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THE HUMAN RESOURCE ARCHITECTURE: TOWARD A THEORY OF HUMAN CAPITAL ALLOCATION AND DEVELOPMENT

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Recognizing that not all employees possess knowledge and skills that are of equal strategic importance, we draw on the resource-based view of the firm, human capital theory, and transaction cost economics to develop a human resource architecture of four different employment modes: internal development, acquisition, contracting, and alliance. We use this architecture to derive research questions for studying the relationships among employment modes, employment relationships, human resource configurations, and criteria for competitive advantage.

Given pressures for both efficiency and flexibility (Powell, 1990), firms are exploring the use of different employment modes to allocate work (Rousseau, 1995; Tsui, Pearce, Porter, & Hite, 1995). In addition to the use of internal full-time employees, many firms are depending increasingly on external workers, such as temporary employees, contract laborers, and the like. This shift highlights the fact that, as with other capital investments, the management of human capital often can be broken down into "make-or-buy" decisions (Miles & Snow, 1984). On the one hand, firms may internalize employment and build the employee skill base through training and development initiatives. On the other, firms may externalize employment by outsourcing certain functions to market-based agents (Rousseau, 1995).

Although the make-or-buy distinction is admittedly simplistic, the growing number of subtle variations on this theme makes the effective management of employment at once more complicated and more directly related to organizational effectiveness. Some theorists have advocated the benefits of internal development of skills and capabilities (e.g., Bettis, Bradley, & Hamel, 1992; Hamel & Prahalad, 1994; Lei & Hitt, 1995), whereas others have advocated externalization (e.g., Quinn 1992; Snow, Miles, & Coleman, 1992).

The potential benefits of internal employment include greater stability and predictability of a firm's stock of skills and capabilities (Pfeffer & Baron, 1988), better coordination and control (Jones & Hill, 1988; Williamson, 1981), enhanced socialization (Edwards, 1979), and lower transaction costs (Mahoney, 1992; Williamson, 1975). Externalization, however, may enable firms to decrease overhead and administrative costs (Davis-Blake & Uzzi, 1993; von Hippel, Mangum, Greenberger, Heneman, & Skoglind, 1997; Welch & Nayak, 1992), balance workforce requirements (Pfeffer, 1994), and enhance organizational flexibility (Miles & Snow, 1992; Snow et al., 1992). Externalizing employment may also provide organizations with more discretion in both the number and types of workers used (Davis-Blake & Uzzi, 1993; Pfeffer & Baron, 1988; Tsui et al., 1995) and allow them access to vendor innovations while focusing critical resources on the development of core capabilities (Quinn, 1992).

Despite the benefits of both internalization and externalization, each employment mode has its own associated costs. Internalization may increase the stability of a firm's stock of human capital, but it also incurs bureaucratic costs stemming from administering the employment relationship (Jones & Wright, 1992; Rousseau, 1995). Moreover, internalization constrains a firm's ability to adapt to environmental changes, particularly those that influence the

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demand for labor. Externalization has its own set of costs. For example, since outsourcing involves the use of external skills and capabilities, an organization's continued reliance on it for short-term purposes may mitigate the development of core skills and capabilities—critical for long-term firm performance (Bettis et al., 1992; Lei & Hitt, 1995).

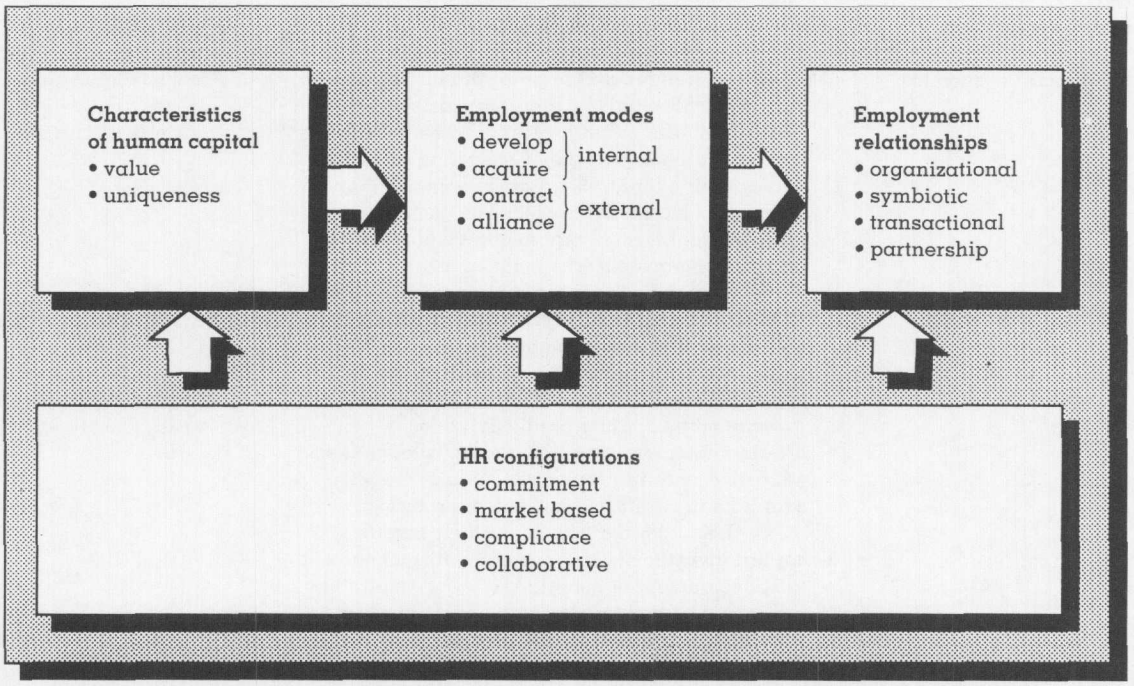
We argue that this discussion should not be reduced to an "either/or" distinction of employment modes. In reality, organizations utilize a variety of approaches to allocate human capital and often use these forms simultaneously (Davis-Blake & Uzzi, 1993). In other words, firms often make *and* buy their human capital. Yet, the literature on how firms can manage their employment modes remains sparse. From the point of view of strategic human resource management (HRM), researchers need to investigate how various combinations of employment modes (i.e., internalization and externalization) lead to competitive advantage. Scholars also need to identify the configurations of staffing, training, appraisal, and reward practices that are appropriate for the types of human capital embodied within those employment modes.

To date, most strategic HRM researchers have tended to take a holistic view of employment and human capital, focusing on the extent to which a set of practices is used across all employees of a firm as well as the consistency of these practices across firms (see Gerhart & Trevor, 1996, Huselid, 1995, and Snell & Dean, 1992, for notable exceptions). By ignoring the possible existence of different employment practices for different employee groups within a firm, much of the strategic HRM literature may seem somewhat monolithic. For instance, many strategic HRM theorists (e.g., Arthur, 1992, 1994; Koch & McGrath, 1996; Kochan & Osterman, 1994; Lawler, 1992; Levine, 1995; Pfeffer, 1994) have advocated high commitment and other types of high-involvement work systems that focus on making large investments in human capital to foster sustainable competitive advantage. Although these suggestions are intuitively appealing, it may be inappropriate to simplify the nature of human capital investments and suggest that there exists a single "optimal" HR architecture for managing all employees. Rather, we believe that the most appropriate mode of investment in human capital will vary for different types of human capital.

To address these issues, we draw upon several works in economics, organization theory, strategic management, and HRM literature to develop the foundation of a HR architecture that aligns different employment modes, employment relationships, HR configurations, and criteria for competitive advantage. We use the term *architecture* to describe this framework because it is based on a set of fundamental parameters that, once established, allow us to draw inferences about both the form and function of the entire system (cf., Becker & Gerhart, 1996; Nadler, Gerstein, & Shaw, 1992). Although the notion of an HR architecture is consistent with the conceptualization of organizational configurations and the need to align strategic employment and HR issues, the premise of our framework is that there may be different HR configurations within a single organization's architecture. Therefore, these HR configurations do not represent an entire organization but, rather, subgroupings within organizations.

The logic of the architecture is as follows. First, we discuss strategic considerations in terms of how they influence the employment mode used for various forms of human capital. Using the dimensions of value and uniqueness of human capital, we identify four different employment modes: (1) internal development, (2) acquisition, (3) contracting, and (4) alliance. Second, we view each employment mode as carrying with it an inherently different form of employment relationship. Rousseau describes employment relationships as the "psychological contract [of] individual beliefs, shaped by the organization, regarding terms of an exchange agreement between individuals and their organizations" (1995: 9). As employment modes differ, so too do the nature of the psychological contracts. Third, we view patterns of HR practices—or HR configurations—as helping to define the employment mode, maintain the employment relationship, and support the strategic characteristics of human capital. Drawing on the Barnard-Simon notion of "inducements-contributions exchange" (Barnard, 1938; March & Simon, 1958), we argue that HR configurations maintain equity between the employee and the organization in terms of what each contributes and receives. We depict the relationships among these elements of the human capital architecture in Figure 1. Theoretical and research implications that pertain to the static properties

FIGURE 1
Theoretical Model



of the framework, as well as the dynamic properties occurring over time, are presented throughout the article.

THE HR ARCHITECTURE

In developing a theoretical foundation for this article, we have drawn primarily from transaction cost economics (e.g., Coase, 1937; Klein, Crawford, & Alchian, 1978; Williamson, 1975), human capital theory (e.g., Becker, 1964; Flamholtz & Lacey, 1981; Schultz, 1961), and the resource-based view of the firm (e.g., Barney, 1991; Prahalad & Hamel, 1990; Wernerfelt, 1984) to discuss various employment modes. We have chosen these three theories for their explicit theoretical relevance concerning employment practices related to internalization and externalization. However, each theory offers only part of the underlying logic for understanding how firms can manage their workers to achieve competitive advantage.

As indicated in Table 1, each perspective offers a different lens for understanding how firms may manage their human capital. More important, perhaps, we offer each theory as evidence that two dimensions—value and uniqueness—are ubiquitous dimensions that differentiate most, if not all, human capital. Below, we briefly discuss each of the three theories and their interactions.

At a general level, much of the literature concerning both internalizing and outsourcing employment has its roots in the make-or-buy arguments elaborated within the transaction cost perspective. Teece (1984), for example, explicitly frames the make-or-buy decision as a special case of market failures. He notes that "arm's-length transactions in markets, such as when one firm purchases an input from another, and 'in-house' production, as with vertical integration, can be thought of as alternatives" (1984: 89). In an effort to identify the most *efficient* form of organizing employment, firms either rely upon the market to govern a transaction, or they govern this process internally. Thus, according to transaction cost economics, internalization of employment is appropriate when it allows organizations to more effectively monitor employee performance and ensure that their skills are deployed correctly and efficiently (Williamson, 1975).

Related to this, human capital theorists suggest that organizations develop resources inter-

TABLE 1
Theoretical Background for the HR Architecture

Theoretical Perspective	Implications for Managing Employment	Key Constructs
Transaction cost economics	Market transactions and internal production can be viewed as alternatives; there are costs associated with managing employees through market arrangements (i.e., transaction costs) versus within hierarchical arrangements (i.e., bureaucratic costs); firms focus on securing the most *efficient* form of organizing employment; firm-specific investments incur costs of monitoring and securing compliance; firms strive to minimize ex ante and ex post costs associated with managing employment (Coase, 1937; Klein, Crawford, & Alchian, 1978; Williamson, 1975).	Asset specificity, uncertainty, transaction versus bureaucratic costs
Human capital theory	Emphasizes the labor costs relative to the return on investment (i.e., future productivity) for developing employee skills and knowledge (i.e., education and training); employees own their own human capital; firms seek to protect themselves from the transfer of their human capital investments to other firms; investments in the development of generic skills are incurred by workers, whereas investments in firm-specific training are incurred by the firm (Becker, 1964; Flamholtz & Lacey, 1981; Schultz, 1961).	Generic versus specialized skills; transferability of skills
Resource-based view of the firm	Emphasizes the strategic relevance of knowledge-based competencies in terms of their direct link to achieving and sustaining a competitive advantage; core competencies should be developed internally while others may be outsourced; core competencies are those that are valuable, rare, inimitable, and nontransferable (Barney, 1991; Prahalad & Hamel, 1990; Wernerfelt, 1984).	Value, rareness, inimitability, nontransferability

nally only when investments in employee skills are justifiable in terms of future productivity (Becker, 1964; Tsang, Rumberger, & Levine, 1991). These theorists also raise the possibility that firms may internalize employment when they can do so without investing in employee development. However, if employee productivity is not expected to exceed investment costs, organizations likely will secure these skills from the labor market. Thus, the decision to internalize or externalize employment rests on a comparison of the expected returns of employee productivity.

Although many researchers have studied how firms make employment decisions based on traditional transactional or financial criteria, recent work suggests that attention should also be paid to strategic or resource-based factors (Welch & Nayak, 1992). Such scholars as Quinn (1992) and Venkatesan (1992) have argued that firms should base employment sourcing decisions on the degree to which skills contribute to the core capabilities of the firm. Rather than taking the transaction as the critical component in employment relations, the resource-based perspective encourages a shift in emphasis toward the inherent characteristics of employee skills and their relative contribution to value creation (Wright, Smart, & McMahan, 1995). This theory suggests that core employee skills (central to the firm's competitiveness) should be developed and maintained internally, whereas those of limited or peripheral value are candidates for outsourcing.

If we combine the arguments from transaction cost economics, human capital theory, and the resource-based view of the firm, we can gain a more complete perspective of how managers

might make employment sourcing decisions. In our model of the HR architecture, the choice of employment modes depends on both strategic and cost/benefit considerations. Specifically, these decisions are based on the *value*-creating potential from various skills, as well as their *uniqueness* to a particular firm. These distinctions concerning value and uniqueness are consistent with existing theory regarding a firm's core resources. For instance, Porter suggests that valuable activities are the primary components of a firm's competitive advantage, and "differences among competitors value chains are a key source of competitive advantage" (1985: 36). Ulrich and Lake (1991) suggest that firms may create strategic, technological, financial, and/or organization value from human capabilities that are realized by consumers. They go on to note that the uniqueness of an employee's skills and capabilities is a critical requirement for gaining competitive advantage.

The Value of Human Capital

Those holding the resource-based view of the firm suggest that resources are valuable when they enable a firm to enact strategies that improve efficiency and effectiveness, exploit market opportunities, and/or neutralize potential threats (Barney, 1991; Porter, 1985; Ulrich & Lake, 1991; Wright & McMahan, 1992). Accordingly, the value of human capital is inherently dependent upon its potential to contribute to the competitive advantage or core competence of the firm.

Like other organizational assets, employee skills can be classified as core or peripheral assets (Barney, 1991; Quinn, 1992). Core assets, in particular, are vital to the competitive advantage of an organization (Porter, 1985) and often require continual internal development (Quinn, 1992). According to Bettis et al. (1992), outsourcing these kinds of skills might jeopardize the competitive advantage of the firm by eroding its stock of core skills. Further, because value "is the amount that buyers are willing to pay for what a firm provides them" (Porter, 1985: 38), these skills must somehow contribute toward consumer-based perceptions of value (Snell, Youndt, & Wright, 1996). The value of human capital can be influenced by a multitude of sources, such a firm's strategy and technologies (Arthur, 1992; Snell & Dean, 1992). Snell and Dean (1992), for example, note that an employee's potential contribution increases dramatically when firms implement advanced manufacturing technologies. They refer to this impact on the value of human capital as the transformation from touch labor to knowledge workers.

Yet, although internalization of human capital may enhance a firm's core capabilities and lower transaction costs, it also accrues managerial and bureaucratic costs (Jones & Hill, 1988; Jones & Wright, 1992). Expenses for staffing, training, compensation, benefits, and the like (Rousseau & Wade-Benzoni, 1994) may diminish the gains from internalization. These costs need to be entered into the value equation as well. Considering this, we define value as the ratio of strategic benefits to customers derived from skills relative to the costs incurred (Snell et al., 1996). Thus, employees can add value if they can help firms offer lower costs or provide increased benefits to customers. Because value has a direct impact on the performance of firms (Barney, 1991), we expect it to influence employment decisions.

The Uniqueness of Human Capital

Advocates of transaction cost economics and resource theory have argued convincingly that idiosyncratic resources are both essential and frequently occurring (Barney, 1991; Williamson, 1981). Because the degree of uniqueness—or firm specificity—of human capital impacts transaction costs, it can strongly influence the decision to internalize employment (Anderson & Schmittlein, 1984; Joskow, 1993; Monteverde & Teece, 1982; Mosakowski, 1991; Walker & Weber, 1984; Williamson, 1975, 1981). The uniqueness of an employee's skills may result from a variety of factors. For example, when employee skills are used in exceptional circumstances or possibly interdependent arrangements, they tend to require more tacit knowledge and expertise (Becker, 1964; Perrow, 1967). Specifically, such practices as team-based production and unique operational procedures that lead to enhanced social complexity, causal ambiguity, and the development of tacit knowledge will enhance the uniqueness of a firm's human capital. Because these skills often involve idiosyncratic learning processes, firms are not likely to find these skills in the open labor market.

In addition to transaction costs, the degree to which assets are unique directly impacts their

potential to serve as a source of competitive advantage (Wright & McMahan, 1992). As noted by Snell et al.,

> If the types and levels of skills are not equally distributed, such that some firms can acquire the talent they need and others cannot, then (ceteris paribus) that form of human capital can be a source of sustained competitive advantage (1996: 65).

Moreover, if an asset or skill cannot be duplicated or imitated by another firm, it provides a potential source of competitive advantage to the firm (Barney, 1991).

Combining these arguments, we can infer that as human capital becomes more idiosyncratic to a particular firm, externalization may prove infeasible and/or incur excessive costs. Furthermore, the development of unique or firm-specific human capital is often path dependent (Barney, 1991; Itami, 1987) and may require tacit skills and knowledge (Polyani, 1966) that is acquired in situ (Williamson, 1975, 1981). Because of this, theorists have suggested that unique assets need to be developed internally (cf., Chiesa & Barbeschi, 1994).

In direct contrast, skills and capabilities that are generic and available to multiple firms may not justify the costs of internal development relative to the transaction costs incurred from relying on the external market to secure these skills. In these cases the external labor market may prove an efficient mechanism (Teece, 1984). In short, we can expect the degree to which employee skills are unique to a particular firm to influence the mode of employment for their development.

In summary, the value and uniqueness of human capital function as strategic determinants of alternative employment modes. When these dimensions are juxtaposed, we can begin to derive an architecture of four quadrants that simultaneously links the strategic characteristics of human capital, employment modes, employment relationships, and HR configurations. Figure 2 provides a summary of the HR architecture.

Quadrant 1: Developing Human Capital

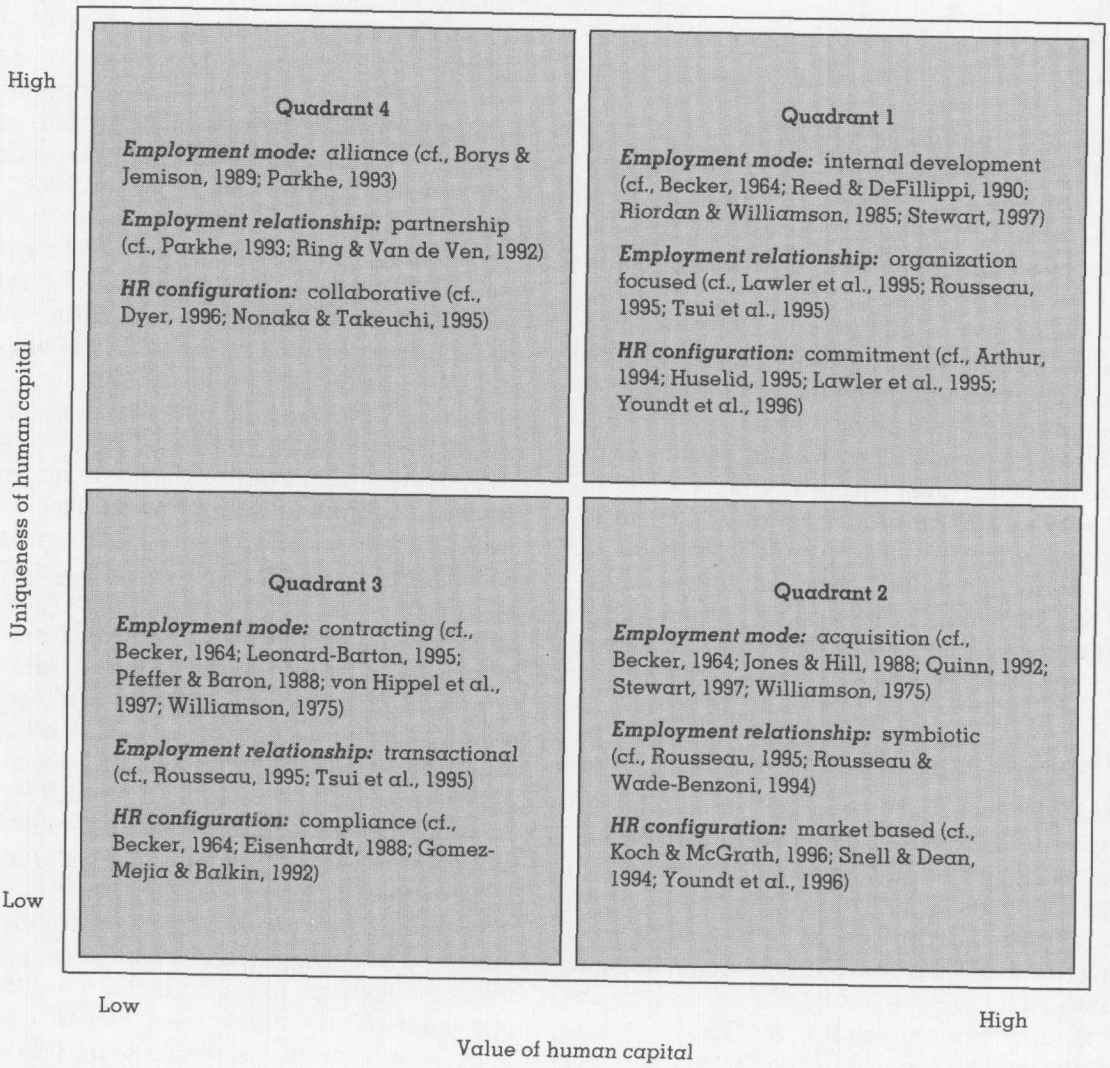
In the top right-hand corner of the matrix (Quadrant 1), we find human capital that is both valuable and unique. As we noted earlier, firms are more likely to employ people internally when their skills are firm specific (Klein et al., 1978; Riordan & Williamson, 1985; Williamson, 1975, 1981). This makes intuitive sense when we consider that, by definition, firm-specific skills are not available in the labor market. With few alternative sources for unique skills, firms are likely to develop them internally. In addition to uniqueness, skills within this quadrant are valuable—that is, their strategic benefit exceeds the managerial and bureaucratic costs associated with their development and deployment.

Employment mode: internal development. In these conditions firms have both financial and strategic incentives to *internally develop* (i.e., make) this particular form of human capital (Prahalad & Hamel, 1990; Reed & DeFillippi, 1990). From a strategic standpoint, employing and internally developing these employees offers firms a number of advantages.

Specifically, human capital theorists suggest that since firm-specific skills are nontransferable, the value of any employee's human capital will be less with any other firm, and internal development will be less likely to result in a capital loss (Becker, 1976). In addition, internally developing human capital helps firms realize the benefits of these employees in terms of their value-creating potential. Because employees in this skill group possess abilities that are both valuable and unique, we can view them as *core employees*, who may serve as a source of competitive advantage (Atchison, 1991; Barney, 1991; Stewart, 1997). For example, Intel's talented and creative engineers consistently develop new microprocessors, which create significant customer value and enable Intel to stay out in front of its competition.

Employment relationship: organization focused. In terms of employment relationships for these employees, Tsui and colleagues (1995), as well as Rousseau (1995), have used the terms *organization focused* and *relational* to describe open-ended exchanges between employers and employees. Organization-focused employment relationships can be viewed as encouraging significant mutual investment on the part of employers and employees in developing critical firm skills. The notions of long-term involvement and investment are perhaps the key facets of this type of employment relationship. Theorists argue that by investing in employee development and allowing employees greater participation in decision making, organizations can fos-

FIGURE 2
Summary of the HR Architecture



ter a higher level of ongoing commitment from employees, which translates into exceptional performance (cf., Lawler, Mohrman, & Ledford, 1995). Indeed, both Rousseau (1995) and Tsui et al. (1995) suggest that when employees are a core component of competitiveness, firms may establish organization-focused relationships in order to elicit a wide range of employee behaviors and increase employee incentives to engage in firm-specific learning.

HR configuration: commitment. To support or create an employment relationship that is organization focused, firms will likely rely on a *commitment-based* HR system (cf., Arthur, 1994) that nurtures employee involvement and maximizes the firms' return on human capital investments. For example, organizations may loosely define jobs to allow for change and adaptation and may base staffing decisions on employee potential (e.g., cognitive ability, aptitude, and so on) rather than simply current knowledge and skills (e.g., achievement testing). Human capital theorists suggest that firms will also invest significantly to develop unique (i.e., firm-specific) skills through extensive training initiatives (Becker, 1976). To complement training, organizations might sponsor career development and mentoring programs to encourage employees to build idiosyncratic knowledge that is more valuable to the firm than to competitors. Additionally, firms might structure pay systems to focus on employee learning (e.g., skill-based pay) and

information sharing (e.g., team-based pay) to encourage employee development and mastery of firm-specific competencies (cf., Delany & Huselid, 1996). Developmental performance appraisal systems also may be used to make certain that employees receive continued and useful feedback (Snell & Dean, 1992).

Use of these practices in combination is consistent with recent work on HR configurations for high-performance work systems (cf., Huselid, 1995; Lawler et al., 1995). Arthur (1994), for example, found that, in steel minimills, a HR system emphasizing employee commitment was associated with higher productivity. Huselid (1995) extended these findings and showed the impact of high-performance work practices on employee turnover and corporate financial performance. Certainly, more research is needed, but a pattern is emerging that shows that high-performance work systems are instrumental for creating committed, long-term employment relationships, as well as firm-specific human capital vital for competitive advantage (Lawler et al., 1995; Rousseau, 1995; Tsui et al., 1995).

Quadrant 2: Acquiring Human Capital

Although Quadrant 1 contains core skills that are essential for competitive advantage, it by no means characterizes all forms of human capital needed or utilized by firms to function effectively. In this regard, a HR architecture also needs to address the ways in which other types of human capital are managed for maximum performance. Human capital in Quadrant 2 is valuable, yet widely available throughout the labor market. Because these skills are valuable, organizations have an incentive to internalize employment (Hamel & Prahalad, 1994). However, since skills in this quadrant are not unique or specific to a firm, human capital theorists would suggest that managers may be hesitant to invest in internal development (recall that employees with generic skills may leave and transfer the organization's investment to another firm).

Employment mode: acquisition. Organizations may reconcile these conflicting pressures by *acquiring* (i.e., buying) from the market human capital that does not require further investment. An acquisition mode enables firms to reap the benefits of valuable skills that have been developed elsewhere while holding them internally. In so doing, the acquiring firm simply pays the value reflected in the market price and realizes immediate benefits vis-à-vis productivity (Becker, 1976). Selecting skilled employees directly from the market may also allow firms to realize significant savings in developmental expenditures while gaining instant access to a wide variety of capabilities that may incur positive returns on investment (Becker, 1964; Quinn, 1992).

For example, many firms hire CPAs who possess standardized accounting skills that are widely available to many firms. Although there exists a fairly large (but not exhaustive) supply of CPAs in the open labor market, each firm's return from their investment will depend on the productivity of these workers within their firm. The recent strike by the UPS drivers provides another example of this quadrant. These drivers have skills that are by no means unique to UPS, but without their valued contribution, UPS was essentially crippled. Moreover, because an acquisition mode involves internalization of employment, firms can exercise significant discretion regarding the deployment of these skills, without having to consult or revise contractual agreements with external actors (Jones & Hill, 1988; Tsui et al., 1995; Williamson, 1975).

Employment relationship: symbiotic. The employment relationship for persons in Quadrant 2 reflects the conditions of an acquisition mode: these employees are valued contributors but not unique. To manage these employees, organizations may strive to establish a *symbiotic* employment relationship based on the utilitarian premise of mutual benefit (Etzioni, 1961; Tsui et al., 1995). In essence, a symbiotic relationship rests on the notion that both the employees and the organization are likely to continue the relationship as long as both continue to benefit.

In contrast to Quadrant 1, these types of employees are perhaps less committed to the organization and more focused on their career. Rousseau and Wade-Benzoni (e.g., Rousseau, 1995; Rousseau & Wade-Benzoni, 1994) note that careerists do not typically seek nor receive lifelong employment within a particular firm. Because these employees are often trained in a particular occupation or profession, they can effectively "sell" their talents to a variety of organizations—wherever they can contribute and receive the highest returns on their human capital investment. In return for employment, organiza-

tions expect a certain degree of loyalty to the firm while the relationship exists (Rousseau & Parks, 1993). However, because each party has alternative options available to meet its needs, this symbiotic relationship may be terminated when either party believes that the costs of maintaining the relationship exceed the benefits it creates.

HR configuration: market based. In situations where the employment mode focuses on human capital acquisition and the employment relationship is symbiotic, the HR configuration is likely to emphasize staffing and deploying skills for immediate contribution. Compared to workers in the commitment HR configuration within Quadrant 1, workers in this quadrant are not likely to receive as much training and development. Since these employees possess skills that are not unique to a particular firm, managers may not gain a return on any investments if employees leave. Instead, assuming that the market wage reflects the value of transferable human capital, the employee (rather than the firm) will likely accrue the returns on the firm's human capital investments. Given these risks to the firm, managers will be more likely to focus on recruiting and selecting employees who already possess the necessary skills.

Indeed, several researchers (e.g., Koch & McGrath, 1996; Snell & Dean, 1992) have suggested that a reliance on selective staffing procedures is logically related to an HR orientation that relies heavily on the external labor market for securing talent. Thus, a primary difference between the market and commitment HR configurations rests on the relative emphasis placed upon staffing versus training (i.e., buy versus make). In addition, the market-based HR configuration likely will focus on identifying workers with specific skills who can perform immediately (e.g., through achievement testing), whereas the commitment HR configuration more likely will emphasize identifying workers with future potential who could benefit from further training. Finally, a market configuration is likely to include externally equitable wages to focus attention on productivity concerns. Within their specified domains, Quadrant 2 employees might be given discretion and empowerment to make decisions that impact value.

Existing research in the strategic HRM literature provides some additional insight into these arguments. Youndt, Snell, Dean, and Lepak (1996), for example, found that a HR system emphasizing staffing and equitable rewards was most appropriate for firms pursuing a strategy of low-cost production. Similarly, Delery and Doty (1996) found that the use of a market-type employment system for loan officers in banks was positively related to firm performance. Although these studies emphasized the linkage between firm strategy and HR systems, future research might focus on whether a *market-based* HR configuration—a system of selective staffing and rewards—is best for aligning valuable yet generic forms of human capital with the needs of the firm.

Quadrant 3: Contracting Human Capital

Although Quadrants 1 and 2 focus on human capital that is internalized within the firm, Quadrants 3 and 4 represent human capital that, technically speaking, may remain external to the firm. Quadrant 3, for example, contains human capital that is generic and of limited strategic value. Leonard-Barton (1995) describes this as "public knowledge" skills that can be purchased easily on the open labor market and, therefore, can be treated essentially as a commodity. Like Quadrant 2, the limited uniqueness of these skills provides a disincentive for firms to invest significant resources toward employee development (Becker, 1964). In fact, because so many alternative sources for these skills exist, firms may decrease employment costs by contracting externally (Pfeffer & Baron, 1988; Williamson, 1975).

Employment mode: contracting. As the supply of qualified suppliers increases and the risk inherent in contractual arrangements decreases, organizations are able to contract work without jeopardizing their competitive position (Pfeffer & Baron, 1988; Rousseau, 1995; Von Hippel et al., 1997). Although many contractual relationships stipulate that the actual work be done off company premises (and only the product of those labors will be traded), it is increasingly common that contractual work is performed on site. Temporary employees, leasing arrangements, and other forms of contract work often fall within this category.

For example, firms are increasingly outsourcing administrative or lower-level jobs, such as clerical, support, and maintenance positions, which contribute little to the competitive posi-

tion of the firm. The rapid growth of such companies as Aramark, which provides outsourcing services, furnishes further evidence of this trend. In these cases using outside workers enables organizations to reduce overhead costs and retain a significant degree of flexibility concerning the number of workers employed, as well as when they are employed. Such sourcing modes may actually improve the competitiveness of firms (Quinn, 1992) by enabling them to strategically focus their development expenses on those skills that may contribute to the firm's competitive advantage. As a result, *contractual* employment appears to be justified when skills are not unique to a firm and offer less potential for value creation.

Employment relationship: transactional. In terms of employment relationships, Rousseau (1995) suggests that when employees have limited association with a firm and have explicit performance expectations, their psychological contract may be termed *transactional,* in that it focuses on short-term economic exchanges. Similarly, Tsui and colleagues (1995) use the term *job-focused employment relationships* to describe those situations in which individuals have specific performance requirements and limited organizational involvement. Although the terms differ, in both works the authors posit that arm's-length relationships focus on the work to be done, the results to be accomplished, the terms of the contract, and virtually nothing else.

Although the transactional relationship differs substantially from the organization-focused relationship of Quadrant 1, it is similar to the symbiotic approach of Quadrant 2. Their differences essentially come down to the scope of involvement and the expectations underlying the exchanges. With the symbiotic relationship, organizations seek continuity and loyalty from full-time employees, albeit on a limited basis. In contrast, with the transactional relationship, firms probably do not expect (and do not obtain) organizational commitment; the relationships simply focus on the economic nature of the contract (Rousseau & Parks, 1993).

HR configuration: compliance. As the transactional and symbiotic employment relationships are similar in nature, so too are their respective HR configurations. Perhaps the primary differences rest on the range of behaviors and expectations required of employees and their level of contribution permitted. Given the transactional nature of contract work, HR activities might need only focus on securing compliance with the terms and conditions of the contract versus executing broader responsibilities and assuming organizational roles (differences that would reflect the enhanced value of human capital in Quadrant 2). To ensure compliance, firms likely will concentrate on enforcing rules and regulations, upholding specific provisions regarding work protocols, and ensuring conformance to preset standards. This approach differs from the market-based orientation, which places greater emphasis on recruitment and selection to ensure that the right people are hired to do the work. Once hired, Quadrant 2 employees are likely to be permitted a greater degree of empowerment to carry out their organizational roles.

Organizations that rely on the external labor market to contract work rarely invest in training or development activities for those people (Becker, 1964). If training is done at all, it typically focuses on company policies, systems, and procedures (cf., Rousseau & Parks, 1993). Similarly, performance appraisal and rewards are likely to be job based (Mahoney, 1989; Snell & Dean, 1994), focusing on prescribed procedures or specified results—or both. Researchers such as Gomez-Mejia & Balkin (1992) and Eisenhart (1988) have studied the effectiveness of various reward systems and performance appraisals in agency situations. Their research might be expanded in the context of a broader HR architecture to address the fit among employment contracting, transactional relationships, and HR configurations based on *compliance*.

Quadrant 4: Creating Human Capital Alliances

Finally, Quadrant 4 contains human capital that is unique in some way but not directly instrumental for creating customer value. Given uniqueness, this form of human capital might, at first glance, appear to be optimized through internal development. Indeed, supporters of transaction cost economics would propose that firms internalize unique skills to lower transaction costs (Ouchi, 1980; Williamson, 1975, 1981). However, resource-based theorists suggest that given limited value-creating potential, minimal benefit may be gained from outright ownership of these types of skills. For example, an attorney

has unique skills that require years of development to cultivate. Yet, particularly small firms may not be able to justify the expense of full-time internal employment (i.e., there is not enough value-creating potential).

Employment mode: alliance. It may be the case, as Leonard-Barton (1995) notes, that some unique forms of human capital are less codified and transferable than generic skills, yet more widely available than firm-specific skills. In these cases organizations face a paradox; they are simultaneously encouraged to use external and internal employment modes. If outright internalization is prohibitive from a cost/benefit standpoint and complete contracting involves risks of opportunism, some form of *alliance* between parties may provide a hybrid employment mode that blends internalization and externalization and overcomes these problems.

Researchers use the term *alliance* to refer to an external relationship where each party contributes to a jointly shared outcome (cf., Borys & Jemison, 1989; Parkhe, 1993). Frequently, this occurs through the creation of cospecialized assets—that is, assets that provide value only through the combined efforts of two or more parties (Teece, 1982). When organizations collaborate in the utilization of human capital, a synergistic value may be realized by both firms that exceeds the value either could generate independently. Engineers and scientists who do basic research with no direct customer-linked business application fit into this category. Such firms as IBM and AT&T recently have streamlined their research divisions, reducing or eliminating basic (versus applied) research, and have increased their reliance on external partners to provide this type of human capital. Since such specialized skills are only used occasionally or only pay off in the long run, they may not justify full-time employment. However, Microsoft recently announced that it was hiring hundreds of scientists and Ph.D.s to create a basic research unit like AT&T's former Bell Labs. Microsoft may have the necessary financial slack to justify internal employment of this form of human capital. Even so, experts or specialists, whether employed internally or externally, combine their knowledge with others in the organization to produce a cospecialized asset that has greater value (cf., Teece, 1982). Engineers, designers, programmers, and scientists are frequently used for just this purpose. By establishing an alliance, both parties can capitalize on the other's specialized knowledge—gaining value from the human capital as well as transferring knowledge—without incurring the entire costs of internal employment.

Employment relationship: partnership. Because of the nature of their exchange, alliances can create rather paradoxical employment relationships (cf., Parkhe, 1993; Pucik, 1988). At their root, alliances require information sharing and trust, engendering reciprocity and collaboration (Dyer, 1996). Without information sharing, partners can at best only pool their resources (Thompson, 1967; Van de Ven, Delbeq, & Koenig, 1978), and without trust, neither party is likely to give valuable information to the other nor act on the information they receive (cf., Ring & Van de Ven, 1992). Whenever two or more parties seek to engage in a collaborative action, such as in an alliance, there exists the possible threat that their idiosyncratic knowledge might be transferred to the other party (Parkhe, 1993). Awareness of this can lead to mistrust and exploitation of short-term contracts (cf., Williamson, 1975), which, unfortunately, is antithetical to a solid alliance. To minimize this risk, firms may create true *partnerships* that focus on mutual investment in the relationship and build trust among involved parties, while still protecting their investments and gaining access to each other's talents.

HR configuration: collaborative. Although alliances may involve structural arrangements in which employees from both parties work together, for synergistic benefits to be realized, HR systems that encourage and reward cooperation, collaboration, and information sharing are also likely to be necessary. In the context of cospecialized rather than firm-specific assets, organizations will not be likely to expend resources for training and developing partners. A firm investing in the development of a partner's skills implies that it might justify the expense of internal employment (recall Quadrant 1). Instead of investing in the individuals per se, *collaborative* HR configurations tend to invest in the relationship and its effective functioning (cf., Dyer, 1996).

In this context, if training is done at all, it likely will focus on process facilitation and team building. Communication mechanisms, exchange programs, job rotations, mentoring relationships, and the like may be established to

facilitate information sharing and the transfer of knowledge necessary for joint decision making and productivity (Nonaka & Takeuchi, 1995). Organizations might also use group-based rewards and appraisal to encourage employees from both firms/parties to share and transfer information (cf., Quinn, Anderson, & Finkelstein, 1996). In short, a collaborative HR configuration helps organizations invest in the partnership while improving trust and encouraging information sharing.

It would be a mistake to assume that the impact of human resources ends at the "edge" of an organization. As firms engage in more innovative forms of work arrangements, such as alliances and networks, researchers might identify the most appropriate HR configurations to help develop and integrate those interdependencies. Such researchers as Ring and Van de Ven (1992), Parkhe (1993), and Snow and Thomas (1993) have examined the structures, processes, and systems that facilitate information exchange, trust, and collaboration. Their research might be expanded into the context of an HR architecture to see how alliances and other forms of collaborative endeavors may be managed to enhance a firm's competitive advantage.

MANAGING THE HR ARCHITECTURE

Up to this point, we have concentrated on each of the four quadrants of our framework to theorize how employment modes, employment relationships, and HR configurations might vary in concert with one another across different forms of human capital. From a configurational perspective, a greater fit or congruence among these three components logically would be associated with a more effective HR architecture. While this analysis of the HR architecture provides a number of potential ideas for further study, we believe that one of the primary benefits of adopting an architectural perspective is that it goes beyond the individual quadrants, as well as the individual components within each quadrant. In other words, we believe that this framework highlights the importance of managing the entire HR architecture, including the congruence of the individual components. From this level of analysis, the issues of complexity and dynamism become primary concerns.

The Complexity of the HR Architecture

Although most organizations develop and deploy human capital in each of the four quadrants, few researchers have examined HR issues across these boundaries. As we mentioned earlier, the preponderance of strategic HRM research implies that either (1) all employees should be managed in a manner appropriate for Quadrant 1 or (2) only those employees in Quadrant 1 are strategically important. In fact, many strategic HRM researchers have argued for a "best practices" perspective to HR, suggesting that "some HR practices are always better than others and that all organizations should adopt these best practices" (Delery & Doty, 1996: 803). Although other theoretical perspectives do exist (i.e., contingency and configurational approaches), the current status of strategic HRM research seems to support or advocate the best practices perspective (Becker & Gerhart, 1996).

Despite the practical appeal and theoretical parsimony of a "one-size-fits-all" approach to HR management, employment modes in most organizations are not this homogenous, and HR systems are rarely this monolithic. For example, researchers often make a distinction between the compensation practices used for exempt and nonexempt employees (e.g., Gerhart & Milkovich, 1990) and the training and development initiatives used for managers versus rank-and-file employees (e.g., Baldwin & Ford, 1988). Similarly, researchers are paying increasing attention to how employment relationships differ and how employees in different employment modes interact. Pearce (1993), for example, found that the presence of contract employees has a negative effect on the level of commitment and trust among permanent employees. Similarly, Barnett and Miner (1992) found that hiring temporary workers often delays promotions for lower-segment employees, while actually decreasing the time for promotion for advanced-segment employees. If these findings are indicative of organizational reality, it may be too simplistic to assume that one type of employment relationship or one set of HR practices will work for all employees.

Approaching this issue from the standpoint of an overall HR architecture, we adopt a contingent configurational view (cf., Delery & Doty, 1996; Meyer, Tsui, & Hinings, 1993) and argue that HR systems are not likely to be appropriate

in all conditions but, rather, depend upon the value and uniqueness of human capital. On viewing the entire HR architecture, it becomes clear that certain forms of human capital are more valuable to organizations and more available in the open labor market than others (cf., Wright et al., 1995). For example, firms will logically realize greater benefits by simply outsourcing generic work than relying upon internal development. Relatedly, because different HR configurations convey different meanings to employees and encourage different behaviors, they are likely to be appropriate under different employment modes (Guzzo & Noonan, 1994; Rousseau, 1995; Tsui et al., 1995). As a consequence, firms engaging in multiple sourcing modes are likely to require distinct configurations of HR practices that facilitate the utilization and deployment of human capital for each separate employment mode. In short, following Conant and Ashby's (1970) principle of requisite variety, competitive advantage may depend on the HR architecture being as complex as the organization in which it is used.

The Dynamics of the HR Architecture

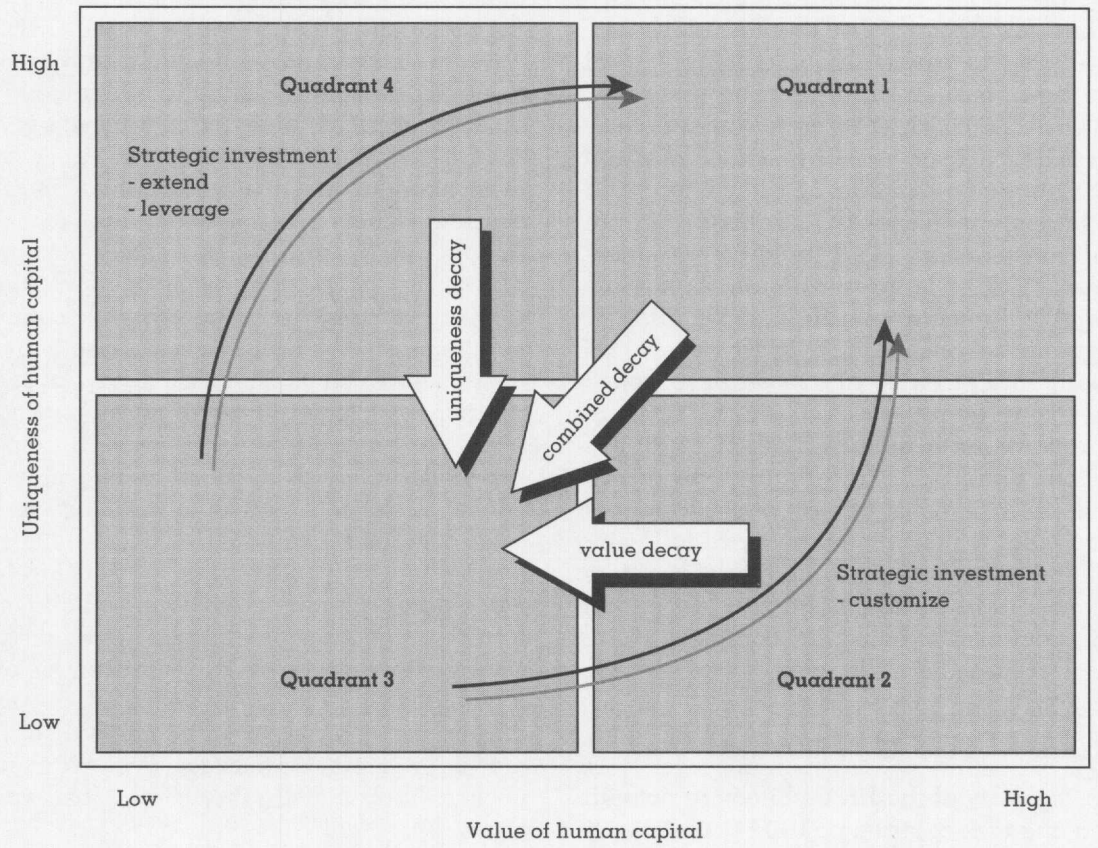
The complexity of the HR architecture notwithstanding, the task of strategic HRM is made even more difficult when we consider that aligning the HR architecture to a firm's strategic posture may not prove viable in situations where competition is dynamic and evolves over time. Although HR systems may support a given advantage, there are a number of authors (e.g., D'Aveni, 1994; Prahalad & Hamel, 1990) who point out that a focus on *sustainability* per se may cause more harm than good. For example, committing resources to a core area (to achieve first mover advantages) may involve considerable risk, particularly in those industries in which competitive imitation is the norm rather than the exception. The extent of this risk, however, rests primarily on the degree to which a resource has natural and strategic barriers to imitation—that is, forces that protect the resource from imitation, duplication, or appropriation by competitors (Ghemawat, 1991; Lippman & Rumelt, 1982; Porter, 1985; Reed & DeFillipi, 1990; Wright & McMahan, 1992). Although some resources are more susceptible to imitation than others, every firm's competitive advantage is continually threatened (D'Aveni, 1994; Ghemawat, 1991; Reed & DeFillipi, 1990). As Barney notes, "Although a firm's resources and capabilities have added value in the past, changes in customer tastes, industry structure, or technology can render them less valuable in the future" (1995: 51).

Regarding a firm's HR architecture, if we assume that competitive situations change, we must also assume that value and uniqueness of human capital change and evolve. As the firm's environment changes and the nature of competition increases or shifts, barriers to imitation face greater threats, and the firm's existing stock of knowledge and skills may become obsolete (MacMillan, McCafferty, & Van Wijk, 1985). Dynamic competition may reduce the half-life of employee knowledge: the rate at which its relevance decays over time in comparison to prevailing standards (cf., Anderson, 1989). For example, the value of an employee's knowledge of COBOL programming may diminish as competitors develop newer and more powerful computer languages. Given enough effort, competitors can often nurture and develop the same or functionally equivalent skills to mimic a firm's competitive advantage (Dierickx & Cool, 1989) or develop new skills that render existing advantages obsolete. As indicated in Figure 3, these pressures create a fundamental shift in human capital from high levels of value and uniqueness toward more generic and less valuable forms.

Although time and competition tend to erode the strategic positioning of human capital (cf., D'Aveni, 1994), firms may be able to counteract these natural forces. Researchers such as Amit and Schoemaker (1993), Barney (1991), Dierickx and Cool (1989), and Reed and DeFillipi (1990) have studied how firms maintain, enhance, or transform barriers to imitation. Porter, for example, suggests that firms try to sustain their competitive position by offering competitors a "moving target" that is difficult to emulate by reinvesting in the skills and competencies that provide a source of advantage (1985: 20). As we show in Figure 3, firms may resist the decay of human capital by striving to make skills and capabilities more valuable and/or unique.

To make the deployment and value of human capital more firm specific, managers logically may try to enhance the degree of uniqueness of human capital by customizing or adjusting skills. For example, when organizations invest in human capital through on-the-job experiences, the resulting knowledge and skills may be idiosyncratic to the particular firm context

FIGURE 3
Dynamics of the HR Architecture



(Dierickx & Cool, 1989). Those experiences that increase employee tacit knowledge (rather than explicit knowledge that can be transferred to competitors) especially are likely to increase the firm specificity of human capital (cf., Polyani, 1966; Reed & DeFillipi, 1990). As these capabilities are developed within a particular organization, it may be impossible for competitors to either imitate or bid away these talents (Becker & Gerhart, 1996). Thus, it may be that employee training not only averts human capital decay (by continuously enhancing employee skills) but may also increase the uniqueness of human capital and move employees from Quadrants 2 and 3 toward Quadrant 1.

Just as managers may use HR investments to increase the uniqueness of human capital, so they might also strive to make human capital more valuable and shift employees from Quadrants 3 and 4 to Quadrants 1 and 2. Recall that if we view value as the ratio of strategic benefits obtainable from human capital relative to the costs incurred, we see that organizations can leverage existing talents across new business applications and, in so doing, alter the cost/benefit ratio of human capital. Prahalad and Hamel discuss the "extendibility" of a resource in just this way and make the point that core competencies are developed from knowledge and skills that can be used repeatedly in different arenas (1990: 206). Similarly, researchers such as D'Aveni (1994) and Nonaka and Takeuchi (1995) have suggested that firms may also foster the creation of new talents that may prove to be the source of future core competencies. In the context of an HR architecture, if partners in an alliance (Quadrant 4) or contract workers (Quadrant 3) can be utilized on an increasing basis or in a fundamentally different way, their marginal product relative to labor costs—that is, their value—may increase to a point that justifies internal employment (Quadrants 1 and 2; Rousseau & Wade-Benzoni, 1994; Williamson, 1975). In response to these changes, organiza-

tions may shift their HR configurations (i.e., from collaborative- to commitment-based HR systems) in order to increase the value of human capital and support the changes in employment modes and employment relationships.

Of course, devoting the resources necessary to maintain and transform barriers to imitation may incur considerable risk, particularly in environments where sources of competitive success may change. As competition becomes more dynamic, firms may not have enough time to fully recoup their human capital investments. At the same time, without these investments, firms are likely to fall behind as barriers to imitation are challenged and overcome. Thus, it may be that firms succeeding in the long run are able to extend existing advantages while anticipating competitive shifts that require different sources of advantage (cf., deGues, 1988).

We encourage researchers to examine how firms integrate flexibility into an HR architecture to adapt to dynamic changes while maintaining congruence among the individual components to meet their existing needs (cf., Wright & Snell, 1998). In the context of a firm's HR architecture, this implies that researchers need to focus on how firms simultaneously develop and utilize both *current* as well as *future* forms of human capital for competitive advantage.

CONCLUSION

Our purpose in this article was to develop a framework for studying alternative employment arrangements used by firms in allocating work. Rather than simply categorizing various forms of employment (e.g., internalization or externalization), we have tried to make the argument that human capital theory, transaction cost economics, and the resource-based view of the firm all converge on two dimensions—the value and uniqueness of employee skills—as primary determinants of a HR architecture. We believe that this HR architecture raises a number of research issues worthy of further investigation.

First, as scholars proclaim the importance of employees as a critical resource for competitive advantage, it is important to note that not all employees possess skills that are equally unique and/or valuable to a particular firm (Stewart, 1997). Although it may be the case that some firms manage all employees the same way, regardless of their value and uniqueness, we anticipate that most firms make significant distinctions in the methods they use for different skill sets and that these are important determinants of firm performance. So, just as there may be no universally best set of HR practices for every firm, we argue that there may actually be no one best set of practices for every employee within a firm. We therefore encourage researchers to examine whether a firm's emphasis on one mode of employment for all employees versus the use of multiple modes for different groups of human capital impacts firm performance. If this framework reflects organizational reality, much of the current strategic HRM research may be overly simplistic, ignoring the possibility that firms may engage in more than one type of employment mode and rely upon different HR configurations to manage different employee groups.

Second, research is needed that transcends the individual quadrants of the framework and focuses on balancing the complexity and dynamics of the entire HR architecture. As environmental and competitive pressures may lead to the natural decay of human capital, we need to better understand how organizations make investments to compete through people over time. This type of research would focus on ways that organizations enhance or transform the value and uniqueness of human capital, as well as how the shifts in employment modes and relationships are supported by alternative HR configurations. Research that addresses the congruence or fit of all of the different components of the entire HR architecture, rather than focusing on the individual components, would prove particularly useful in this regard.

In conclusion, adopting an architectural perspective may help both academics and practitioners understand which forms of human capital have the potential to be a source of competitive advantage today and in the future, as well as those that do not. If that potential is identified, developed, and deployed strategically, firms may well be able to gain a competitive advantage. In fact, the ability to manage the HR architecture itself may actually become a core capability that other firms find difficult to replicate (cf., Becker & Gerhart, 1996). As Barney (1995), Ulrich and Lake (1991), and others have pointed out, for organizations to utilize human capital strategically, they must be organized in a manner that enables them to do so.

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