collaborative relationships for activities central to an environmental shock are less likely to survive after the shock and vice versa. Businesses using independent approaches to commercialize complex goods when an environmental shock occurs are more likely to survive after the shock.
Mowery et al. (1996)	The paper examines interfirm knowledge transfers within strategic alliances.	Knowledge-transfer	Archival data were collected from cross citation rates for partners in alliances that involved at least one US firm for a total of 792 alliances formed between 1985 and 1986.	Interfirm transfer of technological capabilities and technological overlap is greater in equity joint ventures than in contract-based alliances. The extent of a firm's absorption of technological capabilities from alliance partners is positively related to its prealliance level of technological overlap with partner firms and the firm's R&D intensity.

Nagarajan and Mitchell (1998)	The paper analyzes how internal development and interorganizational technology acquisition methods vary with the manner in which technological change affects a firm's existing capabilities.	Evolutionary perspective	Archival and survey data were collected for 1989–1991, using references to the terms lithotripsy or lithotripters in multiple data sources involving 63 cases of know-how acquisitions, for a population of 24 companies, 9 lithotripter manufacturers, and 15 suppliers.	Firms use equity-based interorganizational relationships to acquire know-how when technological change is encompassing. Firms use non-equity interorganizational relationships to acquire know-how when technological change is complementary. Firms use internal R&D to acquire know-how when technological change is incremental.
Parkhe (1993)	Examines the formation, maintenance and dissolution of interfirm alliances	Transaction cost and game theory	Method involved three phases: Phase 1, 342 firms identified from publicly available databases; Phase 2, development of an instrument to gather data on relevant variables based on pretest interviews; Phase 3, mail-based survey of 111 executives on interfirm alliances.	The performance of a strategic alliance is positively related to the length of the “shadow of the future” that is cast and is negatively related to the extent to which the parties perceive each other as behaving opportunistically. Perception of opportunistic behavior is negatively related to the history of cooperation between the partners in a strategic alliance and positively related to the level of contractual safeguards embedded in a strategic alliance. The level of commitment of nonrecoverable investments in a strategic alliance is negatively related to the perception of opportunistic behavior and is positively related to the length of time horizons. The commitment of nonrecoverable investments in a strategic alliance is positively related to performance. The extent of payoffs from unilateral cooperation is negatively related to the level of contractual safeguards embedded in a strategic alliance and to the length of the “shadow of the future” cast.
Powell et al. (1996)	How do networks of learning evolve in complex industries?	Social network theory	Data obtained using Bioscan for 1990–1994 on a sample of 225 firms involved in therapeutics and diagnostics.	The greater the (a) number of research and development alliances and (b) experience at managing R&D and other types of collaborations a firm has, the greater the number of non R&D collaborations it subsequently pursues and in turn the more diverse its future portfolio of ties will become. The greater (a) the number of R&D alliances, (b) the diversity of ties, and (c) the experience at managing R&D collaborations or other ties, the more centrally connected the firm subsequently becomes. The greater the firm's (a) centrality in a network of relationships and (b) experience at managing ties at a given time, the more rapid its subsequent growth. The greater a firm's centrality in a network of relationships, the greater its number of subsequent R&D collaborations.

Table 1 (Continued)

Study	Main question	Theoretical focus	Data	Proposals/findings
Reuer (2000)	What are the parent firm valuation effects of IJV formation and different types of IJV termination? How do the shareholder wealth effects of IJV formation and IJV termination relate to each other?	Process theory—life cycle stages of joint ventures	Data were collected from archival sources for a sample of 215 IJVs with US parent firms that terminated in 1985–1995.	Both IJV formation and IJV termination life-cycle states hold out opportunities for parent firms to create shareholder value. The valuation patterns of IJVs reveal the complexity of the relationships between IJV life-cycle stages and the performance implications for parent firms.
Roth (1995)	The article links international interdependence to the CEO's ability to extract returns from the international accumulation of resources, both tangible and intangible.	Resource-based view	Data were collected from archival sources and surveys of 74 CEOs of medium-sized companies from nine industries. Archival data were obtained on firm performance measures.	Greater internal locus of control on the part of a CEO, CEOs who are feeling types, and CEOs with international experience have a stronger positive effect on firm performance in the case of high international interdependence relative to low interdependence. A fit between international interdependence and CEO characteristics is positively related to firm performance.
Shenkar and Li (1999)	How does 'absorptive capacity' affect the relationship between knowledge possession and knowledge search among prospective international cooperative venture partners?	Organizational learning theory and absorptive capacity	Archival data were collected on 90 Chinese alliance partners seeking firms for the year 1988.	When selecting foreign partners, local firms are more likely to seek the transfer of knowledge that complements their existing knowledge base. When seeking foreign partners, local firms are likely to seek transfer of tacit or embedded knowledge via equity joint ventures rather than contractual ventures.
Simonin (1997)	Proposes a model of how firms learn from strategic alliances, suggesting that a firm's experience must first be converted to know-how before the knowledge can be used to improve performance.	Resource-based view	Data were collected from a survey of 151 executives of large and medium-sized US firms.	Firms with higher levels of collaborative know-how achieve higher levels of both tangible and intangible benefits. Firms with greater collaborative experience achieve higher levels of collaborative know-how.

Simonin (1999)	Proposes that knowledge-specific variables and partner-specific variables affect the process of knowledge transfer in strategic alliances.	Knowledge-based view	Data were collected from a cross-sectional survey of executives in 147 multinationals firms identified through archival sources.	Ambiguity is negatively related to knowledge transfer. Tacitness, complexity, cultural distance, and organizational distance are positively related to ambiguity. Experience is negatively related to ambiguity.
Stuart (2000)	The paper investigates the relationship between intercorporate technology alliances and firm performance.	Network and organizational learning theories	Archival data on patent citation data for horizontal alliances in the semiconductor industry were collected for 1985–1991 in 150 firms.	The greater the technological capabilities of a high-tech firm's alliance partners, the higher the firm's rate of innovation. The greater the revenues of a high-tech firm's alliance partners, the higher its rate of sales growth. The greater the technological innovativeness of a high-tech firm's alliance partners, the higher its rate of sales growth particularly if it is young or small. The combined sales volume of a high tech firm's alliance partners has a larger effect on the rate of sales growth of that firm if it is young or small.
Tsai and Ghoshal (1998)	How does social capital facilitate the internal functioning of the firm and help it to create value through innovation?	Social network theory	Data were collected in 1996 from survey responses of 45 managers in 15 business units of a large multinational electronics company.	The centrality of a business unit in interunit social interaction and the extent to which a business unit shares a vision with other units and with the total organization is positively associated with the level of its perceived trustworthiness. The centrality of a business unit in interunit social interaction and the level of its perceived trustworthiness is positively related to the extent of the unit's resource exchange and combination with other units in the organization. The business unit's resource exchange and combination with other units is positively related to the unit's level of product innovation.
Walker, Kogut and Shan (1997)	Examines network formation in terms of its structural development.	Social capital, social network and structural holes theories	Archival data were collected for 114 startup firms from the biotechnology industry that had cooperative agreements before 1989.	Social capital, as compared to the structural holes perspective, is a better predictor of cooperation over time for biotechnology firms. Firms with higher social capital are likely to have more relationships with new partners. The more relationships a firm has, the more likely its social capital will increase. The more a firm's social capital increases over a time period, the more relationships it should have during this time period.

Table 1 (Continued)

Study	Main question	Theoretical focus	Data	Proposals/findings
Young-Ybarra and Wiersema (1999)	Examines the two elements of strategic flexibility in alliances: the flexibility to modify the alliance and the flexibility to exit the alliance when the alliance is performing poorly.	Transaction cost economics and social exchange theory	The sample included 132 alliances from 1987-1994 where at least one of the alliance partners was US-based and in information technology and the alliance was a Joint Development Agreement or a Joint Research Pact.	Asset specificity is negatively related to the strategic flexibility of an alliance. Balanced asset specificity is positively related to the strategic flexibility of an alliance. The existence of hostage arrangements is positively related to the strategic flexibility of an alliance. Trust is positively related to the strategic flexibility of an alliance. Dependence is negatively related to the strategic flexibility of an alliance. The level and quality of communication between the partners in a strategic alliance is positively related to organizational level trust in the partner. The existence of shared values between the organizations is positively related to organizational level trust. Economic commitments in the form of balanced asset specificity are positively related to trust among partners. Economic commitments in the form of hostages are positively related to trust among partners. Dependence is negatively related to trust among partners.

Viewing strategic alliances as intermediate or hybrid governance structures, transaction cost theory is used to explain several characteristics of these configurations such as commitment and stability (Heide & John, 1990; Parkhe, 1993; Young-Ybarra & Wiersema, 1999). Alliance transaction costs include those concerned with negotiating and writing contingent contracts, monitoring partner performance relative to the contract and dealing with the breaches of contractual commitments (Gulati, 1995). The TCE argument suggests that alliances are more efficient than markets or hierarchies when they minimize the firm's transaction costs (Jarillo, 1988). Thus, successful alliances are the product of organizing a firm's boundary-spanning activities to minimize the sum of its transaction and production costs (Barringer & Harrison, 2000). Central to the TCE argument is the firm's ability to control alliance coordination costs, incurred in decomposing tasks among partners and coordinating actions through integrated decision networks and their associated communication patterns (Gulati, 1998; Gulati & Singh, 1998).

Social network theory suggests that the firm's strategic actions are affected by the social context in which they and the firm are embedded (Gulati, 1999). The firm's social context includes both direct and indirect ties with network actors (Ahuja, 2000a). Moreover, the context includes both interorganizational and intraorganizational resource relationships (Madhok & Tallman, 1998).

The resource-based perspective suggests that the firm is a collection of heterogeneous resources (tangible and intangible assets that are semi-permanently tied to the company) (Wernerfelt, 1984). Sustained resource heterogeneity is a potential source of competitive advantage (Das & Teng, 2000a). Indeed, competitive advantage may be a product of the firm's preferential access to its idiosyncratic resources, especially those that are tacit and knowledge-based (Dussauge, Garrette & Mitchell, 2000). The resource-based alliance formation argument suggests that firms use alliances to locate the optimal resource configuration in which the value of their resources is maximized relative to other possible combinations (Das & Teng, 2000a). Thus, alliances are used to develop a collection of value-creating resources that a firm cannot create independently.

Resource stocks accumulated across time influence strategic choices such as those made regarding alliance formation and implementation (Roth, 1995). Nonetheless, the process of trying to maximize the value of the firm's resources is fraught with ambiguity and uncertainty (Anand & Khanna, 2000). Typically, firms encounter uncertainties in their market, technological and competitive environments (Gomes-Casseres, 2000). A commitment between partners to learn to work together as well as to work to learn together when trying to maximize the value-creating potential of available resources diminishes an alliance's uncertainty (Inkpen, 2000). Critical to all theoretical arguments regarding strategic alliance formation are key decision makers' abilities to recognize opportunities and subsequently use firm resources to exploit them (Ireland & Miller, 2001).

The resource-based approach holds considerable promise for exploring the role of strategic alliances in gaining and maintaining competitive advantages. Furthermore, this approach provides an important base for understanding the effective management of alliances, a critical focus of this work. We explore the resource-based view of alliances next. In this analysis, we use the term *resource(s)* to refer to all assets, capabilities, processes, information and knowledge controlled by the firm enabling it to select and use strategies that enhance organizational efficiency and effectiveness. As noted by Barney (1991, p. 101), "... firm



resources are strengths that firms can use to conceive of and implement their strategies,” including those involving strategic alliances.

### Strategic Alliances and Resources

As we have noted, transaction cost theory is one of the traditional explanations of alliance formation (Hennart, 1988, 1991; Williamson, 1991). However, while the costs of strategic alliances are important, their benefits are now receiving increasing emphasis. One of the primary benefits of alliances is the access to previously unavailable resources and the joint development of new resources through the alliance. As such, alliances have been examined as a means for developing and exploiting the firm’s resource base (Tsang, 2000).

The resource-based view suggests that differences in firm performance are related to variances in firms’ resources. Valuable, rare, and imperfectly imitable resources form the basis for competitive advantages, which lead to positive abnormal returns (Amit & Schoemaker, 1993; Barney, 1991).

To develop and exploit a competitive advantage, firms must possess resources that can be used to create inimitable and rare value for customers. The increasing complexity of markets, because of accelerating and rapid globalization, make it difficult for firms to have all of the resources necessary to compete effectively in many markets (Ariño & de la Torre, 1998). Indeed, in some settings, especially fast-cycle markets, firms acting independently rarely have the resources needed for competitive parity, much less competitive advantage.

Eisenhardt and Schoonhoven (1996) suggest that the resource-based view can help us understand the formation and management of alliances. Alliances provide access to information, resources, technology and markets (Hitt, Ireland, Camp & Sexton, 2001d; Ireland, Hitt, Camp & Sexton, 2001a). Information and technology as well as special access to a market can all be considered resources. Some argue that access to resources is the primary reason for alliances. For example, Glaister and Buckley (1996) found that access to complementary resources rather than the sharing of risks and development of economies of scale were the primary reasons firms form alliances. They also found that learning and dynamic benefits provided additional motivation to form alliances. Experimental learning, which generates unique, new knowledge is the target of alliance formation and use (Lei et al., 1996; Zahra, Nielsen & Bogner, 1999). Thus, at least partly through learning, alliances help firms overcome limitations in their own resource set (e.g., competence limitations) and extend the application of their core competencies to achieve competitive advantages (Hagedoorn, 1995; Mitchell & Singh, 1996). Moreover, alliances contribute to preventing competencies from becoming core rigidities, which constrain the firm’s competitive ability (Floyd & Wooldridge, 1999; Leonard-Barton, 1992). Thus, firms seek to establish a resource bundle through alliances that is valuable, rare, and difficult to imitate (Gulati, Nohria & Zaheer, 2000). A resource bundle might include, for example, the integration of cutting edge technological resources held by one partner with another firm’s complementary resources such as access to and knowledge of specific markets (Stuart, 2000).

Das and Teng (2000a) proposed that pooling of resources can produce substantial benefits for alliance partners. Complementary to this work, Das and Teng (1998) suggested that partners bring at least four categories of potentially important resources—financial, tech-

nological, physical and managerial—to an alliance. In addition, firms bring social capital from their network of relationships with other firms.

### Social Capital

Social capital is an important but often overlooked component of successful strategic alliances. Social capital refers to a firm's relationships with other companies that have important resources. Trust is the foundation through which social capital can be leveraged to achieve alliance success.

Commonly, effective social capital is a product of relationships that have developed through long-term interactions between firms. Although social capital is a public good or organizational resource, it is built through networks of personal relationships. In strategic alliances, social capital develops as partner firm representatives interact with each other. Thus, it is sometimes referred to as relational capital and is a characteristic of each unique partnership rather than of individual firms (Kale, Singh & Perlmutter, 2000). Social capital can serve as a basis for alliance formation. For example, relationships with other prominent firms provide a potentially valuable resource. Thus, firms may seek partners with significant social capital to gain access to the network's resources (Chung, Singh & Lee, 2000). Greater diversity in terms of with whom partners form alliances creates more social capital (Baker, 2000). In addition, evidence suggests that alliance success is a function of the quality of relationships between partners (Glaister & Buckley, 1999).

Relationships based on mutual trust and interactions between representatives of partner firms tend to produce social capital (Kale et al., 2000). Trusting relationships are the basis for managing alliances to maximize their potential value. For example, Tsai and Ghoshal (1998) found that social capital was positively related to the extent of resource exchange between organizations. Thus, social capital is a resource that attracts some firms seeking access to the resource base of firms' networks. For example, social capital provides exposure to a greater reservoir of resources that could be used to develop new technology. Ahuja (2000b) found that social capital in alliances increased the probability of producing radical technological breakthroughs.

Social capital also increases the probability of strategic alliance success because of the trust and willingness to share resources among partners. The willingness to share resources may be necessary to ensure that both partners gain from the alliance (Hitt et al., 2000a). Research has found that Chinese firms seek partners that have social capital, largely because those firms' broad experiences were seen as indicators that they were likely to be effective, trustworthy partners (Hitt et al., 2001a). Leaders in Chinese companies viewed a firm's previous success as evidence of alliance-specific knowledge and trustworthiness.

As noted earlier, firms seek to leverage their resources through alliances to achieve a competitive advantage. They do so by seeking partners with resources that are complementary to their own.

### Complementary Resources

Frequently, firms search for partners with resources they lack (Gulati et al., 2000). Thus, a firm's resource profile plays an important role in alliance formation (Stuart, 2000). In

particular, firms search for partners having specialized resources that aren't readily available from others (Doh, 2000). Specialized resources can involve management teams with significant and specialized experience (McGee, Dowling & Megginson, 1995) or unique technological know-how (Nagarajan & Mitchell, 1998). For example, Stuart (2000) found that large firms with leading technologies were considered highly valuable partners, particularly for younger and smaller firms often without the resources that could allow them access to such technology. Additionally, firms from emerging markets with lower access to technology use technological capabilities as a primary partner selection criterion (Hitt et al., 2000a).

Harrison, Hitt, Hoskisson and Ireland (1991) argued that firms acquiring other companies with highly similar resources would not perform as well as firms acquiring targets with dissimilar, yet complementary resources. Their results supported this general proposition. In short, highly similar resources provide the opportunity to gain economies of scale, but allow firms to primarily exploit existing competitive advantages (Ireland & Miller, 2001). However, different but complementary resources make it possible to gain economies of scope, create synergies and develop new resources and subsequent skills (Hitt, Harrison & Ireland, 2001c). Therefore, resource complementarities can be used to develop new competitive advantages (Ireland et al., 2001b; March, 1991). Madhok and Tallman (1998) argued that alliances where partners have the potential to create synergy by integrating complementary resources have the highest probability of producing value.

Hitt et al. (2000a) found that complementary capabilities represented one of the most important criteria used to select strategic alliance partners. This criterion was important for partner selection in both larger firms from developed and more resource rich countries and in smaller firms from less resource rich emerging economy countries. However, in other cases, a firm seeks partners with different yet important capabilities that can be learned (e.g., technological know-how). Firms can lose a competitive advantage if their existing capabilities, such as technological know-how, become obsolete (Afuah, 2000). In these instances, companies seek access to newer technological know-how to use or even to learn. Firms' resource needs evolve over time as their environment and the competitive landscape in which they compete changes (Hite & Hesterly, 2001). Changing resource needs results in firms trying to continuously learn new capabilities to remain competitive (Lei et al., 1996; Teece, Pisano & Shuen, 1997). Effective alliances facilitate learning through access to new resources as well as unique combinations of current ones.

### **Learning New Capabilities and Knowledge Transfer in Alliances**

Often, firms form alliances to strengthen or extend resources that in turn sustain current competitive advantages or help develop new advantages (Kumar & Nti, 1998). Searching for access to new resources or know-how through alliances, firms carefully select partners with needed resource profiles and learn by intensifying their relationships with them (Jones, Hesterly, Fladmoe-Lindquist & Borgatti, 1998). In this way, alliances can simultaneously prevent organizational inertia while promoting environmental adaptation (Doz, 1996). Kraatz's (1998) results support this assertion; he found that alliances provide firms with access to information and knowledge that contribute to superior adaptation to their competitive environments.

### *Learning from Alliances*

Research suggests that alliances based on complementary resources (e.g., link alliances) contribute more strongly to firm learning than do alliances created to develop economies of scale (scale alliances). Because resource complementarity results in less overlap between partners' knowledge sets, more significant opportunities surface to learn new capabilities (Dussauge et al., 2000). Furthermore, research shows that younger startup firms greatly benefit from effective alliances, partly because of the enhanced opportunities to learn capabilities (Baum, Calabrese & Silverman, 2000).

Alliances can produce several forms of learning, including understanding how to manage alliances to achieve desired goals (Doz, 1996). Furthermore, firms participating in international strategic alliances can learn how to create value by competing across national boundaries and in foreign markets (Barkema, Shenkar, Vermeulen & Bell, 1997).

Not all characteristics of alliance learning are positive, however. Hamel (1991) argued that alliances yield opportunities for learning races between partners. The partner who first learns the desired capabilities can then dissolve the alliance even if the other partner has not completed learning the desired know-how. Hamel (1991) also expressed concerns about firms that enter alliances primarily to learn a partner's capabilities in order to become a competitor. To prevent this type of capability appropriation, Larsson, Bengtsson, Henriksson and Sparks (1998) suggested that partners must be aware of, plan for and manage with the intention of achieving collective learning. Hitt et al. (2000a) argued that more successful alliances involved partners that cared about each other's learning. These firms realize that alliance success is a product of both partners achieving their goals. Makhija and Ganesh (1997) also found that learning can change the original relationship among alliance partners. Partner firms oftentimes have unequal abilities to learn, resulting in differential rates and amounts of learning. As firms learn, the partner relationship may be reconfigured. Inkpen and Beamish (1997) argued that a firm's motivation and need for an alliance is reduced after reaching its learning objectives. In some cases, this may lead to less cooperation and even alliance dissolution.

While learning has many potential benefits including enhanced knowledge and capabilities and the creation of new resources (Khanna, Gulati & Nohria, 1998), there are learning barriers as well. For example, Barkema, Bell and Pennings (1996) identified cultural barriers to learning. The more distant the culture of the partner firms in international strategic alliances, the more difficulty in learning they are likely to have. Another potential barrier to learning is a firm's absorptive capacity (Cohen & Levinthal, 1990). While alliances often allow firms to get close enough even to learn tacit knowledge (Lane & Lubatkin, 1998), each firm must have the capacity to learn the know-how of the other (Tsai, 2001). Thus, partners learn from each other only when their knowledge bases are at least somewhat similar.

The need to unlearn past practices is another potential barrier to learning (Inkpen & Beamish, 1997). Ingrained (institutionalized) practices can lead to inertia and must be unlearned in order to learn new ones that replace them. Similarly, learning can become path dependent. Because of absorptive capacities based on certain types of knowledge, firms tend to learn new knowledge that is similar to what is currently known. In this way, boundaries

exist to what can be learned (Powell, Koput & Smith-Doerr, 1996). To learn something totally new may require such actions as importing new personnel and placing them in key positions to become change agents and transfer their knowledge.

While it may be difficult, learning is an important outcome from alliances. Learning new capabilities may help firms implement strategies that lead to improved performance (Hitt, Bierman, Shimizu & Kochhar, 2001b). Makhija and Ganesh (1997) suggest that even though learning may not be the primary reason to create an alliance, it is likely an important factor in overall alliance success.

Learning implies enrichment of a firm's knowledge base. Therefore, we next examine knowledge development and transfer in alliances.

### *Knowledge Transfer in Alliances*

Grounded at least partly in values as well experience and its subsequent insights, organizational knowledge is context-rich, relevant information (Davenport & Prusak, 1998; Leonard & Sensiper, 1998; Swap, Leonard, Shields & Abrams, 2001). Organizational knowledge (hereafter called knowledge) is vital to competitive success, because firms that know more about their customers, competitors, suppliers and themselves often develop more sustainable competitive advantages (Grant, 1996). Socially constructed by organizational actors, knowledge can be stored, measured, and moved throughout an organization's different configurations, including its strategic alliances (Empson, 1999; Tsai, 2001). Research has shown that firms with higher levels of knowledge, as embedded in their human capital, outperform competitors (Hitt et al., 2001b). Because of this, knowledge acquisition and management is quite important (Hitt, Ireland & Lee, 2000b), in that the knowledge of a firm's employees and the knowledge that is subsequently built through it may be the most enduring source of competitive advantage, especially in complex competitive environments (Birkinshaw, 2001).

The typical knowledge transfer in alliances is between mutually interdependent partners trying to pursue opportunities and solve problems (Inkpen, 2001). However, when partners establish an independent joint venture, they each must transfer knowledge to the venture if it is to be successful. Because each partner has an equity position, both have incentives and motivation to quickly transfer the knowledge for venture success. Mowery, Oxley and Silverman's (1996) finding that equity arrangements promote more knowledge transfer supports this position. Still, the JV's absorptive capacity affects the amount of knowledge that can be successfully transferred. If partners infused the appropriate human capital with adequate knowledge, the JV's absorptive capacity should be significant, perhaps greater than either of the partners' individual absorptive capacity alone. This is because the knowledge base for the JV comes from both (or all) partners, creating a broader capacity than the specialized capacities of each partner.

The nature of knowledge also can affect its transfer. For example, explicit knowledge is much easier to transfer than tacit knowledge. In general, increases in knowledge ambiguity make knowledge transfer more difficult (Simonin, 1999). Additionally, structural mechanisms (e.g., training, internal consulting and assistance) affect the degree of knowledge transfer (Lyles & Salk, 1996). Lam (1997) found that knowledge structures and work systems were important for knowledge transfer and collaborative venture success.

Some alliances are formed to create new knowledge rather than to transfer existing knowledge between partners. The reason for this is that knowledge creation is an important source of competitive advantage in many increasingly globalized markets (Inkpen & Dinur, 1998). Often, a firm's absorptive capacity must be enhanced in order to fully exploit the value-creating potential of new knowledge (Shenkar & Li, 1999). Lorenzoni and Lipparini (1999) argue that the ability to integrate knowledge from inside (e.g., from a JV) or outside a firm's boundaries (e.g., from an alliance partner) is a distinctive organizational capability.

These arguments suggest that the management of alliances to gain access to and integrate complementary resources may be critically important to alliance success. Furthermore, the management of the learning process in alliances to acquire new capabilities and to transfer or create new knowledge may have substantial effects on the sustainability of competitive advantages resulting from alliance actions.

We have argued that strategic alliances are an important option to obtain and/or develop resources, knowledge and subsequent skills that are needed to compete successfully in an increasingly challenging and difficult competitive environment. However, management practices affect alliance success, as measured by the degree to which partner expectations are met and firms' performances improve. In fact, across time, the stream of decisions managers make regarding alliances influences an organization's structure and its ability to succeed (Bourgeois, 1984; Korsgaard, Schweiger & Sapienza, 1995). Thus, superior alliance management practices can be a competitive advantage for the firm. We begin the discussion of this topic by describing the challenges of effective alliance management.

### Challenges in Developing Effective Alliances

Although popular and embedded with significant value-creating potential, alliances often fail (Barringer & Harrison, 2000). The cost of failure can be substantial. A number of factors, including the inherent conflict resulting from goal divergence, partner opportunism and cultural differences contribute to alliance failure (Doz, 1996; Kale et al., 2000). Opportunistic behavior, for example, is costly and difficult to control, undermining an alliance when it surfaces (Das & Teng, 2000b; Williamson, 1985). Learning races often lead to opportunistic behaviors. A moral hazard, a learning race exists when a firm's primary motive is to quickly learn (acquire) a partner's skills and then underinvest in the alliance after achieving its learning objectives (Alvarez & Barney, 2001b; Hamel, 1991; Khanna et al., 1998).

Improper partner selection, the failure of anticipated synergies to emerge and variances in expectations about the value that can be created, also make alliance management difficult as do asymmetrical alliance objectives and an expectation of learning through private benefits (Inkpen, 2000; Kale et al., 2000; Khanna et al., 1998; Levine & Byrne, 1986; Spekman et al., 1998). Private benefits "... are those that a firm can learn unilaterally by picking up skills from its partner and applying them to its own operations in areas unrelated to the alliance activities" (Khanna et al., 1998, p. 195). In contrast to private benefits, common benefits accrue collectively to all alliance participants (Khanna, 1998). Hitt, Dacin, Tyler and Park (1997) argued that selecting a partner with a strategic intent conflicting with its own likely will lead to alliance failure. Research also shows that different expectations can lead to



either major changes or dissolutions that are unplanned by one or more partners (Das & Teng, 2000b; Inkpen & Beamish, 1997).

Alliance risks can lead to subsequent instabilities (Tiessen & Linton, 2000). There are at least two types of alliance risks—relational and performance (Das & Teng, 2001). Relational risk is concerned with the probability and consequent actions when a partner does not appropriately commit to an alliance and fails to behave as expected. Thus, relational risk denotes decision makers' concerns regarding the level of cooperation between partners. Opportunistic behaviors that are oriented to the individual firm's benefit rather than to the good of the alliance demonstrate relational risk. Performance risk regards the factors that may impede achieving alliance objectives. Relational risk is internally oriented and is influenced in part by how each partner allocates and manages the resources it commits to an alliance. In contrast, performance risk is externally focused. Relational risk is associated with the relationship between partners; performance risk is grounded in the interactions of alliance partners with the external environment. Finally, performance risk is common to all strategic decisions while relational risk is idiosyncratic to individual strategic alliances (Das & Teng, 1996, 2000a, 2001). Alliance managers can have a much broader and deeper effect on relational risk, primarily by carefully managing the firm's social capital.

Ensuring cooperation and avoiding competition between partners is a major alliance management challenge (Arino, 2001). Oriented to solving problems with the intent of creating value, cooperative behavior is integrative. Effective cooperative behavior has a positive effect on performance (Smith, Carroll & Ashford, 1995).

In contrast to cooperative behavior, competitive behavior is distributive and harms value (Tiessen & Linton, 2000; Walton & McKersie, 1965). Thus, competitive behavior results in the firm pursuing its own interests at the expense of others while cooperative behavior involves the pursuit of mutual interests (Das & Teng, 2000a). Competitive partner behavior presents a substantial challenge to the other partner's managers and can lead to a potential failure of the alliance. The challenge to managers is to convince the partner to pursue mutually beneficial objectives rather than attempting to gain a larger portion of the alliance benefits (Yoshino & Rangan, 1995).

Developing trust between partners is a challenge in many alliances. Trust can be especially important in international strategic alliances. However, cultural, economic, and institutional differences across countries increase the difficulty of developing trust between partners with home bases in separate countries (Hitt et al., 2000a, 2001a). Developing trust in these cases is necessary to gain full cooperation and for resource transfers between partners or to the joint venture to occur. Managing alliances in ways that create trust can lead to competitive advantage (Barney & Hansen, 1994).

### **Alliance Management and Competitive Advantage**

Strategic alliances' value-creating potential makes them an important source of competitive advantage (Das & Teng, 2001; Larsson et al., 1998). The firm that can effectively cope with environmental uncertainty and ambiguity, proactively reposition in competitive markets and minimize transaction costs through strategic alliances increases the probability of maintaining competitive advantages. Beyond this, alliances are an important value-creating

option in markets that are more efficient because of the increasing symmetry of information flows between firms and their suppliers and customers (Oliva, 2001).

Alliance management is an ill-defined, complex process (Callahan & MacKenzie, 1999). In addition, the ability to effectively manage alliances remains asymmetrically distributed across organizations. As Anand and Khanna (2000, p. 296) note, “. . . if the ambiguities involved with managing alliances were perfectly specifiable, it is unlikely that interfirm differences in the ability to create value through alliances would persist.” Thus, from a value-creating perspective, the asymmetric distribution of alliance managerial skills encourages firms to exploit them as a source of competitive advantage. Indeed, Dyer et al. (2001) found that an ability to form and manage alliances more effectively than competitors is an important source of competitive advantage. For individual alliance managers, this happens when they learn how to broker alliance relationships such that partners develop and transfer knowledge that facilitates the pursuit of commercial opportunities (Dess & Shaw, 2001).

From a transaction cost perspective, the management of alliances creates value when it is more efficient than alternative organizational hierarchies or the market. Effective alliance management reduces coordination and integration costs relative to those associated with the use of other transaction mechanisms to form alliances. In addition, superior alliance management reduces the cost of residual uncertainty—the uncertainty remaining after appropriate analyses have been completed when forming and using an alliance (Courtney, Kirkland & Viguerie, 2000).

### **A Dedicated Alliance Management Function**

Dyer et al.’s (2001) results showed that the firms that systematically created more value from alliances than did others had a dedicated strategic alliance function. Indeed, firms with the dedicated function achieved a 25% higher long-term success rate with alliances than firms without the function.

The mandate for a dedicated alliance management function is broad, as shown by Dyer et al.’s (2001, p. 38) call for it to, “. . . coordinate all alliance-related activity within the organization and (to institutionalize) processes and systems to teach, share, and leverage prior alliance-management experience and know-how throughout the company.” As the head of the function, the chief alliance manager (who should hold a prominent position reporting to the top management team) occupies the most central position in the firm’s network of alliances and is responsible for its success (Gnyawali & Madhavan, 2001). Thus, evidence suggests that alliance management transaction costs without a dedicated function exceed those experienced by firms relying on the function as the focal point for leveraging knowledge and lessons acquired from previous alliance experiences (Dyer et al., 2001; Spekman et al., 1998; Yoshino & Rangan, 1995).

### **Alliance Management as the Foundation for Social Capital and Knowledge**

Organizations are social institutions, meaning that they draw value from their people and through an ability to successfully harness, categorize, and apply those individuals’



knowledge for commercial purposes. In turn, people benefit from growth and development accompanying their work as well as the remuneration for it. In the 21st century's complex competitive environment, the knowledge developed in organizations through this mutually beneficial, reciprocal relationship is one of the few resources that can be an enduring source of competitive advantage (Birkinshaw, 2001). Long-term mutually beneficial relationships of this type create organizations that are repositories of competitively valuable knowledge (Tsai, 2001). This knowledge is as or more important to sustainable earnings than is financial capital (Earl, 2001). Thus, alliance success is largely a function of how effectively and efficiently partners develop, transfer, integrate, and apply knowledge.

Encouraging alliance partners to work together, sharing their knowledge in the process of doing so, and developing systems to codify existing and new knowledge to support future alliance activities are alliance managerial tasks. Knowledge transfers facilitate mutual learning and partner cooperation that stimulate the development of new knowledge. However, to do so, partners must have the capacity to absorb inputs through which new knowledge is created. Moreover, evidence suggests that high absorptive capacity is associated with more successful applications of new knowledge toward commercial ends (Tsai, 2001).

Using alliance management routines to complete these tasks in a competitively superior manner contributes to a competitive advantage. Alliance management routines demonstrate the essence of what Prahalad and Bettis (1986) call a dominant logic. Drawing from their work and Lampel and Shamsie's (2000) extension of it, we argue that alliance management routines reveal a managerial logic that governs alliance-related decision-making processes throughout the firm. These routines represent a shared belief about how activities, such as selecting and managing the firm's alliance portfolio, should be accomplished. Across time, alliance management routines often become part of the firm's administrative heritage (Lubatkin, Calori, Very & Veiga, 1998). These routines should be focused on key dimensions of alliances such as knowledge management, establishing cooperation, and ensuring accountability (Dyer et al., 2001).

We next discuss activities involved with alliance management routines. Following this is a description of the relationship among trust, alliance management and alliance success.

### Alliance Management Activities

A number of activities are linked with alliance management routines that create a competitive advantage and subsequent value (Doz & Hamel, 1998). Determining an alliance's scope is one of the most comprehensive and critical activities. Decisions regarding product categories, brands, geographic boundaries, technologies to be shared, and the ownership and application of both tangible and intangible assets created through an alliance help shape the alliance's scope (Khanna, 1998).

Following the determination that an alliance is desired (necessary) and its scope, an appropriate alliance partner must be selected (Hitt et al., 1997, 2000a, 2001a). As implied above, the wrong partner can condemn a potentially valuable cooperative arrangement. Partners must have compatible strategic intents (Hitt et al., 1997). Additionally, they should have complementary resources and allow each partner to leverage its current resource base through the alliance (Hitt et al., 2001a). Hopefully, the alliance presents both partners the

opportunity to learn new capabilities. Opportunities to learn require that firms be willing to share their knowledge with partners (Hitt et al., 2000a). After the partner is selected, the partners must jointly develop a governance structure (Barringer & Harrison, 2000; Gulati, 1998).

The ambiguity and uncertainty created by an alliance's cooperate/compete tension suggests that optimal governance evolves across time and through partner interactions. A willingness to accommodate a partner's needs when it does not disadvantage the firm is facilitated by effective governance mechanisms. Highly bureaucratized alliance governance structures stifle these desirable mutual accommodations.

Effective governance also is influenced by how partners manage intra- and interfirm information flows. The challenge for the individual firm is to manage the outflow of competitively relevant information to its partner to support the alliance and facilitate inter-partner learning while simultaneously protecting proprietary knowledge (Hutt et al., 2000; Yoshino & Rangan, 1995). Thus, alliance managers should understand each partner's learning intent, or the extent to which a firm's objective is to learn from its alliance partners (Hamel, 1991). Effective management of information flows permits required knowledge sharing while preventing partner appropriation of knowledge (Baughn, Stevens, Denekamp & Osborn, 1997). Appropriate organizational controls (e.g., integrating mechanisms, socialization of managers, and use of interest-aligning incentive plans) support the management of information flows to satisfy the needs of the alliance as well as those of its individual partners (Geringer & Herbert, 1989; Kumar & Seth, 1998). Effective management of information flows includes decisions regarding: (1) the locus point through which a partner's information and knowledge-based inquiries are to be channeled for analysis and subsequent action; (2) the staffing of the locus point to verify that personnel possess the skills needed to disseminate information while simultaneously protecting competitively sensitive knowledge; and (3) the procedures for monitoring information flows (Baughn et al., 1997).

Additionally, it is important to maintain or achieve alignment or fit between alliance partners (Douma, Bilderbeek, Idenburg & Looise, 2000). This fit should be formed in three contexts—strategic, relational, and operational. The alliance manager is expected to verify that resources are allocated in a manner that satisfies all three fit requirements. Strategic (and organizational) fit is the purview of top managers. Issues requiring attention include: (1) specifying alliance objectives that meet all partners' needs and expectations; (2) assessing the degree of similarity in terms of the alliance's importance to each partner; (3) analyzing the degree to which alliance outcomes can be expected to create value for targeted market segments; (4) determining the anticipated response to the alliance by stakeholders (e.g., governments, competitors and capital markets); (5) evaluating the similarities and differences in the partners' organizational structures; and (6) specifying how alliance conflicts regarding strategic issues are to be handled. In general terms, strategic fit is concerned with an alliance's potential.

Relational and operational fit issues flow from those associated with strategic fit. Effective alliance management requires integration of partners' cultures and the skills of the human capital involved with an alliance. Superior negotiating skills are important for alliance managers in achieving effective integration. Additionally, at a minimum, alliance managers must involve parent firm managers in decisions about the roles of each partner in an alliance. Without these discussions, the firm's operating managers lack the clarity of direction needed to properly support the alliance.

Armed with an understanding of an alliance's goals as well as the activities that are to be pursued to reach them, operational managers concentrate primarily on task efficiency and process innovations. Collectively, to contribute to alliance success and be a source of competitive advantage, managers at all levels must work together to (1) find ways to balance their interests with those of their counterparts in partner firms, and (2) learn how to effectively manage the tension between cooperation and competition (Douma et al., 2000). Managing this tension requires understanding of the norm of reciprocity.

Understanding the norm of reciprocity provides the basis for a theory of cooperation (Axelrod & Dion, 1988). Gouldner (1960) argued that the reciprocity norm is the basis of stable relationships. The norm calls for parties to help rather than harm those whose actions have benefited them. However, the reciprocity norm also suggests that parties should respond in kind to those damaging their interests, and thus an alliance partner's exploitation of the focal firm's cooperative behavior should not be tolerated (Komorita, Hilty & Parks, 1991). Effective alliance management requires infusion of the reciprocity norm in the alliance and gaining partners' commitment to it.

### Trust and Alliance Success

A psychological state, trust is a willingness to accept vulnerability based upon positive expectations of partner behavior (Hutt et al., 2000). Predictability, dependability, and faith are three key components of trust (Andaleeb, 1992; Sivadas & Dwyer, 2000). When trust exists, the firm does not fear its partner's actions (Deutsch, 1973; McAlister, 1995), because the partners can depend on each other to achieve a common purpose (Gerhard & Odenthal, 2001). In an alliance context, trust suggests that a partner's actions will meet expectations, including the absence of opportunistic behavior. Thus, trust empowers partners to accept risks and positively affects the quality of their relationships. Moreover, trust facilitates strategic flexibility, an important outcome of effective alliances (Young-Ybarra & Wiersema, 1999). Trust strongly influences alliance performance. Kanter (1994) reported trust to be a key element of alliance success for almost 40 companies competing in 11 countries while Sherman (1994) cited a lack of trust to be a major cause of alliance failure.

A common element in both transaction cost theory and social exchange theory (Young-Ybarra & Wiersema, 1999), trust is also a vital aspect of social capital (Cullen, Johnson & Sakano, 2000; Dess & Shaw, 2001). Social exchange theorists argue that trust evolves from past experiences and current interactions. An important organizational resource, trust can be a product of reputation or the similarity of partners' value sets. The open and regular communications between partners that are a defining characteristic of trust-based relationships (Hutt et al., 2000) contribute to the evolution of cooperative behavior (Volery & Mensik, 1998).

Because of its importance, alliance managers' should work to establish trust when forming alliances. Selecting a partner with trust as an expectation, being willing to gradually, yet continuously reveal the firm's strategic goals for the alliance as partners do the same and demonstrating patience when expecting partners to become trustworthy are important actions (Cullen et al., 2000). In the final analysis, effective communications and the forming of an alliance team with members whose actions demonstrate integrity engender trust by

partners (Hutt et al., 2000). Firms with strong social capital are likely to choose partners with whom they have a bond of trust prior to the alliance. Often, the trust is a product of previous alliance experiences that were positive and successful.

Tacit, rather than explicit is the most valuable type of knowledge used in alliances. Indeed, tacit knowledge is a strong stimulus of achieving competitive advantage by integrating complementary resources (Harrison et al., 2001). Embedded in people's minds and difficult to manage, effectively shared tacit knowledge deepens alliance relationships, encouraging people to constantly seek new knowledge as a result (Hauschild, Licht & Stein, 2001). Tacit knowledge is more successfully shared and used when the alliance is built on trust.

Along with communication and coordination, trust is a component of a "cooperative competency" (Sivadas & Dwyer, 2000). Alliance managers able to facilitate effective communication (appropriate and timely sharing of meaning) and coordination (clear specification of roles and execution of behavior with minimal redundancy) shape alliances in ways that foster trust (Sivadas & Dwyer, 2000). The alliance manager whose work leads to the formation of a cooperative competency is a firm-specific, valuable resource that has become a competitive advantage.

## Conclusion

Even though their failure rate is high, the number of alliances being formed is growing because they have the potential to create value. Recent results show that more than 80% of surveyed top-level managers view strategic alliances as a primary growth vehicle and expect alliances to account for 25% of their company's market value by 2005 (Schifrin, 2001b).

Strategic alliances can create two types of competitive advantages. The first one results from a successful collaboration in which complementary resources are integrated to create value. Creating value by effectively managing the firm's portfolio of alliances is the second-alliance related competitive advantage. In the second instance, the firm creates value by more effectively developing an alliance portfolio and leveraging resources through it (Makadok, 2001). Therefore, firms can create value by learning how to successfully manage strategic alliances. When a company's alliance management skills are superior to competitors', a competitive advantage has been developed.

A number of capabilities contribute to competitively superior alliance management skills, including the managerial ability to balance the tension between the need to learn or acquire knowledge from partners while simultaneously preventing appropriation of the firm's unique, idiosyncratic knowledge and capabilities that if revealed or lost, could damage its competitiveness (Kale et al., 2000). A mindset with an awareness of cultural differences, particularly those that surface when alliances involve partners from other nations, world regions or economic environments facilitates adaptation that engenders active learning and effective negotiations (Khosla, 2001). Astute managers also envision strategic alliances as a means through which the firm can continuously learn to adapt and upgrade its performance capabilities (Dyer & Nobeoka, 2000). Determining an alliance's scope is a critical managerial skill as is the ability to help the firm internalize learning from previous alliance experiences (Khanna, 1998; Simonin, 1997). When searching for partners, alliance managers should

assess characteristics, including the target's reputation in alliances, partnering skills and technological assets. Developing a foundation that is acceptable to all partners, building effective interpersonal ties, establishing governance mechanisms to monitor and control the alliance and managing information flows to the benefit of all parties are critical actions alliance managers should master (Hutt et al., 2000).

Even though it has received scant scholarly attention, we conclude that alliance management is a potential source of competitive advantage. Our purpose herein has been to theoretically examine alliances and their value-creating management. Hopefully, our arguments will encourage analyses of conditions in which alliance management leads to a competitive advantage. Additional work in this area could have important implications for the research literature and managerial practice.

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