

# The role of knowledge embeddedness in the creation of synergies in strategic alliances

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## Abstract

This paper develops a conceptual model, based on a structural equation approach, for empirically investigating the role played by relational embeddedness in the process of creation of synergies of knowledge-related capabilities in strategic alliances (SAs). The theoretical model identifies an underlying latent construct; knowledge embeddedness and its antecedents: complementarity, compatibility, tacitness, trust, protectiveness, and coordination, which needs to be explicitly recognized and integrated in the theory of creation of synergies in SAs. While the individual importance of most of these variables has long been recognized in both SA and social exchange literature, their simultaneous effects have thus far been ignored. Embeddedness is hypothesized to be a full mediator of these effects on creation of synergies. Furthermore, absorptive capacity, network capacity, and collaborative know-how are proposed to moderate these effects.

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## 1. Introduction

Recognizing the role of knowledge and knowledge-related capabilities as a critical source of resource development of the firm, effective management of knowledge can be considered one of the main sources of competitive advantage for corporations (Grant, 1996). Hence, researchers have lately begun to explore issues related to management of knowledge in collaborative arrangements (e.g., Inkpen, 1997; Contractor and Ra, 2002). The majority of this research has adopted an organizational learning perspective: assuming knowledge to be conducive to the formation of alliances and the goal of alliances to be acquisition, transfer, and absorption of complementary knowledge (e.g., Hitt et al., 2000; Lyles and Salk, 1996). Lately, some researchers have been preoccupied with mechanisms for reciprocal learning and the role of knowledge management as a determinant of alliance evolution (e.g., Kale et al., 2000; Arinõ and de la Torre, 1998).

Missing, however, in this literature is attention to creation of synergies of knowledge and the process of embedding knowledge within the interfirm relationship. Table 1 provides an overview of the focus of recent research pertaining to knowledge and alliances. See also Nielsen (in press) for an overview of the evolution of knowledge management research.

Prior strategic alliance (SA) research has articulated a linkage between interpartner “fit” and venture performance; however, fit has been postulated using different notions, such as strategic symmetry (Harrigan, 1988), interfirm diversity (Parkhe, 1991), match of partner characteristics (Geringer, 1988), or interpartner compatibility/complementarity (Beamish, 1988; Hill and Hellriegel, 1994). The result of this operational confusion (for a thorough discussion of the concept of fit in strategy research, see Venkatraman, 1989) has led to a lack of consistency in empirical findings. Building on prior research, this paper attempts to reconcile these differences and propose a theoretical distinction between predictors of knowledge embeddedness. Moreover, the paper proposes knowledge embeddedness to act as a significant intervening mecha-

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Table 1  
Knowledge and SAs

Key focus	Representative research
(1) Knowledge as source of competitive advantage—main focus on the role of effective management of interfirm knowledge.	Anand and Khanna (2000), Grant and Baden-Fuller (2002)
(2) Knowledge (complementary) as conducive to alliance formation—main focus on motives and partner selection.	Beamish (1988), Geringer (1988), Hitt et al. (2000)
(3) Knowledge creation—main focus on how to learn from the partner by gaining access to skills/resources that the focal firm does not possess. Central issue is acquisition of complementary knowledge and the mechanisms by which knowledge is transferred, including barriers to knowledge transfer, such as ambiguity and protectiveness.	Grant (1996), Harrigan (1985), Balakrishnan and Koza (1993), Mowery et al. (1996), Kale et al. (2000), Zander and Kogut (1995), Simonin (1999)
(4) Knowledge absorption—main focus on the capacity of the organization to internalize the knowledge transferred to it. Absorptive capacity is positively related to learning and is considered primary origin of “knowledge stickiness”.	Cohen and Levinthal (1990), Szulanski (1996), Lyles and Salk (1996)
(5) Collaborative knowledge—main focus on developing skills and know-how useful in future alliances. Knowledge about collaboration per se determines alliance outcome.	Simonin (1997), Gulati (1999), Gupta and Misra (2000), Powell et al. (1996)
(6) Knowledge as determinant of alliance evolution—main focus on how knowledge obtained via alliance can be central to evolution of the alliance.	Arinõ and de la Torre (1998), Doz (1996)

nism (a mediator) between antecedent variables and the consequent variable (synergy).

Knowledge embeddedness is central to the study of SAs because it serves as an important building block for the theory construction and helps operationalize the concept of fit. From a normative perspective, understanding antecedent variables is the most important alliance learning issue. Managers interested in exploiting learning opportunities need to be aware of the difficulties associated with collaboration and in particular the interrelationships of several important elements of fit in the pursuit of knowledge creation, synergies, and innovation. Hence, this paper introduces a conceptual model, based on a structural equation approach, for empirically investigating the role played by dyadic knowledge embeddedness in the process of creation of synergies of knowledge-related capabilities in SAs. Based on the theoretical model, a series of testable propositions are derived and the paper concludes with a discussion of contribution to theory development and future research directions.

## 2. Theoretical model

### 2.1. Knowledge embeddedness and synergy

The main proposition of this paper is that synergies of knowledge-related capabilities are assumed to enhance alliance performance in terms of creation of new knowledge-related capabilities (innovation). Knowledge-related capabilities refer to capabilities, which are knowledge intensive, tacit, and dynamic in nature. These capabilities may lead to severe transaction cost problems due to their dynamic and tacit knowledge content. Knowledge-related capabilities are produced through internal (and external) learning processes and they determine “the productive opportunity set” of the firm, that is, the productive possibilities that the firm’s “entrepreneurs” see and can take advantage of” (Penrose, 1959, p. 31). In a world in which agents do not share exactly the same mental models of the world and do not know each other’s models, a collective knowledge base is required for coordination (Cr mer, 1990). Such a collective knowledge base may develop as a result of organizational (or interorganizational) learning. In the evolutionary economics literature (e.g., Nelson and Winter, 1982), the capabilities view of the firm serves primarily as a microfoundation for population level analysis of industry and technology evolution. Thus, the capabilities perspective helps rationalize the variety of behaviors—including innovative behavior—that are necessary in any evolutionary account of industry and technology evolution (Metcalfe, 1989). I label the outcome of these innovative knowledge-driven behaviors stemming from learning processes *synergies of knowledge*, as they involve a simultaneous focus on internal, firm-specific competencies and external, collaborative synergies, which plays an important role in creating new knowledge-related capabilities and thereby enhancing competitive performance.

Network theory argues that embeddedness shifts actor’s motivation away from the narrow pursuit of immediate economic gains toward the enrichment of relationships through trust and reciprocity (Powell, 1990; Smitka, 1991). According to Uzzi (1999), governance arrangements of social embeddedness appear to come before, rather than follow from, the attributes of transactions. Following this, embeddedness is not a result of an exchange relationship; rather it preexists and shapes exchange relationships. This indicates the existence of an important underlying latent construct, *knowledge embeddedness*—or *embeddedness for ease*—which needs to be explicitly recognized and integrated in the theory of creation of synergies of knowledge in SAs.

The notion of embeddedness originates from Karl Polanyi, the leading figure of the substantivist school in economic anthropology. According to Polanyi, the different forms of economic integration are bound to certain structural and institutional conditions. The dominant forms of integration in primitive and archaic societies (reciprocity

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