Cornell University
ILR School

Cornell University ILR School
DigitalCommons@ILR

CAHRS Working Paper Series

Center for Advanced Human Resource Studies (CAHRS)

5-1-2003

Extending the Human Resource Architecture: Relational Archetypes and Value Creation

Sung-Choon Kang
Cornell University

Shad S. Morris
Cornell University

Scott A. Snell
Cornell University, ss356@cornell.edu

Follow this and additional works at: http://digitalcommons.ilr.cornell.edu/cahrswp

Part of the Human Resources Management Commons

This Article is brought to you for free and open access by the Center for Advanced Human Resource Studies (CAHRS) at DigitalCommons@ILR. It has been accepted for inclusion in CAHRS Working Paper Series by an authorized administrator of DigitalCommons@ILR. For more information, please contact jdd10@cornell.edu.

Extending the Human Resource Architecture: Relational Archetypes and Value Creation

Abstract
Theories of knowledge-based competition focus on internal resources as the source of value creation. The HR architecture (Lepak & Snell, 1999) brought human resource management directly into this forum by developing a model of human capital allocation and management. We attempt to extend the HR architecture by introducing a framework of relational archetypes—entrepreneurial and cooperative—that are derived from unique combinations of three dimensions (cognitive, structural, and affective) that characterize internal and external relationships of core knowledge employees. Entrepreneurial archetypes facilitate value creation from external partnerships while cooperative archetypes facilitate value creation from internal partnerships. This paper identifies how each of these archetypes is managed by a corresponding HR configuration and how they together contribute to value creation by facilitating organizational learning via exploration and exploitation.

Keywords
HR, management, resource, archetypes, employee, partnership, firm, creation

Disciplines
Human Resources Management

Comments
Suggested Citation
Kang, S.-C., Morris, S. S., & Snell, S. A. (2003). *Extending the human resource architecture: Relational archetypes and value creation* (CAHRS Working Paper #03-13). Ithaca, NY: Cornell University, School of Industrial and Labor Relations, Center for Advanced Human Resource Studies.
http://digitalcommons.ilr.cornell.edu/cahrswp/36

This article is available at DigitalCommons@ILR: http://digitalcommons.ilr.cornell.edu/cahrswp/36

CAHRS

Center for Advanced Human Resource Studies

CAHRS / Cornell University
187 Ives Hall
Ithaca, NY 14853-3901 USA
Tel. 607 255-9358
www.ilr.cornell.edu/CAHRS/

WORKING PAPER SERIES

Extending the Human Resource Architecture: Relational Archetypes and Value Creation

Sung-Choon Kang
Shad S. Morris
Scott A. Snell

Working Paper 03 - 13

CORNELL ilr School of Industrial and Labor Relations

Extending the Human Resource Architecture: Relational Archetypes and Value Creation

Sung-Choon Kang
Department of Human Resource Studies
School of Industrial & Labor Relations
Cornell University
Ithaca, NY 14853-3901
Tel: (607) 255-7622
Fax: (607) 255-1836
E-mail: sk229@cornell.edu

Shad S. Morris
Department of Human Resource Studies
School of Industrial & Labor Relations
Cornell University
Ithaca, NY 14853-3901
Tel: (607) 255-7622
Fax: (607) 255-1836
E-mail: ssm27@cornell.edu

Scott A. Snell
Department of Human Resource Studies
School of Industrial & Labor Relations
Cornell University
Ithaca, NY 14853-3901
Tel: (607) 255-4112
Fax: (607) 255-1836
E-mail: scott.snell@cornell.edu

May 2003

http://www.ilr.cornell.edu/cahrs

This paper has not undergone formal review or approval of the faculty of the ILR School. It is intended to make results of Center research available to others interested in preliminary form to encourage discussion and suggestions.

Abstract

Theories of knowledge-based competition focus on internal resources as the source of value creation. The HR architecture (Lepak & Snell, 1999) brought human resource management directly into this forum by developing a model of human capital allocation and management. We attempt to extend the HR architecture by introducing a framework of relational archetypes—entrepreneurial and cooperative—that are derived from unique combinations of three dimensions (cognitive, structural, and affective) that characterize internal and external relationships of core knowledge employees. Entrepreneurial archetypes facilitate value creation from external partnerships while cooperative archetypes facilitate value creation from internal partnerships. This paper identifies how each of these archetypes is managed by a corresponding HR configuration and how they together contribute to value creation by facilitating organizational learning via exploration and exploitation.

For submission to *Academy of Management Review*:
Special Research Forum on New Value Creation

Extending the Human Resource Architecture: Relational Archetypes and Value Creation

Introduction

As theories of strategic management have shifted toward resource-based and knowledge-based views of the firm, researchers have increasingly looked inward for sources of competitive advantage and value creation. Arguably, the most distinctive and inimitable resources available to firms are its human capital (Hitt, Bierman, Shimizu, and Kichhar, 2001; Wernerfelt, 1984). The "people embodied know-how" (Prahalad, 1983: 242) of employees is the foundation of a firm's core capabilities and is fundamental to the development of its value proposition. In this regard, human resource management (HRM) has become inextricably tied to the larger context of strategic management (cf., Barney & Wright, 1998; Boxall, 1996).

Lepak and Snell (1999, 2002), for example, have established a framework that positions human capital as central to both value creation and asset specificity as well as to decisions about HR. The framework, referred as the *HR architecture*, is used to identify HR practices, employment modes, and employment relationships for different employee cohorts based on the degree to which their human capital is strategically valuable and unique. The architectural perspective makes clear that: (1) employees do not all contribute in the same way based on their human capital, (2) that multiple HR configurations are used within firms for different skill groups depending on the nature of their contribution, and (3) that value creation and strategic positioning are derived from combinations of human capital across these different cohorts.

Because the HR architectural perspective draws on the resource-based view of the firm, it tends to focus on managing the *stocks* of knowledge as sources of value creation. However, in the contemporary setting, the *flow* of knowledge is perhaps equally important. In high velocity environments especially, value creation derives from a firm's ability to acquire and integrate new knowledge as a basis for innovation and continuous adaptation (Grant, 1996; Kogut & Zander, 1992; Nonaka & Takeuchi, 1995; Spender, 1996). This implies that while managing current

knowledge and human capital may be important for HRM, managing the creation of new knowledge and shared knowledge may be equally important.

Lepak and Snell (1999: 45) recognized the limits of their original conception of the HR architecture. They concluded that, "research is needed that transcends the individual quadrants of the framework and focuses on balancing the complexity and dynamics of the entire HR architecture." To do so requires that we shift our attention to organizational relationships as a basis for value creation. While individuals are considered a primary origin for new knowledge, relationships facilitate information sharing, transfer, and knowledge creation. When knowledge is developed through interaction and experience it is typically more tacit, socially complex, path dependent, and strategically valuable. And when it is produced and held collectively, knowledge can be embedded in the organization making it more difficult to imitate or appropriate (Kogut & Zander, 1992; Nonaka & Takeuchi, 1995; Grant, 1996; Spender 1996).

While it may seem intuitive that HR systems provide a primary mechanism for enabling employees to effectively exchange, transfer, and combine knowledge, very little research has focused on this particular issue (Leana & Van Buren, 1999; Lepak & Snell, 2002). The purpose of this paper is to extend Lepak and Snell's model by establishing a *relational approach* to the HR architecture; that is, to incorporate a model of how various cohorts relate to one another in the context of the architecture in order to share knowledge. The associated HR systems are then viewed as both facilitating those relational exchanges as well as supporting knowledge development and value creation.

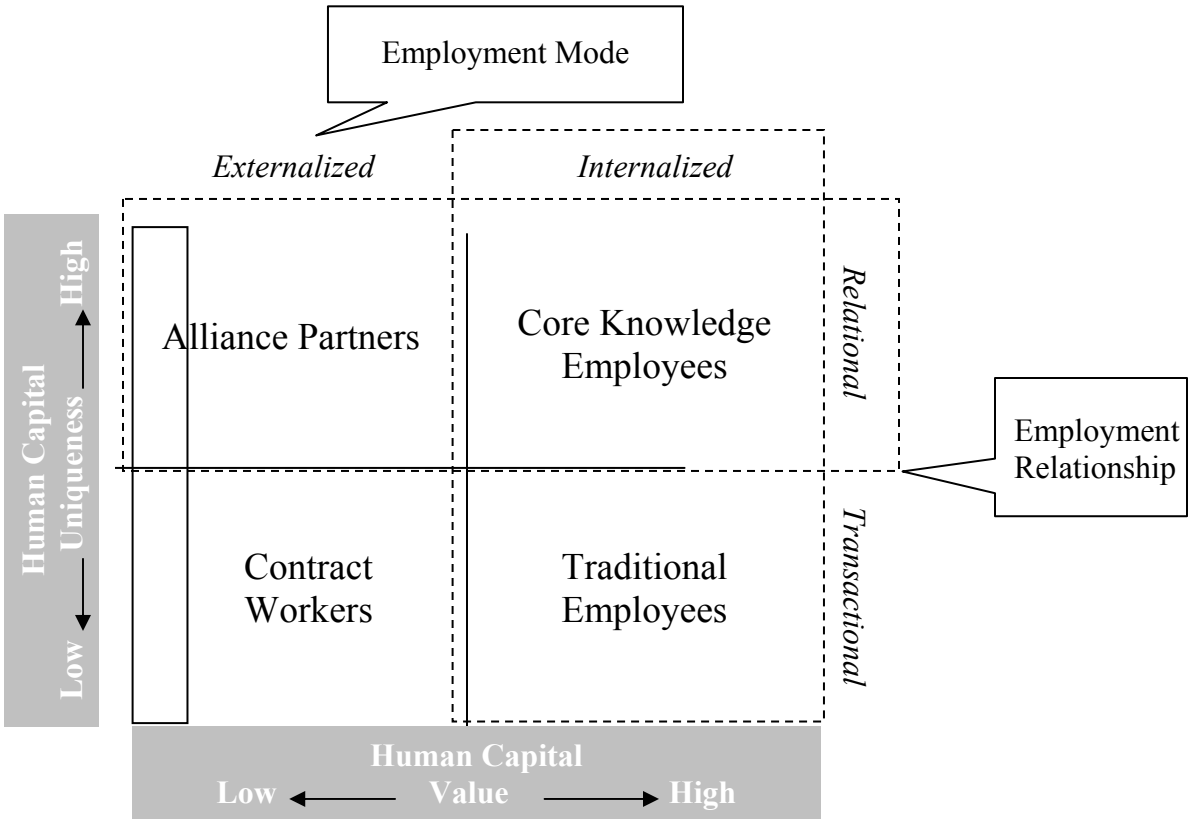
The paper is organized as follows: First, we identify the relational complements of each element of the HR architecture. For example, human capital is viewed more broadly in terms of the cognitive bases of knowledge exchange. Employment modes and relationships are viewed more broadly in terms of structural and affective dimensions of relationships and social networks. Second, each of these dimensions—cognitive, structural, and affective—is discussed in terms of how they combine with one another to form relational archetypes to facilitate external and internal partnerships with core knowledge workers. Entrepreneurial archetypes facilitate

external partnerships while cooperative archetypes facilitate internal partnerships. Each of these archetypes is accompanied by a corresponding HR configuration that combines job design, staffing, training, and appraisal and compensation practices. Finally, the combination of entrepreneurial and cooperative archetypes is discussed in terms of how they facilitate knowledge creation via exploration and exploitation. Several implications of this framework are suggested for future research.

Extending the Hr Architecture

As a starting point for extending the HR architecture, recall that Lepak and Snell distinguished among different employee cohorts based on three factors. As shown in Figure 1, human capital characteristics (value and uniqueness) was the first and most central to the framework. In addition, however, cohorts were also distinguished based on their employment modes (internalized, externalized) and employment relationships (transactional, relational). Each of these elements has its corollary in the context of relational exchanges. We discuss each briefly below, and then elaborate on how they combine in the context of the HR architecture.

Figure 1
HR Architecture



Human Capital: The Cognitive Dimension

The first dimension of the HR architecture that is used to distinguish quadrants is the characteristics of human capital. Employees with knowledge and skills that are valuable and unique tend to be managed differently from others in the firm. Human capital has generally been discussed in terms of its asset-specificity or uniqueness to the firm (Becker, 1964). In the context of the HR architecture it is seen as a fundamental driver of firm-level value creation and competitive advantage.

As we extend the architecture, the characteristics of human capital held by employees influences the nature of relationships and knowledge flows. A number of scholars have acknowledged that individuals cannot recognize, understand, and share the unique competencies and resources of one another without some shared contexts (knowledge). In this regard, a common cognitive structure among individuals is necessary to create relational value (Nonaka & Takeuchi, 1995; Grant, 1996; Nahapiet & Ghoshal, 1998).

For example, Nonaka (1991) and Grant (1996), following the knowledge-based view, argue that the exchange and integration of individual idiosyncratic knowledge is not possible without minimal redundant knowledge among individuals. Shared cognition literature suggests that team processes for sharing and integrating individual knowledge is supported by the similarity of members' mental models—which refers knowledge structures (e.g., Klimoski & Mohammed, 1994; Mohammed & Dumvill, 2001; Cannon-Bowers & Salas, 2001). Cohen and Levinthal (1990) also argue that a social unit's ability to absorb new external knowledge and resources is determined by its prior related knowledge. These arguments suggest that shared (or common) knowledge is a key component of the cognitive dimension of HR relationships.

Employment Mode: The Structural Dimension

The second dimension that distinguishes quadrants in the HR architecture is the employment mode. At a general level, employment mode has been discussed in terms of the benefits and costs of internal employment versus externalization (e.g., contracting) (Davis-Blake & Uzzi, 1993).

As we extend the architecture, the employment mode can be viewed in the context of organizing structures in which employees are managed. Social network theorists have argued that the value derived from relationships is primarily determined by structures of those exchanges—i.e., the patterns of interconnectedness or interactions among employees (Coleman, 1988; Burt, 1992; Gabbay & Leenders, 1999). Much of this literature has its root in the structural embeddedness view, which assumes that individuals' behaviors and outcomes are contextualized in the structure of their ongoing social relations—the pattern of connections or interactions with others (Grannovetter, 1985; Zukin & DiMaggio, 1990). Employment structure affects their opportunities to identify the locus of specific resources ('know-who') and access to those resources ('know-how') (Burt, 1992; Nahapiet & Ghoshal, 1998). Internal and external employment relationships are likely to vary dramatically in that respect. Thus, network theories offer a lens for understanding how employment structures contribute to creating relational value.

In this light, it is not just a person's connection to the organization as a whole that matters (e.g., internal versus external), but the specific pattern of interactions among various individuals and how those are structured.

Employment Relationship: The Affective Dimension

The third dimension that distinguishes the HR architecture is the employment relationship; that is, the type and amount of trust, obligation, and reciprocity that exists between the employer and employee. According to Rousseau, employment relationships can be viewed in terms of the "psychological contract of individual believers, shaped by the organization, regarding terms of an exchange agreement between individuals and their organizations." (1995: 9). In general, these relationships vary from transactional—where expectations, loyalty, and trust are limited—to relational—where there is mutual trust, commitment and ongoing involvement.

As with the other dimensions, extending the HR architecture moves us from a general view of employment relationships to a sharper focus on the affective elements underlying relationship development. Following social exchange theory, scholars such Whitener (2001) have suggested that since relationships develop through repetitive interactions, the motivations, attitudes, and expectations of associated individuals has an enduring effect on the nature of their exchange (cf. Blau, 1964).

Put simply, the potential value of social connections cannot be cultivated and exploited if individuals are not willing to share their knowledge and resources with one another (Portes, 1998; Nahapiet & Ghoshal, 1998; Gupta & Govindrajan, 2000; Adler & Kwon, 2002). This is true even in situations where employees have opportunities to access knowledge and resources through structural connections. Since social exchanges, unlike economic exchanges, are based on diffused expectations of reciprocity, they require trust among the exchange parties (Blau, 1964).

Identifying Relational Archetypes

While each of these dimensions that extend the HR architecture—cognitive, structural, affective—is directly linked to the original focus on stock of knowledge, they are (not coincidentally) grounded in the literature on social interaction. Specifically, researchers have proposed that relational exchanges build on these three distinct dimensions in that they affect their opportunities for new knowledge-based resources, their willingness to share those resources, and their ability to understand, interpret, and absorb those resources, respectively. In those perspectives, the structural dimension refers to the structure of social relations among individuals (i.e., pattern of social connections among them). The affective dimension addresses individuals' social motives (i.e., trust) behind social relations that are created and leveraged through social exchange processes. Finally, the cognitive dimension is associated with shared knowledge or cognitive structure providing shared representation, understanding, and systems of meaning among individuals.

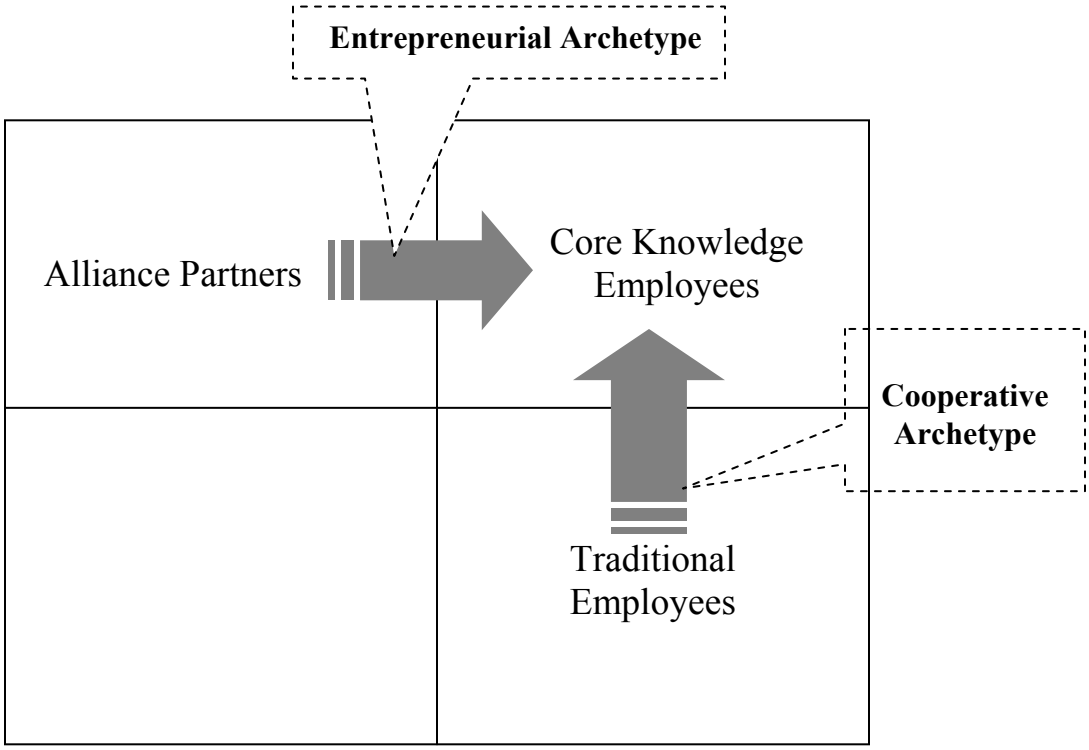
More importantly, consistent with an architectural perspective, these dimensions are increasingly seen as working together. While the various literatures (e.g., social exchange, social networks, and shared cognition) tend to focus on a particular aspect of social relations, scholars increasingly note that social relations are not unidimensional but rather multidimensional and each dimension of social relations is complementary to create relational value, playing a distinct role in transferring, combining, and integrating various knowledge and resources distributed over the firm (e.g., Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998; Gupta & Govindarajan, 2000; Yli-Renko, Autio, & Sapienza, 2001; Adler & Kwon, 2002). In this regard, we focus on the patterns among cognitive, structural, and affective dimensions that characterize exchange relationships. As such, we view these patterns as ideal types, and refer to them as *relational archetypes*.

Figure 2
Relational Archetypes

Entrepreneurial		Cooperative
Common Component Knowledge	Cognitive	Common Architectural Knowledge
Weak / Nonredundant Social Connections	Structural	Strong / Dense Social Connections
Resilient Dyadic Trust	Affective	Generalized Trust

As shown in Figure 2, two relational archetypes are described in this paper: entrepreneurial and cooperative. Each varies along cognitive, structural, and affective dimensions. And in the context of the HR architecture, they respectively support the creation of valuable external and internal relationships. Note that while there are many possible relational combinations within the HR architecture, we focus on those that inform the core knowledge area. The strategy literature consistently notes that continual development of the core is most important for competitiveness (Barney, 1991; Hitt et al., 2001; Pennings, Lee, & van Witteloostuijn, 1999; Peteraf, 1993). (See figure 3).

Figure 3
The Architecture of Relational Archetypes



External Relationships: The Entrepreneurial Archetype

The first relationship for knowledge exchange involves external alliance partners and internal core knowledge workers. External alliance partners, as conceptualized in the HR architecture, tend to have specialized knowledge that while perhaps not directly related to the firm's core value proposition might provide core employees with new ideas. According to Leonard-Barton (1995), this type of knowledge flow from outside the traditional firm boundaries is needed in order to encourage inventive serendipity, to prevent rigidity, and to check their technological developments against those of competitors. When they are carriers of best practices, external partners can bring valuable tacit and explicit knowledge into a firm (Matusik & Hill, 1998; Nonaka, 1994).

Cognitive: Common component knowledge. Core knowledge workers and external partners may often be linked by a professional bond in that they are working with similar disciplines. Cicourel (1973) noted that the shared systems of meaning and overlapping

component knowledge could be developed with common experience in a field. For example, core engineers working with external engineers may exhibit similar knowledge and common languages that are derived from their highly specialized function. Shared specializations and systems of meaning are considered major integrating mechanisms between external partners and core groups (Grant, 1996; Szulanski, 1995). Similarly, the stock of prior related knowledge determines the "absorptive capacity" (Cohen & Levinthal, 1990: 128) of a recipient's knowledge.

In contrast, relationships that lack this overlapping component knowledge may be less likely to recognize the value of new knowledge and less likely to apply it to commercial ends. This may increase the cost of a transfer, retard its completion, and even compromise its success (Szulanski, 1995).

While complex overlapping component knowledge is likely to develop over time, core employees and external partners may not form natural shared codes and firm-specific language that is normally conveyed through internalized work arrangements (Williamson, 1975). In other words, they will share very few internal norms regarding company procedures and ideologies. For example, an R&D group from a partnering firm may learn specific, technical knowledge from core members of the firm, but really has no mechanism or incentive to understand the organizational norms and shared codes of language that go in line with the internal practices and company culture. This is consistent with Cicourel's (1973) point that common codes and bases of knowledge—architectural knowledge—that are due to internalization may not be shared between external and internal groups.

At the same time, from the point of view of the core knowledge workers, architectural knowledge may create some of the largest firm advantages. For example, studies suggest that the cognitive base of entrepreneurship resides in the unique abilities of entrepreneurs to recognize the value of and the opportunities to creatively combine distributed expert knowledge without the specific knowledge of the experts (e.g., Shane & Venkatraman, 2000; Alvarez & Buzenitz, 2001). This is consistent with Vyssotsky's (1977) argument that innovations must be done by creative people who understand as much as they can about the technical, industry

specific knowledge, as well as the firm specific knowledge of the company's goals and problems.

Despite the potential advantages of architectural knowledge for combinative capability, Matusik and Hill (1999) argued that if proper relationships and employment contracts are not put in place, then a possible negative effect from external partners could be leakage of valuable firm-specific knowledge (cf., Handy, 1989; Pfeffer, 1994). For example, a design engineer from a partnering firm may take valuable information and use it to help his or her own company. This concern is emphasized most strongly in strategic alliances and joint ventures, in which it becomes important to protect core functions from the view of the partners (e.g., Hamel, 1991). However, Matusik and Hill (1998) argue that these concerns over knowledge leaking may not be applicable to organizations in which knowledge stocks need to be upgraded continually lest they become obsolete. For instance, by the time an outsider is able to utilize leaked knowledge, the firm that originally had the knowledge will be utilizing new and different knowledge. Thus, overlapping knowledge and shared systems of meaning may pose a potential threat to leaked knowledge, but should not be severe enough to affect the company's competitive advantage.

Structural: Sparse networks. Due to the nature of the employment modes, core knowledge workers typically have weaker ties and non-redundant (sparse) social connections with external partners. The social capital literature has shown several potential advantages for both employees and firms in this context. With regard to resource acquisition, weak and nonredundant ties are likely to provide employees with opportunities to access fresh and diverse resources and knowledge (Grannovetter, 1973; Hansen, 1999). Also, since those social connections make employees thoughts and behaviors less structurally embedded than strong and closed social connections, the former is more likely to afford autonomy and initiatives of employees than the latter (Burt, 1992). Thus, weak and nonredundant social connections are likely to provide employees with entrepreneurial opportunities to identify and exploit various resources and knowledge unexplored or undervalued within and outside the organization.

However, it is frequently the case that organizations align internal and external partners on long-term projects that contribute to jointly shared outcomes (c.f., Borys & Jemison, 1989; Parkhe, 1993). While weak ties form at first, strong ties may often develop due to the complexity and interdependency of the projects between core knowledge employees and external partners. Strong ties have their benefits in transferring and sharing fine-grained and tacit resources with external partners (Krackhardt, 1992; Hansen 1999). For example, Dyer and Nobeoka (2000) found that Toyota has been able to more quickly diffuse knowledge from external suppliers by creating strong networks that create institutionalized routines that facilitate multidirectional knowledge flows. Similarly, Uzzi (1997) pointed out the importance of close connections in facilitating the communication of tacit knowledge about fashion styles between apparel designers and contractors.

While considerable research exists which flies in the face of Burt's (1992; 1997) argument that external ties are more likely to facilitate weak networks, such strong external relations are often the exception and not the rule. The difficulty is that there are so few formal mechanisms and norms between internal and external employees that strong and dense networks must be developed over much time and deliberation. This said, structural interactions between core knowledge workers and external partners may become more frequent over time but remain comparatively sparse and often do not reach the tie strength possible between employees within the same organization. Thus, we argue that sparse networks and relatively weak ties will be dominant among core and external partner relations.

Affective: Resilient dyadic trust. Matusik and Hill (1998) pointed out that the firmly entrenched stereotype that external employees are inferior to internal employees is likely to create an arduous relationship of distrust and threat. Accordingly, the low levels of trust between employees offer little motivation for knowledge sharing. Such lack of motivation may also influence the degree of difficulty experienced by two groups in trying to exchange knowledge. Szulanski (1995) found that when trust did not exist in an exchange relationship, the transfer of knowledge from the source to the recipient is stifled and often resisted by one or

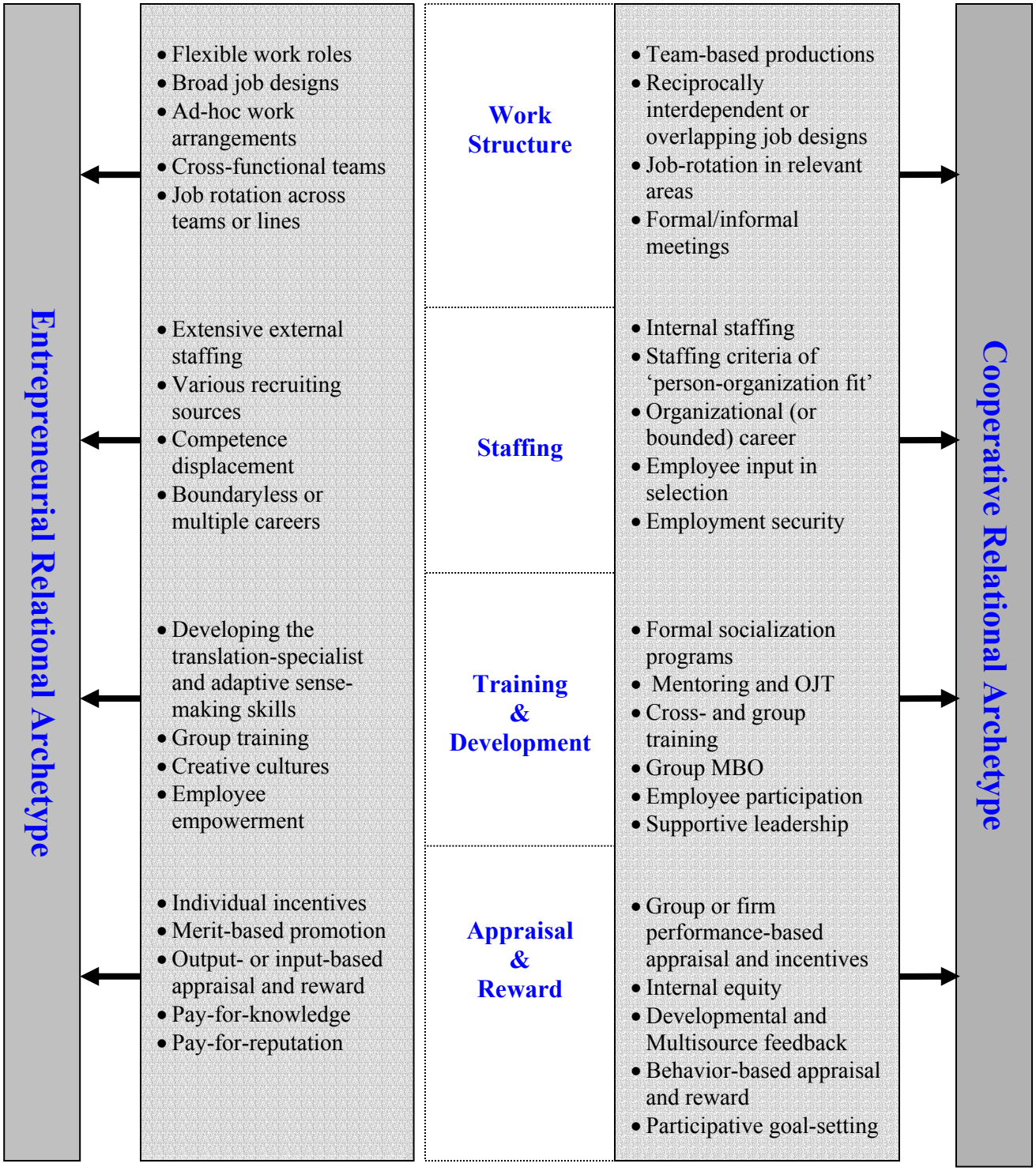
both parties. Partnering employees may not trust core knowledge workers enough to share all possible information that would help the organization. They may see little personal benefit by sharing all their information while seeing great benefit to core knowledge workers if this information is shared.

To complicate matters, researchers have argued that there are several distinct forms of trust. Leanna and Van Buren (1999) describe two forms: dyadic trust, which refers to trust between two parties with direct experience; and generalized trust, which refers to a kind of impersonal or indirect trust that does not rest with knowledge of particular individuals but is accorded to others in the social unit (cf., Lewick & Bunker, 1996; McAllister, 1995; Sheppard & Tuchinsky, 1996). Resilient dyadic trust may contribute to building and managing valuable external partnerships because it facilitates the sharing of resources with external partners without investing much cost and commitment in particular external relationships (Sheppard & Tuchinsky, 1996; Jones & George, 1998). While core and partner groups may develop high dyadic trust, they most likely struggle to create generalized trust or norms of reciprocity and expectations of duty to undertake some activity for the other party in the future (Putnam, 1993). Generalized trust is based on institutional affiliations that become extended to others based on membership to a social unit or community (Coleman, 1990). Such norms give rise to common purpose and motive for action (MacDuffie & Helper, 1997). Though important, such norms of reciprocity and generalized trust may come at a high price for partner and core groups. Most partnerships and alliances fail to create a high level of norms and generalized trust because they lack the actual organizational boundaries which dictate who is a member of the organization (e.g., shared goals, values, operational structure, company name, physical location) (Kogut & Zander, 1996).

Implications for HRM. The essence of the entrepreneurial relational archetype lies in the identification and exploitation of various new alternatives and ideas through flexible social relations. Accordingly, HR practices supporting the entrepreneurial relational archetype are

targeted to create an infrastructure that not only provides the flexibility needed for network creation, but the mechanisms that encourage and reinforce its development (see figure 4).

Figure 4
HR Practices for Managing Relational Archetypes



1. Job design and work organization. The design of flexible work structures is one way to engender diverse social connections within and outside the firm. Specifically, broad job classifications, temporary job assignments, and job rotations across teams, lines, or combined job classes may not only provide employees with the opportunities to interact with colleagues in different groups, but also stimulate their networking motivation to form valuable conduits of knowledge because those job designs require a broader range of knowledge and problem-solving skills (Delery & Doty, 1996; Lepak & Snell, 1999; Gant, Inchiniowsk, & Shaw, 2002). On a similar logic, cross-functional teams and client-focused or divisional organizational structures (rather than, say, functional structures) may provide employees with the opportunities to make new ties with others representing various perspectives (Reagans & Zuckerman, 2001).

2. Staffing and careers. In addition to issues of job design, another approach to enhance employees' opportunities to develop and access sparse partner networks is to expand the inflow of external human resources through the use of contingent workers, alliances with external partners (such as suppliers, customers, or other subsidiaries), or extensive external staffing at non-entry levels and from various recruiting sources (cf., Matusik & Hill, 1998; 2002). Together with these external competence acquisition practices, competence displacement practices to increase functional turnover are used to suppress relational inertia within the firm (i.e., employees' propensity to stick to existing social ties) and thus indirectly encourage employees to develop new social ties (Fisher & White, 2000). Firms make employees expand career-relevant networks as well as job-relevant knowledge through designing dual or multiple career paths (often called boundaryless career paths) in which employees can experience various job opportunities beyond the boundaries of single expertise or even single employment settings over time (Defillippi & Arthur, 1994).

3. Training and development. Training offers a primary device to improve employees' knowledge, skills, and abilities. Firms pursuing entrepreneurial relationships might provide employees with more training opportunities to develop skills to recognize the value of critical and even conflicting resources and knowledge that alters their current knowledge structure to

combine them into a new concept or model (King & Ranft, 2001). Supporting this, organizational knowledge structures, such as transactive memory, which refers to shared knowledge about each other' expertise, can supplement employees' cognitive abilities for entrepreneurial activities by helping employees efficiently identify sources of valuable knowledge and also the targets to whom knowledge needs to be transferred (Wegner, Erber, & Raymond, 1991; Hargadon & Sutton, 1997). Firms can build and maintain these organizational memory structures through group training (Moreland & Myaskovsky, 2000), cross-training or job rotations (Hargadon & Sutton, 1997), the development of archival-based mechanisms such as know-how reports and electronic databases to retain component-specific knowledge (Takeishi, 2002).

Together with the development of those employees' skills, firms may institutionalize organizational culture emphasizing "creative abrasion" (Leaonard-Barton, 1995) to encourage employees' attitudes and abilities that stimulate and accept conflicting ideas and to productively link them to performance (Nonaka & Konno, 1998). Employee empowerment practices such as engagement in a wide range of problem solving and decisions and employee discretion may also allow employees to have high levels of personal initiative to explore and utilize social ties (Bae & Lawler, 2000).

4. Compensation and appraisal systems. Since the behaviors required to obtain and mobilize knowledge are difficult to identify using a standardized criteria (Coleman, 1988; Adler & Kwon, 2002), output-control and result-based appraisals are more useful in justly rewarding employees' contributions to the creation of value than input- or behavior-control models (Snell & Youndt, 1995). Reciprocity norms in dyadic relations between employees do not develop unless the results obtained through cooperation between them are appropriately evaluated and rewarded. Some compensation and appraisal practices provide major mechanisms to highlight reciprocity norms and thus dyadic trust in social exchanges among employees.

Individual incentives are likely to stimulate employees' achievement motives to build relationships with other employees that will create mutual gain for both parties involved

(Edmondson, 1999). Thus, individual incentives are likely to facilitate the development of dyadic trust between employees with whom they know they can rely upon to help improve their personal gain, and vice versa. Also, according to Leana and Van Buren (1999), individual incentive systems can sometimes function as a mechanism to discourage employees from social loafing in social exchange processes, which is a problem sometimes found through group-based incentives. Relevant to this, firms can also use pay-for-knowledge or pay based on reputation to motivate employees to develop various social connections through which they can acquire a broad set of knowledge and skills within and outside firms (Youndt, Snell, Dean, & Lepak, 1996; Hargadon & Sutton, 1997; Gant et al, 2002).

Internal Relationships: The Cooperative Archetype

The second primary archetype for knowledge exchange involves internal traditional and core knowledge workers. Like the core group of knowledge workers, traditional employees are internal to a firm's operations and possess knowledge that is strategically valuable to the company, but unlike the core, they generally do not posses high degrees of unique knowledge and skills that are specific to the firm (Lepak & Snell, 1999). Instead, they deliver more generic and job related knowledge, which can nevertheless play an important role in refining and extending existing ideas within the firm.

Cognitive: Common architectural knowledge. As the knowledge they deal with, perhaps, is quite different from that of core knowledge workers, for traditional employees to effectively communicate with core groups, they will most likely build on common cognitive frameworks or architectural knowledge (including overarching concepts, vision, or metaphors).

Common architectural knowledge makes traditional and knowledge workers understand how to combine each other's disparate resources into a whole, accepting diverse conflicting demands in their highly specialized jobs (Nonaka, 1991; Kogut & Zander, 1992; Levesque, Wilson, & Wholey, 2001). In addition, common architectural knowledge enables them to understand and coordinate each other's knowledge and behavior under an overarching concept

in the course of the action, even though they do not have knowledge shared across their specialties before taking an action (Weick & Roberts, 1993; King & Ranft, 2002).

Many incremental innovations and fine-tuning of ideas come from traditional employees who are working more closely with the products or services. For example, most of the knowledge transferred from the production workers to the engineers or managers in the Toyota manufacturing plants consists of small, unobvious suggestions that have improved firm performance (Osterman, 1995). Another example is the joint GM-Toyota NUMMI plant in California, where, in 1991, employees contributed over 10,000 suggestions for improvement, or five suggestions per employee—a large majority of which were implemented (Adler and Cole, 1993). Such studies enforce our argument that communication and sharing of knowledge between core knowledge workers and traditional employees may naturally occur due to the fact that they are internal to the firm, and thus develop architectural knowledge and shared cognitive schemas.

Structural: Redundant networks. Traditional employees are not internally developed and often enter an organization with the generalized skills and knowledge necessary to perform their work (Lepak & Snell, 1999). Osterman (1995) iterates that these employees are often found in more traditional employment modes because the nature of the task requires less company investment and autonomy. However, because these employees are internal to the firm and often co-located with core workers, there is a greater likelihood that they will develop more frequent and redundant interactions with core knowledge workers than external partners. These social networks may also be encouraged through social mechanisms to encourage the cooperation among employees to achieve collective goals (Leana & Van Buren, 1999).

The strong and dense connections that are likely to be found with traditional employees enable core members to fine-tune and refine their services and products. Accordingly, these potential advantages available from strong and dense social connections can be described as relational values created through cooperation among employees. The more frequently employees interact with each other, the more opportunities they have to recognize and access

each others' unique resources so that strong ties between employees enable them to share and refine existing knowledge much more effectively than through week ties (Krackhardt, 1992; Nelson, 1989; Hansen, 1999). Also, dense networks contribute to creating relational values through stimulating the diffusion of fine-grained knowledge among employees and increasing their cooperation and collective goal orientation by forming strong social norms (Coleman, 1988; Leana & Van Buren, 1999).

Affective: Generalized trust. Traditional employees are perhaps less committed to the organization as a whole and more focused on doing their jobs. Rousseau and Wade-Benzoni (1994) argued that these employees do not typically seek life-long employment with a particular firm. Etzioni (1961) argued that their relationship with the organization is based on the utilitarian premise of mutual benefit—the relationship continues as long as they are both benefiting.

Due to their job-based tradition, these employees are less likely to trust people outside of their specialization. While they may frequently interact with core employees, this does not necessarily preclude that their personal trust in them will also be strong. Thus, their relationship with core knowledge workers may require the rewards from knowledge exchange to be sufficient and predictable (McAllister, 1995; Scully & Preuss, 1996). This conceptualization of the core/traditional relationship is termed by Ring and Van de Ven (1992) as fragile trust, which is based on the perceptions of the immediate likelihood of rewards.

While it may be important for an organization to replace fragile trust with a more resilient trust among employees, core and traditional employees are likely to naturally form a more generalized trust that may open up the doors for other types of knowledge flow. Traditional employees are likely to open the doors for developing a more generalized trust with the core group because traditional and knowledge workers may have a high degree of shared norms because they are all part of the same company. Coleman (1990) argued that shared norms help create and maintain generalized trust. Putnam (1993) described generalized trust as impersonal and indirect, which does not rest on the knowledge of particular individuals but rather with norms and behaviors that are generalized to others in the social unit as a whole.

Therefore, Leana and Van Buren (1999) argued that if these employees all share an overarching philosophy and corresponding norms within which different employment groups enact that philosophy, then they are more likely to share knowledge with one another. Through trust, the value of social relations can be an important component—perhaps the pivotal one—in fostering the knowledge exchange that provides valuable knowledge to the firm (Nahapiet & Ghoshal, 1998).

Implications for HRM. The cooperative relational archetype primarily owes to the advantages of strong and dense social connections, architectural knowledge, and generalized trust. All three of these aspects are useful for combining knowledge and can better be facilitated the HR practices that offer greater opportunities, motivations, and mental abilities to leverage social relations with other employees.

1. Job design and work organization. Strong and dense connections among employees may be developed and maintained by interdependent work structures. Team-based production and reciprocally interdependent or overlapping job designs are typical examples of interdependent work structures to strengthen work interdependence and interactions among employees (Delaney & Huselid, 1996; Gittell, 2000). Strategic rotation of personnel in relevant areas and product development strategies in which different functional departments work together in a fuzzy division of labor, may make employees strongly connected to each other within relevant knowledge domains (Nonaka & Takeuchi, 1995). Firms can also encourage interdependence among employees through interactions that are formal or informal, regular or irregular, and on- or off-line at diverse levels (Nonaka & Takeuchi, 1995; Gant et al., 2002). These interdependent work structures may contribute to building “communities-of-practice” by helping employees share similar task experiences to facilitate the formation of shared schema among employees (Brown & Dungid, 1991). Meanwhile, the specified design of jobs and roles are used to maintain stability of intrafirm working networks in the face of instability of particular individuals by helping them understand the architecture of how different specialties fit together (Leana & Van Buren, 1999; Gant et al., 2002).

2. Staffing and careers. Internal labor market and involvement strategies emphasizing stable employment relationships have been advanced as major methods to induce strong and dense social connections and also generalized trust based on collective-goal orientation and shared identity within the firm (Leana & Van Buren, 1999). These employment strategies include: (1) the development of firm-specific competencies (vis-à-vis the acquisition of generic or external competencies); (2) staffing based on 'person-organization fit' (vis-à-vis 'person-job fit'), which puts more weight on employees' value and potential to learn and develop more knowledge and value than current job skills and knowledge; (3) organizational (or bounded) career paths, which help employees accumulate idiosyncratic knowledge and skills within the firm (and mostly in a particular area) over time; (4) employees' participation in recruiting and selection, which help employees easily construct strong social connections and shared cognitive schema (Hargadon & Sutton, 1997); (5) long-term employment contracts, which not only increase employees' commitment and loyalty, but also prevent intrafirm learning networks from being quickly destroyed with the displacement of employees.

3. Training and development. Training and development practices provide primary mechanisms to build shared schema among employees. Extensive orientation and socialization programs are typical development practices that help employees understand and internalize unique value, goals, history, and culture of the firm and share tacit knowledge including cognitive schema (Feldman, 1989; Nonaka & Takeuchi, 1995). Mentoring and on-the-job training enables employees to build strong social connections and share feelings, emotions, and cognitive structures in the course of training (Noe, 1999; Gittell, 2000; Orlikowski, 2002). One way to build architectural knowledge is to increase common task experiences through training (e.g., cross-training and group training) as well as interdependent job designs, which support the building of work-flow integration. Firms may also use group MBO and organizational development techniques such as role analysis and team-building activities to convert individual mental models of employees into common terms by coordinating and mutually adjusting their behavior (cf., Wright & Snell, 1991; Nonaka, 1994). Meanwhile, these training and development

practices may indirectly contribute to expanding generalized trust within the firm by increasing employees' development experiences and thus their positive perception of organizational supports (Wayne et al, 1997).

Employee participation and suggestions programs and strong norms of cooperation within the firm contribute to building a shared culture and value among employees and increasing employees' commitment, to create cooperative relational values (Hargadon & Sutton, 1997; Orlikowski, 2002). Leadership styles as sponsors and coordinators rather than directors and evaluators may improve not only leader-member relations but also indirectly employees' perception of organizational supports so that they contribute to increasing generalized trust within the firm (Wayne, Shore, & Liden, 1997; Gittell, 2002; Gant et al., 2002).

4. Compensation and appraisal. Generalized trust among employees may also be enhanced through compensation systems that have been suggested by recent work on high performing, commitment, innovative or participative work systems (e.g., Huselid, 1995; Lawler, Morhrman, & Ledford, 1995; MacDuffie, 1995; Ichniowsk, Shaw, & Prennushi, 1997; Bae & Lawler, 2000). In other words, group or firm performance-based appraisal and incentive systems (e.g., profit sharing or gainsharing) and stock ownership programs are more advantageous in reinforcing employees' collective-goal orientations and mutual cooperation than are individual incentive systems. A high ratio of fixed salary in total compensation and the compensation structure emphasizing internal equity (e.g., compressive pay structure) may increase employees' commitment and generalized trust by expanding employees' perception of equality within the firm. Participative goal-settings, development-oriented and behavior-based appraisals, and formal grievance programs are all used to expand employees' perceptions on collective goals and organizational supports that encourage generalized trust (c.f., Gittell, 2000; Orlikowski, 2002). Another practice that may facilitate trust is found in multisource feedback appraisal systems. These systems are often referred to as 360-degree feedback appraisals and enhance contextual performance, including interpersonal facilitation, rather than task

performance (Conway, 1999). Multisource feedback also builds trust by increasing self-awareness of one's impact on the group as a whole (Day, 2001).

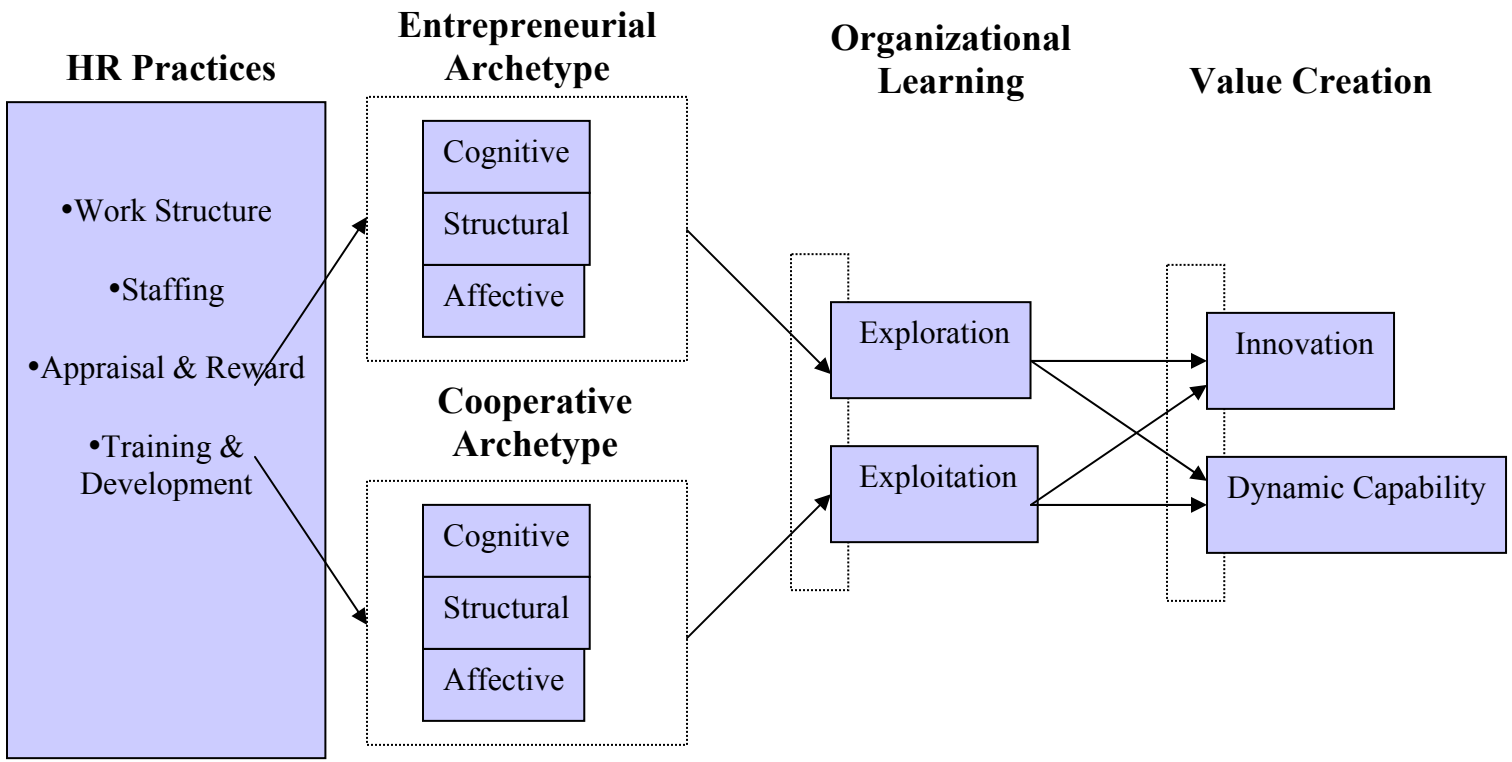
Relational Archetypes and Value Creation

Relational archetypes, as noted above, may contribute to value creation through facilitating the exchange of knowledge and resources across employees. More specifically, the entrepreneurial relational archetype will likely enable employees to access non-redundant and novel knowledge and resources, efficiently monitor the flow of those knowledge and resources, and rapidly diffuse them through social networks (Burt, 1992). It may also stimulate employees' social motives of prestige, reputation, or achievement and improve their capabilities to combine various knowledge and resources, which improves their ability to respond to innovation and change (Walker, Kogut, & Shan, 1997; Gargiulo & Benassi, 2000). The cooperative relational archetype, on the other hand, is likely to enable employees to refine and extend existing ideas to create value by providing sophisticated social exchange mechanisms based on shared identity, social boding, and social cohesion (Coleman, 1988; Leana & Van Buren, 1999).

Relational archetypes as sources of value creation are relatively (1) rare, (2) inimitable, and (3) non-substitutable in order to offer sustained competitive advantage for the firm (Barney, 1991). First, because it is relatively difficult to build and maintain relational archetypes, they will most likely be uncommon assets for the firm. To elaborate, relational archetypes can be created and maintained through building distinct HR configurations (e.g., cultures, practices, routines, and norms). In this respect, the cooperative relational archetype is likely to be more difficult to build and maintain than the entrepreneurial relational archetype because it require more intensive interactions among, more sophisticated cognitive elements of, and more emotional inputs from employees. Once in place, those relationships among employees are difficult to change and sometimes constrain the introduction of new practices, cultures, and norms (Gant et al., 2002). These unique properties of social relations imply that relational archetypes are not common resources or assets for firms. Second, social relations are likely to

develop through interaction histories among employees. Moreover, the value created from social relations cannot be attributed to any particular employee; rather that value is created through socially complex processes including the aforementioned cognitive, structural, and affective interactions among employees. Thus, a firm's relational archetype cannot easily be imitated by its competitors. Third, social relations provide effective mechanisms, which are not perfectly substitutable with any other mechanisms such as information technology, system control, and the like, to enable employees to share each other's idiosyncratic resources and knowledge among employees and to coordinate their behavior (Nonaka, 1991; Grant, 1996; Van den Bosch, Volberda, & Boer, 1999). In conclusion, because relational archetypes are rare, inimitable, and non-substitutable they provide potential sources of sustained competitive advantage for the firm. However, for relational archetypes to create sustained competitive advantage they must also be valuable to the firm.

Figure 5
Overall Conceptual Framework



As shown in figure 5, the value of relational archetypes can be acknowledged through their contributions to organizational learning, innovation, and dyadic capabilities. First, organizational learning refers to the process in which the firm acquires, distributes, and interprets new knowledge (Huber, 1991). Organizational learning expands the firm's knowledge base, its range of potential behaviors, and its capacity for adaptation to provide an important source of sustained competitive advantage (Snell, Youndt, & Wright, 1996). While organizational learning may originate from various sources (e.g., internal or external) or various entities (individual or organization itself), it basically proceeds through mutual learning between individuals and organizations (March, 1991). Relational archetypes may affect organizational learning by prescribing the ways in which employees access, share, interpret, and absorb knowledge and resources distributed over the firm to expand individual and organizational knowledge.

Following March's (1991) seminal paper, many researchers have suggested that organizational learning proceeds through two alternative modes—exploration and exploitation (e.g., Bierly & Chakrabarti, 1996; Baum, Li, & Usher, 2000; Danneels, 2002; Rowley, Behrens, & Krackhardt, 2000). Exploration refers to the organizational learning mode to acquire new knowledge unknown at the firm's existing knowledge areas, pursuing relatively broad and general knowledge acquisition that enables the search of various future alternatives. Exploitation, on the other hand, involves the organizational learning mode to fine-tune and refine knowledge in the firm's existing knowledge areas, pursuing narrow and specific knowledge acquisition that enable the search of well-defined solutions in those areas. March (1991) argued that these alternative learning modes are likely to proceed through heterogeneous learning processes between individuals and organizations. Entrepreneurial relational archetypes, as discussed above, enable employees to identify and mobilize new knowledge and resources through sparse social relations, putting weight on their initiative and autonomy. Cooperative relational archetypes, on the other hand, enable employees to refine and fine-tune existing knowledge through strong and dense social relations, enforcing collective value, norms

and cohesion. Thus, we submit that explorative organizational learning is more effectively supported by entrepreneurial relational archetypes and exploitive organizational learning is supported by cooperative relational archetypes—both of which create new value for the firm.

Second, relational archetypes may in turn facilitate organizational innovation by creating new knowledge and competencies. New knowledge and competencies can be created through internal recombination in which specialized knowledge and competencies distributed within and outside the firm are untangled, altered, and integrated with other knowledge (Galunic & Rodan, 1998). Relational archetypes provide an important mechanism to enable employees to exchange and combine distributed knowledge and competencies to create new ones (Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998; Tsai, 2001).

Organizational innovation is usually invoked by (1) synthesizing novel knowledge and competencies with no existing linkage or (2) reconfiguring the knowledge and competencies with stable linkages (Schumpeter, 1942; Henderson & Clark, 1990; Nonaka, 1991; Galunic & Rodan, 1998). The purpose of synthesizing knowledge is to create new knowledge and competencies through brokering knowledge that is relatively isolated. The brokerage advantages are likely to be embodied in social networks rich in structural holes so that entrepreneurial relational archetypes may contribute to facilitating innovation within the firm (Rosenthal, 1996; Hargadon & Sutton, 1997; Rowley et al, 2000). The purpose of reconfiguring knowledge is to develop more effective combination mechanisms of preexisting component knowledge rather than to develop new component knowledge. The cooperative relational archetype is advantageous in building sophisticated coordination mechanisms (e.g., social cohesion and associability) among employees so that it may contribute to facilitating innovation through effectively integrating individual knowledge and competencies into new collective knowledge (Nonaka, 1991; Dyer & Nobeoka, 2000).

Finally, relational archetypes, as discussed above, help firms to acquire, develop, and create new knowledge and competencies so that they can contribute to improving the firm's dynamic capabilities, which are defined as capabilities to appropriately adapt, integrate, and

reconfigure internal and external organizational skills, resources, and competencies to match the requirement of a changing environment (Teece, Pisano, & Shuen, 1997; 515). In other words, since the entrepreneurial relational archetype helps firms consistently develop new competencies beyond the boundary of their prior competency areas, it may support radical organizational change in a dynamic environment. Since cooperative relational archetypes enable firms to grow through leveraging their prior competency bases, they may efficiently support incremental organizational change. However, relational archetypes do not always play positive roles in improving dynamic capabilities. Researchers (e.g. Leonard-Barton, 1992; Brass & Labianca, 1999; Gabbay & Leenders, 1999; Talmud, 1999) have posited some social relations to be sources of social liability by constraining the introduction of new practices, technology, and systems—noting that the problem of the core rigidity in social relations is especially evident in strong and dense social relations because they sometime require employees' over-commitment to existing social relations and thus induce inflexible social relations. Thus, word of caution is that while the two relational archetypes contribute to supporting different types of organizational change (i.e., incremental and radical organizational change), they may sometime become barriers to organizational change.

Discussion and Conclusion

We have assumed that human resources contribute to improving the firm's competitive advantage and performance through maximizing the value embodied in social relations among employees. In this paper we have identified three unique dimensions—cognitive, structural, affective—of social relations, which may play distinct roles in creating value for the firm. We have argued that the three dimensions can be conceived as operation alignment to create an expected value, and that unique configurations of the three dimensions result in two alternative relational archetypes: entrepreneurial and cooperative. In other words, the entrepreneurial relational archetype refers to social relations characterized by common component knowledge, weak and broad social connections, and resilient dyadic trust among employees. The

cooperative relational archetype consists of social relations characterized by common architectural knowledge, strong and dense social connections, and generalized trust among employees. We have also identified two unique bundles of HR practices that help the firm build the two relational archetypes. We have suggested that the two relational archetypes contribute to the firm's sustained competitive advantages through facilitating organizational learning, innovation, and dynamic capabilities.

We believe that this paper makes several important contributions to the strategic human resource management (SHRM) literature. First, while human resource competencies and relationships have been conceived of in terms of human capital or knowledge stocks as well as knowledge flows, little research effort has been made to identify the mechanisms through which human resource relationships contribute to creating value for the firm. This paper contributes to helping HR researchers gain insight into the potential value of human resource relationships by providing a theoretical framework of value creating relationships. More specifically, while the HR architecture suggests that firms compete with different HR competencies in a market and that they are even likely to develop various forms of HR competencies (Lepak & Snell, 1999), we have extended the model by identifying how the firm can facilitate the sharing and combining of knowledge between distinctive HR competencies with relational archetypes. Second, while many HR researchers have found positive linkages of HRM to competitive advantage and firm performance, the processes found in those linkages have still been thought of as a 'black box'. Our framework delineated the processes in which HRM facilitates relational archetypes, which in turn, support organizational learning, innovation, and dynamic capabilities that contribute to improving firm performance. Thus, this paper provides a possible key to open the black box of strategic human resource management.

This paper would also contribute to uncovering the multidimensional characteristics of social relations. Until now, social relations have been analyzed from many different perspectives, such as social capital, social exchange, shared cognition, and the like. While each perspective contributes to expanding our understanding of each slice of social relations,

they seem to induce our misunderstanding that valuable social relations are formed through managing any particular aspects of social interaction (e.g., interaction patterns, trust or cognitive structures within the firm). However, we have presented that all facets of social relations are necessary—but not sufficient—conditions to create value, and moreover that the asymmetric development of the three facets of social relations is a potential barrier in creating value through social relations. In addition, we have identified specific forms of trust and cognitive structures that are instrumental in exploiting potential value embodied in different structures of social connections among employees. The relational archetypes presented in this paper provide the necessary framework to capture various sources of HR relationship advantages and their interactive roles in creating value. This, in turn, casts valuable implications for SHRM research.

Our conceptual framework developed in this paper also offers several directions for future research. First, the primary focus of most SHRM papers is on intrafirm employee networks. External networks of employees (e.g., relationships with customers, suppliers, and joint ventures), however, may be just or even more important than intrafirm networks in facilitating new knowledge acquisition, organizational learning, and innovation. We believe that while both relational archetypes may be applicable in exploring valuable external networks of employees as well as exploiting internal networks, each may be supported by different HR practices and must be managed accordingly. Thus, an important issue for future research is about when and how the firm pursues externally entrepreneurial or cooperative relational archetypes and internally entrepreneurial or cooperative relation archetypes.

Second, future research needs to explore the evolutionary process of HR relationships. Weak and sparse social connections among employees may evolve into strong and dense social connections over time. Conversely, strong and dense social networks that are formed in early stages of firm growth may evolve into weak and sparse networks as firms grow (Hite & Hesterly, 2001). While this evolution of HR relationships may sometime proceed naturally, firms also need to design different evolutionary processes of social relations to respond to their dynamic environments. The inertia born in social relations, however, may make them difficult to

change. Thus, destruction of relational archetypes may be as important as the construction of them, in creating relational values. What HR practices could be used to break a particular relational archetype is an important issue waiting for future research. In addition, firms may build hybrid forms of social relations to buffer conflicts invoked during the transition of relational archetypes. So, exploring valuable hybrid forms of social relations is anther important issue for future research.

References

Adler, P. S., & Kwon, S.-W. 2002. Social capital: Prospects for a new concept. *Academy of Management Review,* 27:17-40.

Adler, P., & Cole, R. 1993. Designed for learning: A tale of two auto plants. *Sloan Management Review*, 34: 85-94.

Alvarez, S. A., & Busenitz, L. W. 2001. The entrepreneurship of resource-based theory. *Journal of Management*, 17: 99-120. 755-775.

Bae, J. & Lawler, J. 2000. Organizational and HRM strategies in Korea: Impact on firm performance in an emerging economy. *Academy of Management Journal*, 43: 502-517.

Barney, J. B. 1991. Firm resources and sustained competitive advantage. *Journal of Management*, 17: 99-120.

Barney, J. B., & Wright, P. M. 1998. On becoming a strategic partner: The role of human resources in gaining competitive advantage. *Human Resource Management*, 37: 31-46.

Baum, J. A. C., Li, S. X., & Usher, J. M. 2000. Making the next move: How experiential and vicarious learning shape the locations of chains' acquisition. *Administrative Science Quarterly*, 45: 766-801.

Becker, G. S. 1964. Human capital**.** New York: Columbia University Press.

Becker, G. S., & Gerhart, B. 1996. The impact of human resource management on organizational performance: Progress and prospects*. Academy of Management Journal*, 39: 779-801.

Bierly, P., & Chakrabarti, A. 1996. Generic knowledge strategies in the U.S. pharmaceutical industry. *Strategic Management Journal*, 17(winter special issue): 123-135.

Blau, P. M. 1964. Exchange and power in social life. New York: J. Wiley.

Borys, B., & Jemison, D. 1989. Hybrid arrangements as strategic alliances: Theoretical issues in organizational combinations. *Academy of Management Review*, 14: 234-249.

Boxall, P. F. 1996. The strategic HRM debate and the resource-based view of the firm. *Human Resource Management Journal*, 6:59-75.

Brass, D. I., & Labianca, G. 1999. Social capital, social liabilities, and social resources management. In R. Th. A. J. Leenders, & S. M. Gabbay (Eds.), *Corporate social capital and liability*: 323- 338MA: Kluwer Academic Publishers.

Burt, R. S. 1992. Structural holes: The social structure of competition. Cambridge, MA: Harvard University Press.

Burt, R. S. 1997. The contingent value of social capital. *Administrative Science Quarterly*, 42: 339-365.

Cannon-Bowers, J. A., & Salas, E. 2001. Reflections on shared cognition. *Journal of Organizational Behavior*, 22: 195-202.

Cicourel, A. V. 1973. Cognitive sociology. Harmondsworth, England: Penguin Books.

Cohen, W. M., & Levinthal, D. A. 1990. Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35: 128-152.

Coleman, J. S., 1988, Social capital in the creation of human capital, *American Journal of Sociology*, 94: 95-120.

Coleman, J. S., 1990. Foundations of social theory. Cambridge, MA: Belknap Press of Harvard University Press.

Conway, J. M. 1999. Distinguishing contextual performance from task performance for managerial jobs. *Journal of Applied Psychology*, 84: 3-13.

Danneels, E. 2002. The dynamics of product innovation and firm competences. *Strategic Management Journal*, 23: 1095-1121.

Day, D. V. 2001. Leadership development: A review in context. *Leadership Quarterly*, 11: 581-613.

Davis-Blake, A., & Uzzi, B. 1993. Determinants of employment externalization: A study of temporary workers and independent contractors. *Administrative Science Quarterly*, 38: 195-223.

Defillippi, R. J., & Arthur, M. B. 1994. The boundaryless career: A competency-based perspective. *Journal of Organizational Behavior*, 15: 307-324.

Delaney, J. T., & Huselid, M. A. 1996. The impact of human resource management practices on perceptions of organizational performance. *Academy of Management Journal*, 39: 949-969.

Delery, J. E. & Doty, D. H. 1996. Modes of theorizing in strategic human resource management: Tests of universalistic, contingency, and configurational performance predictions. *Academy of Management Journal*, 39: 802-835.

Dyer, J. H., & Nobeoka, K. 2000. Creating and managing a high-performance knowledge-sharing network: The Toyota case. *Strategic Management Journal*, 21: 345-367.

Edmondson, A. 1999. Psychological safety and learning behavior in network teams. *Administrative Science Quarterly*, 44: 350-383.

Etzioni, A. 1961. *A comparative analysis of complex organizations*. New York: Free Press.

Feldman, D. C. 1989. Socialization, resocialization, and training: Reframing the research agenda. In I. L. Goldstein (Ed.), *Training and development in organizations*. San Francisco: Jossey-Bass.

Fisher, S. & White, M. A. 2000. Downsizing in a learning organization: Are there hidden costs? *Academy of Management Journal*, 25: 244-251.

Gabbay, S. M., & Leenders, R. Th. A. J. 1999. CSC: The structure of advantage and disadvantage. In R. Th. A. J. Leenders, & S. M. Gabbay (Eds.), *Corporate social capital and liability*: 1-14. MA: Kluwer Academic Publishers.

Galunic, D. C., & Rodan, S. 1998. Resource recombinations in the firm: Knowledge structures and the potential for Schumpeterian innovation. *Strategic Management Journal*, 19: 1193-1201.

Gant, J., Ichniowski, C., & Shaw, K. 2002. Social capital and organizational change in high-involvement and traditional work organizations. *Journal of Economics & Management Strategy*, 11: 289-328.

Gargiulo, M., & Benassi, M. 2000. Trapped in your own net? Network cohesion, structural holes, and the adaptation of social capital. *Organization Science*, 11: 183-196.

Gittell, J. H. 2000. Organizing work to support relational co-ordination. International *Journal of Human Resource Management*, 11(3): 517-539.

Grannovetter, M. S. 1973, The strength of weak tie, *American Journal of Sociology*, 78: 1360-1380.

Grannovetter, M. S. 1985, Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, 91(3): 481-510.

Grant, R. M. 1996. Toward a knowledge-based theory of the firm. *Strategic Management Journal*, 17(S2): 109-122.

Gupta, A. K., & Govindarajan, V. 2000. Knowledge flows within multinational corporations. *Strategic Management Journal*, 21: 473-496.

Hamel, G. 1991. Competition for competence and interpartner learning within international strategic alliances. *Strategic Management Journal*, 12: 83-103.

Handy, C. 1989. The age of unreason. Boston: Harvard Business School Press.

Hansen, M. T. 1999. The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative Science Quarterly*, 44: 82-111.

Hargadon, A., & Sutton, R. 1997. Technology brokering and innovation in a product development firm. *Administrative Science Quarterly*, 42: 716-749.

Handerson, R. M., & Clark, K. B. 1990. Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. *Administrative Science Quarterly*, 35: 9-30.

Hite, J. M., & Hesterly, W. S. 2001. The evolution of firm networks: from emergence to early growth of the firm. *Strategic Management Journal*, 22: 275-286.

Hitt, M. A., Bierman, L., Shimizu, K., & Kochhar, R. 2001. Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective. *Academy of Management Journal*, 44(1): 13-16.

Huber, G. P. 1991. Organizational learning: The contributing processes and the literatures. *Organization Science*, 2: 88-115.

Huselid, M.A. 1995. The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38: 635-672.

Ichniowski, C. Shaw, K., & Prennushi, G. 1997. The effects of human resource management practices on productivity: A study of steel finishing lines. *The American Economic Review*, 87: 291-313.

Jones, G. R., & George, J. M. 1998. The experience and evolution of trust: Implications for cooperation and teamwork. *Academy of Management Review*, 23: 531-546.

King, A. W., & Ranft, A. L. 2001. Capturing knowledge and knowing through improvisation: What managers can learn from the thoracic surgery board certification process. *Journal of Management*, 27: 255-277.

Klimoski, R., & Mohammed, S. 1994. Team mental model: Construct or Metaphor? *Journal of Management*, 20: 403-437.

Kogut, B., & Zander, U. 1992. Knowledge of the firm, combinative capabilities and the replication of technology. *Organization Science*, 3: 387-397.

Kogut, B., & Zander, U.1996. What firms do? Coordination, identity, and learning. *Organization Science*, 7(5): 502-518.

Krackhardt, D. 1992. The strength of strong ties. In N. Nohria & R. G. Eccles (Eds.), *Network and organizations: Structure, form and action*: 216-239. Boston: Harvard Business School Press.

Lawler, E. E., Morhrman, S. A., & Ledford, G. E. 1995. Creating high performance organizations: Practices and results of employee involvement and total quality management in Fortune 1000 companies. San Francisco: Jossey-Bass.

Leana, C. R., & Van Buren, H. J. 1999. Organizational social capital and employment practices. *Academy of Management Review*, 24: 538-555.

Leonard-Barton, D. 1992. Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal*, 13(summer special issues): 111-125.

Leonard-Barton, D. 1995. Wellsprings of knowledge. MA: Harvard Business School Press.

Lepak, D. P., & Snell, S. A. 1999. The human resource architecture: Toward a theory of human capital allocation and development. *Academy of Management Review*, 24: 31-48.

Lepak, D.P., & Snell, S.A. 2002. Examining the human resource architecture: The relationship among human capital, employment, and human resource configurations, *Journal of Management*, 28: 517-543.

Levesque, L. L., Wilson, J. M., & Wholey, D. R. 2001. Cognitive divergence and shared mental models in software development project teams. *Journal of Organizational Behavior*, 22: 135-144.

Lewick, R., & Bunker, B. B. 1996. Developing and maintaining trust in work relationships. In R. Kramer & T. Tyler (Eds.) *Trust in Organizations: Foundations of theory and research*: 114-139. Thousand Oaks, CA: Sage.

March, J. G. 1991. Exploration and exploitation in organizational learning. *Organization Science*, 2: 71-87.

McAllister, D. 1995. Affect- and cognition-based trust as a foundation for interpersonal trust in organizations. *Academy of Management Journal*, 38: 24-59.

MacDuffie, J. P. 1995. Human resource bundles and manufacturing performance: Organizational logic and flexible production systems in the world auto industry. *Industrial and Labor Relations Review*, 48: 197-221.

MacDuffie, J. P., & Helper, S. 1997. Creating lean suppliers: Diffusing lean production through the supply chain. *California Management Review*, 39: 118-151.

Matusik, S. F., & Hill, C. W. 1998. The utilization of contingent work, knowledge creation, and competitive advantage. *Academy of Management Journal*, 23: 680-697.

Mohammed, S., & Dumville, B. C. 2001. Team mental models in a team knowledge framework: Expanding theory and measurement across disciplinary boundaries. *Journal of Organizational Behavior*, 22: 89-106.

Moreland, R. L., & Myaskovsky, L. 2000. Exploring the performance benefits of group training: Transactive memory or improved communication? *Organizational Behavior and Human Decision Processes*, 82: 177-133.

Nadler, D. A., Gerstein, M. S., & Shaw, R. B. 1992. Organizational architecture: Designing for changing organizations. San Francisco: Jossey-Bass.

Nahapiet, J., & Ghoshal, S. 1998. Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23: 242-266.

Nelson, R. E. 1989. The strength of strong ties: Social networks and intergroup conflict in organizations. *Academy of Management Journal*, 32: 377-401.

Nonaka, I. 1991. The knowledge-creating company. *Harvard Business Review*, Nov.-Dec.; 96-104.

Nonaka, I. 1994. A dynamic theory of organizational knowledge creation. *Organization Science*, 5: 14-37.

Nonaka, I., & Takeuch, H. 1995. The knowledge creating company: How Japanese companies create the dynamics of innovation. New York: Oxford University Press.

Nonaka, I., & Konno, N. 1998. The concept of "Ba": The building a foundation for knowledge creation. *California Management Review*, 40(3): 40-54.

Orlikowski, W. J. 2002. Knowing in practice: Enacting a collective capability in distributed organizing. *Organization Science*, 13: 249-273.

Osterman, P. 1995. Work/family programs and the employment relationship. *Administrative Science Quarterly*, 40: 681-701.

Parkhe, A. 1993. Strategic alliance structuring: A game theoretic and transaction cost examination of interfirm cooperation. *Academy of Management Journal*, 36: 794-829.

Pennings, J. M., Lee, K., & van Witteloostuijn, A. 1998. Human capital, social capital and firm dissolution. *Academy of Management Journal*, 41: 425-440.

Peteraf, M. A. 1993. The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal*, 14: 179-191.

Pfeffer, J. 1994. Competitive advantage through people. Boston: Harvard Business School Press.

Portes, A. 1998. Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, 24: 1-24.

Putnam, R. 1993. The prosperous community: Social capital and public life. *The American Prospect*, 13: 35-42.

Reagans, R., & Zuckerman, E. W. 2001. Networks, diversity, and productivity: The social capital of corporate R&D Teams. *Organization Science*, 12: 502-517.

Ring, P., & Van de Ven, A. 1992. Structuring cooperative relationships between organizations. *Strategic Management Journal*, 13: 483-498.

Rowley, T., Behrens, D., & Krackhardt, D. 2000. Redundant governance structures: An analysis of structural and relational embeddedness in the steel and semiconductor industries. *Strategic Management Journal*, 21: 369-386.

Schumpeter, J. A. 1942. Capitalism, socialism and democracy. Cambridge, MA: Harvard University Press.

Scully, M., & Preuss, G. 1996. Two faces of trust: The roles of calculative and relational trust in work transformation. Working paper No. 3923-96, Massachusetts Institute of Technology, Cambridge, MA.

Shane, S., & Venkataraman, S. 2000. The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25: 217-226.

Sheppard, B., & Tuchinsky, M. 1996. Micro-OB and network organizations. In R. Kramer & T. Tyler (Eds.) *Trust in organizations: Foundations of theory and research*: 140-165. Thousand Oaks, CA: Sage.

Snell, S. A., &Youndt, M. A. 1995. Human resource management and firm performance: Testing a contingency model of executive controls. *Journal of Management*, 21: 711-737.

Snell, S. A., Youndt, M. A., & Wright, P. 1996. Establishing a framework for research in strategic human resource management. *Human Resource Management*, 14: 61-90.

Spender, J.-C. 1996. Making knowledge: The basis of a dynamic theory of the firm. *Strategic Management Journal*, 17(S2): 45-62.

Szulanski, G. 1995. Unpacking stickiness: An empirical investigation of the barriers to transfer best practices inside the firm. *Academy of Management Journal*, Best Paper Proceedings: 437-442.

Talmud, I. 1999. Corporate social capital and liability: A conditional approach to three consequences of corporate social structure. In R. Th. A. J. Leenders, & S. M. Gabbay (Eds.), *Corporate social capital and liability*: 106-117. MA: Kluwer Academic Publishers.

Teece, D. J., & Pisano, G., & Shuen, A. 1997. Dynamic capabilities and strategic management**.** *Strategic Management Journal*, 18: 509-533.

Tsai, W. 2001. Knowledge transfer in interorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance. Academy of Management Journal, 44: 996-1004.

Tsai, W., & Ghoshal, S. 1998. Social capital and value creation: The role of intrafirm networks. Academy of Management Journal, 41: 464-476.

Uzzi, B. 1997. Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42: 35-67.

Van den Bosch, F. A. J., Volberda, H. W., & Boer, M. de. Coevolution of firm absorptive capacity and knowledge environment: Organizational forms and combinative capabilities. *Organization Science*, 10: 551-568.

Walker, G., Kogut, B., Shan, W. 1997. Social capital, structural holes and the formation of an industry network. *Organization Science*, 8: 109-125.

Wayne, S. J., Shore, L. M., & Liden, R. C. 1997. Perceived organizational support and leader-member exchange: A social exchange perspective. *Academy of Management Journal*, 40: 82-111.

Wegner, D. M., Erber, R., & Raymond, P. 1991. Transactive memory in close relationships. *Journal of Personality and Social Psychology*, 61: 923-929.

Weick, K. E., & Roberts, K. H. 1993. Collective mind in organizations: Heedful interrelating on flight decks. *Administrative Science Quarterly*, 38: 357-381.

Wernefelt, B. 1984. A resource-based view of the firm. *Strategic Management Journal*, 5: 171-180.

Whitener, E. M. 2001. Do "high commitment" human resource practices affect employee commitment? A cross-level analysis using hierarchical linear modeling. *Journal of Management*, 27: 515-535.

Williamson, O. E. 1975. Markets and hierarchies: Analysis and antitrust implications. New York: Free Press.

Wright, P. M., & Snell, S. A. 1991. Toward an integrative view of strategic human resource management. *Human Resource Management Review*, 1: 203-225.

Yli-Renko, H., Autio, E., & Sapienza, H. J. 2001. Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms. *Strategic Management Journal*, 22: 587-613.

Youndt, M .A., Snell, S. A., Dean, J. W. Jr., & Lepak, D. P. 1996. Human resource management, manufacturing strategy, and firm performance. *Academy of Management Journal*, 39: 836-866.

Zukin, S., & DiMaggio, P. 1990. Introduction. In S. Zukin & P. DiMaggio (Eds**.),** *Structures of capital: The social organization of the economy*: 1-36. Cambridge: Cambridge University Press.