

WORKFORCE ALIGNMENT, HUMAN RESOURCE SCALABILITY,
AND SMALL BUSINESS SALES GROWTH

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WORKFORCE ALIGNMENT, HUMAN RESOURCE SCALABILITY, AND
SMALL BUSINESS SALES GROWTH

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This study contributes to the field of strategic human resource management by providing initial insights into the extent to which, and the conditions under which, workforce alignment leads to higher levels of firm performance. Using data collected from the CEOs of 196 small businesses, I develop a measure of workforce alignment and demonstrate that workforce alignment mediates the relationship between high-performance work system use and sales growth. I also show that firms that achieve workforce alignment through either internal scalability or external scalability (but not both) are more likely to obtain high sales growth than firms that achieve workforce alignment through HR stability. Finally, I reveal other circumstances such as involuntary turnover, contract worker use, and market volatility that moderate the relationship between workforce alignment and sales growth in expected and surprising ways.

BIOGRAPHICAL SKETCH

Gerald Arthur Ericksen received a B.A. from St. Olaf College, an M.B.A. from Cornell University's Johnson Graduate School of Management, and an M.S. in human resource studies from Cornell University's School of Industrial and Labor Relations.

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CHAPTER 1

INTRODUCTION

Traditionally, scholars in the field of strategic human resource management (SHRM) have focused on demonstrating a positive link between high-performance work systems and various indicators of firm performance (see Boxall & Purcell, 2000; Delery & Shaw, 2001; Wright & Gardner, 2002 for recent reviews). Indeed, extant research has shown that high-performance (or high-involvement or high-commitment) work systems are positively related to productivity (Arthur, 1992, 1994; Datta, Guthrie, & Wright, 2005; Ichniowski, Shaw, & Prennushi, 1997; Koch & McGrath, 1996; MacDuffie, 1995), return on assets (Delery & Doty, 1996; Huselid, 1995); sales growth (Batt, 2002; Collins & Clark, 2003), and even market value (Huselid, 1995).

More recently, however, SHRM scholars have invoked the resource based view of the firm (RBV) to argue for the importance of mediated models. According to the RBV, mediated models are necessary because resource value and rarity reside in workforce characteristics, not HR systems (see Wright, Dunford, & Snell, 2001 for a recent review of SHRM and the RBV). Therefore, SHRM scholars have called for future research to identify the valuable workforce characteristics that mediate the relationship between high-performance work systems and firm performance (Collins & Clark, 2003; Snell, Youndt, and Wright, 1996; Wright et, al., 2001; Wright & Gardner, 2002; Wright & Snell, 1998).

Further, according to the RBV, a valuable resource alone is not enough to constitute even a short-term competitive advantage. For this, a resource must also be rare and thus difficult for competitors to match (Barney, 1991, 2001). Therefore, in order to argue that a particular set of workforce

characteristics constitutes a source of temporary competitive advantage, it is also necessary to identify the circumstances under which the resource is tough for competitors to duplicate, at least in the short-run (Miller & Shamsie, 1996; Priem & Butler, 2001).

Research Question and Goals

In this study, I seek to contribute to SHRM theory and research by providing initial insights into the following research question: To what extent and under what conditions, does workforce alignment foster sales growth? More specifically, I pursue three research goals: (1) to develop and validate a measure of workforce alignment; (2) to ascertain whether firms that achieve workforce alignment through HR scalability are more likely to obtain high levels of sales growth than are firms that achieve workforce alignment through HR stability; and (3) to explore other circumstances that may moderate the relationship between workforce alignment and sales growth.

First, I suggest that workforce alignment is a valuable firm resource. This is not a revolutionary idea. In fact, prior SHRM theory has regularly claimed that high-performance work system use fosters firm performance through its positive effect on workforce alignment; that is, by producing a workforce with the skills, deployment patterns, and behavioral contributions necessary for the firm to successfully formulate and implement its strategic goals (Applebaum et. al., 2000; Becker & Huselid, 1998; Dyer & Shafer, 1999, 2002; Kochan & Osterman, 1994; Lawler, 1992; Vetter, 1967; Wright & Snell, 1998; Wright et. al., 2001). Unfortunately, workforce alignment research has been impeded by the lack of a measure of the construct. As a result, we still do not know whether high-performance work systems foster workforce alignment, whether workforce alignment fosters firm performance, or whether

workforce alignment mediates the relationship between high-performance work systems and firm performance.

Second, I argue that workforce alignment is more likely to be rare, and therefore to lead to a temporary competitive advantage, when it is achieved through human resource (HR) scalability than when it is achieved through workforce stability. According to the RBV, a resource that is valuable under one set of circumstances may not be valuable when circumstances change (Miller & Shamsie, 1996; Priem & Butler, 2001). Further, prior research has shown that firms often experience problems when attempting to adapt their resources to fit changing business needs (Anderson, 2001; Barnett & Freeman, 2001; Ericksen & Dyer, 2004; Penrose, 1959; Tripsas, 1997). From a human resource perspective, this means that workforce alignment is often a moving target because the human resource skills, deployments, and contributions that are aligned, and thus valuable, at one point in time may be of little value, or even detrimental, a short while later. It also means that HR scalability, or the capacity to internally or externally shift from one aligned configuration of human resources to another, likely represents an “even greater strategic asset” than workforce alignment alone (Wright & Snell, 1998: 769; see also Dyer & Ericksen, 2005). SHRM scholars generally agree that HR scalability comes in two forms—internal and external (Atkinson, 1984; Dyer & Ericksen, 2005; Lepak, Takeuchi, & Snell, 2003; Wright & Snell, 1998). They also generally agree that internal and external scalability are complementary in the sense that firms are more likely to obtain a temporary competitive advantage when they achieve workforce alignment through both internal and external workforce adaptation than when they achieve workforce alignment through either internal or external workforce adaptation alone

(Cappelli & Neumark, 2004). To date, however, there is virtually no empirical evidence to support any of these claims.

Finally, I identify four additional circumstances that may moderate the relationship between workforce alignment and firm performance—market volatility, voluntary turnover, involuntary turnover, and contract worker use. Prior research has implied, but not explicitly shown, that workforce alignment is more difficult to achieve when market volatility is high (Datta, Guthrie, & Wright, 2005), when voluntary and involuntary turnover are high (Arthur, 1992; Batt, 2002; Guthrie, 2001; Huselid, 1995), and when contract worker use is high (Davis-Blake, Broschak, and George, 2003; George, 2003). Therefore, according to resource based logic, firms that achieve workforce alignment under these circumstances should be more likely to obtain a temporary human resource advantage and thus higher rates of sales growth than firms that do not.

Overview of the Results

Hypotheses were tested using data collected from the CEOs of 196 small businesses. Sales growth was chosen as the indicator of firm performance because it is a sign of a firm's ability to provide products or services that attract and satisfy customers. I found strong support for the efficacy of workforce alignment. Consistent with prior SHRM theory, employee skill alignment, deployment alignment, and contribution alignment were empirically distinct dimensions that significantly loaded onto a single higher-level workforce alignment construct. Further, the results indicated that high-performance work system use was positively and significantly related to both workforce alignment and sales growth, that workforce alignment was positively and significantly related to sales growth, and that workforce alignment

mediated the relationship between high-performance work system use and sales growth.

I also found that workforce alignment was more likely to lead to a temporary competitive advantage when it was achieved through either internal scalability or external scalability than when it was achieved through workforce stability. Firms that achieved workforce alignment through internal scalability performed significantly better than firms that achieved workforce alignment through internal workforce stability. Also, firms that achieved workforce alignment through external scalability performed significantly better than firms that achieved workforce alignment through external workforce stability. In contrast to SHRM and RBV theory, however, internal and external scalability were not complements, but rather a “deadly combination” in the sense that firms suffered a significant sales growth penalty when they combined high internal scalability with high external workforce adaptation, or high external scalability with high internal workforce adaptation, respectively.

Finally, I found that the relationship between workforce alignment and firm performance was significantly affected by other circumstances as well. Specifically, the relationship between workforce alignment and firm performance was stronger when firms reported high rather than low levels of involuntary turnover; low rather than high levels of contract worker use; and, high rather than low levels of market volatility.

Subsequent exploratory analyses further revealed that market volatility moderated the relationship between overall HR scalability and sales growth. Specifically, overall HR scalability was strongly and positively associated with sales growth when market volatility was high and strongly and negatively related to sales growth when market volatility was low.

Overview of the Dissertation

The remainder of the dissertation is organized as follows. In Chapter 2, I review prior workforce alignment and HR scalability theory and research and generate study hypotheses. In Chapter 3, I provide information about the sample, data collection procedure, variable measures, and data analyses used in the study. In Chapter 4, I present the results. Finally, in Chapter 5, I consider the implications of the study for SHRM theory and research and discuss several conceptual and empirical limitations.

CHAPTER 2

LITERATURE REVIEW AND HYPOTHESES

The overall purpose of this study is to offer initial insights into the extent to which, and the conditions under which, workforce alignment leads to a temporary competitive advantage. To achieve this objective, the study is organized around particular research goals: (1) to develop and initially validate a measure of workforce alignment; (2) to ascertain whether firms that achieve high levels of workforce alignment through HR scalability are more likely to achieve high levels of sales growth than are firms that achieve high levels of workforce alignment through workforce stability, and (3) to explore other circumstances under which workforce alignment may lead to high levels of sales growth.

Workforce Alignment

“The field of strategic human resource management seeks to examine the role that human resources play in firm performance, particularly focusing on the alignment of human resources with firm strategy as a means of gaining competitive advantage” (Wright and Sherman, 1999: 1).

As the preceding quote suggests, the notion of alignment (or fit) has played a central role in SHRM theory and research. Historically, two types of vertical alignment have been identified.¹ HR system alignment (or alignment-as-moderation) involves the fit of HR principles, policies, and practices to the strategic goals of the firm. Workforce alignment (or alignment-as-mediation),

¹ Horizontal alignment, or the fit among the various HRM practices that comprise an HRM strategy, has also received considerable attention but is outside the scope of the study. For a review, see Delery, 1998.

in turn, refers to the fit of employee characteristics to the strategic goals of the firm.

Of the two types of alignment, HR system alignment initially received the bulk of scholarly attention. In particular, scholars developed normative models to show how intuitively derived typologies of HR strategy should be paired with similarly derived typologies of business strategy to maximize firm performance (Dyer & Holder, 1988; Miles & Snow, 1984; Schuler & Jackson, 1987). These efforts were followed by a series of studies that sought to determine whether firms that matched their HR strategies to their business strategies in the prescribed ways performed better than those that did not.

The results were mixed at best. Arthur (1992, 1994), for example, found that steel mini-mills that aligned a commitment HR system to a differentiation business strategy outperformed mini-mills categorized as lacking alignment. Given the small sample size, however, the full test of moderation failed to meet conventionally accepted standards of support. Huselid (1995) predicted that the relationship between high-performance work system use and firm market value (Tobin's Q) and return on capital would be stronger for firms that pursued focus or differentiation business strategies than for firms that emphasized low cost business strategies. The results, however, were universally insignificant. Delery and Doty (1996) argued that firm performance would be enhanced when firms match (1) a market-based employment system to a prospector business strategy, (2) an internal employment system to a defender business strategy, and (3) a so-called middle-of-the-road employment system to an analyzer business strategy. But, primary analyses failed to support these predictions. Finally, Youndt et. al. (1996) argued that manufacturing performance would be greater when firms

aligned (1) administrative HR systems to low cost strategies or (2) human capital enhancing HR systems to either quality business strategies or flexibility business strategies. The results revealed a positive interaction between human capital enhancing HR system use and a quality manufacturing strategy. The other two proposed forms of HR system alignment were not supported. Thus, on the whole, “research has failed to consistently support the efficacy of fit between strategy and HR practices” (Wright & Sherman, 1999).

SHRM scholars responded to these studies by identifying several empirical limitations that individually or collectively might explain the lack of support for HR system alignment. These include imprecise measures of business strategy (Chadwick & Cappelli, 1999), ill-defined and unreliable assessments of human resource strategy (Becker & Gerhart, 1996; Dyer & Reeves, 1995; Gerhart, et. al., 2000; Wright et. al., 2001), and theoretically inappropriate indicators of firm performance (Rogers & Wright, 1998).

But, there are conceptual limitations to HR system alignment as well. Specifically, it may be that workforce alignment, not HR system alignment, represents the critical mechanism through which human resources foster firm performance. In a seminal SHRM article, for example, Cappelli and Singh (1992) argued that all strategic HR theory and research is fundamentally based on two assumptions: (1) that the successful formulation and execution of a firm’s business strategy requires a workforce with a unique set of characteristics, and (2) that particular HR management systems produce these unique combinations of workforce characteristics.

Workforce alignment is also more consistent with the RBV than is HR system alignment. According to the RBV, resources that are both valuable and rare have the potential to lead to a temporary competitive advantage in the marketplace. Value accrues when a firm's resources enables it to pursue marketplace opportunities or allay environmental threats in ways that are consistent with its business strategy. Rarity, in turn, refers to resources that are not widely held or, more formally, to a situation in which a competitors' resources are inadequate to generate a situation of near-perfect competition. Resources that are valuable and rare are a source of competitive advantage in the short run because (by definition) they are useful strategically and, further, they are useful in ways that competitors are not matching or obviating, at least for the moment (Barney, 1991; Conner & Prahalad, 1996; Peteraf, 1993; Wernerfelt, 1984).

SHRM scholars generally agree that resource value and rarity rest with workforce characteristics, not HR systems (see Lado & Wilson, 1994 for an exception). Initially, for instance, Wright, McMahan, and McWilliams (1994) suggested that a firm's workforce is more likely to constitute a source of competitive advantage than a firm's HRM system because it is more advantageous and difficult to effectively obtain and deploy a highly skilled and motivated workforce than it is to implement a particular set of HR policies and practices. In a recent review, Wright, Dunford, and Snell (2001: 709) asserted that all the available evidence supports this view and therefore concluded the majority of SHRM research "fails to adequately test the RBV" because it doesn't "demonstrate that HR practices actually impact the skills or behaviors of the workforce, nor that these skills or behaviors are related to any performance measures."

Despite its conceptual appeal, workforce alignment has yet to be directly examined empirically. This is, at least in part, due to the lack of an available measure of the construct. As Wright and Sherman (1999:18) noted, “the need for testing the mediating mechanisms through which HR practices impact these measures includes an implicit call for these alternate measures.” Therefore, the first goal of the present study is to develop and validate a measure of workforce alignment. To pursue this goal, I first offer a multidimensional definition of workforce alignment and then present a basic workforce alignment model of SHRM to begin to assess construct validity.

Workforce alignment defined. Workforce alignment refers to the fit between employee characteristics and the strategic goals of the firm. But what precisely are these workforce characteristics? Initially, scholars claimed that the strategic human resource goal of any firm is to have the right kinds of people, at the right places at the right time, doing things which result in the organization receiving maximum benefits (Vetter, 1967: 15). More recently, high-performance work system scholars suggest that firm performance is enhanced when employees have the skills, motivation, and opportunity necessary to contribute to the firm’s business goals (Applebaum et. al., 2000; Kochan & Osterman, 1994; Lawler, 1992). Finally, still others have argued for the importance of employee skills (Wright & Snell, 1998; Becker & Huselid, 1998), employee deployment or utilization patterns (Wright et. al., 2001), and employee behaviors (Dyer & Shafer, 1999, 2002; Schuler and Jackson, 1987; Wright & Snell, 1998).

Taken together, prior SHRM theory suggests that workforce alignment involves having people with the requisite skills, properly deployed and utilized, and actively contributing to firm goals. More formally, I define workforce alignment as a multidimensional construct comprised of three dimensions: (1) skill alignment, the degree to which employees possess the knowledge and abilities necessary to contribute to firm goals; (2) deployment alignment, the degree to which the firm properly utilizes its workforce; and (3) contribution alignment, the degree to which employees actively and appropriately engage in behavior that helps the firm achieve its goals. Collectively, these three dimensions represent a nearly complete or sufficient set of workforce characteristics for understanding workforce alignment. Further, workforce alignment allows for multiple types of workforce configurations to be equally capable of fostering high levels of performance. Therefore, the particular employee skills, deployment patterns, and behavioral contributions that are “aligned” for one firm may be quite different from those that are “aligned” for another firm. Finally, the three dimensions combine additively to create an overall construct that reflects a workforce’s capacity to successfully formulate and execute the firm’s business goals. Thus, the lack of any single dimension will reduce, but not eliminate, the overall level of workforce alignment.

Figure 2.1 offers an initial model of workforce alignment for purposes of construct validation. This model, while basic, is consistent with prior workforce alignment thinking that workforce alignment is a multidimensional construct that mediates the relationship between high-performance work system use and firm performance.



FIGURE 2.1
High-Performance Work Systems, Workforce Alignment,
and Firm Performance

Properties of workforce alignment. A critical component of construct validation is the discriminant and convergent validity of the three dimensions of workforce alignment (Campbell & Fiske, 1959). Establishing discriminant validity requires showing that the dimensions of a construct, although naturally related, reflect distinct components. No dimension should be equivalent to another. Establishing convergent validity, in turn, requires demonstrating that each dimension, although distinct, contributes to an overall construct. Thus,

Hypothesis 1: There are three distinct dimensions of workforce alignment.

Hypothesis 2: Each dimension contributes to an overall construct of workforce alignment.

High-performance work system use and firm performance. A high-performance work system refers to set of HR practices designed to enhance employee skill, opportunity, and motivation and thereby provide the firm with a competitive advantage (Applebaum et. al., 2000; Kochan & Osterman, 1994; Lawler, 1994). Prior research has shown that high-performance work system use is positively related to a variety of firm performance indicators across a

wide-range of settings. MacDuffie (1995), for instance, found that high-performance HR practices comprised a coherent system or bundle that collectively enhanced automotive plant quality and productivity. Huselid (1995) used a cross-industry sample to show that high-performance work system use was positively and significantly related to GRATE (a firm's gross-rate-of return) and firm market value (Tobin's Q). Inchnioski, Shaw, and Prennushi (1997) demonstrated that high-performance work system use was positively associated to the productivity of steel finishing lines. Batt (2002) showed that high-performance work system use was positively linked to call center growth rates. Finally, Datta, Guthrie, and Wright (2005) found that high-performance work system use was positively associated with labor productivity across a wide range of industries. Thus,

Hypotheses 3: High-performance work system use is positively related to firm performance.

Workforce alignment and firm performance. According to SHRM theory, workforce alignment represents the set of workforce characteristics essential for the firm to effectively formulate and implement its strategic goals. For example, employees with the requisite levels of general and firm-specific skills are better able to effectively execute the firm's current business strategy (Batt, 2002; Wright, Smart & McMahan, 1995). They are also more likely to enhance the firm's "prospects for spontaneity, innovation, and alternative strategy generation" (Datta et. al., 2005: 136; see also Boxall, 1996). But, "firms may have access to valuable human capital, but either through the poor design of work, or the mismanagement of people, may not adequately deploy it" (Wright et. al., 2001: 705). Further, a properly skilled and deployed

workforce will be of limited use unless employees individually and collectively choose to engage in behaviors that benefit the firm (MacDuffie, 1995).

Workforce alignment is also consistent with Barney's (1995, 2001) concept of resource value in the sense that it represents an asset or strength that the firm can use to successfully pursue opportunities or mitigate threats in a particular strategic context. Therefore, firms with aligned workforces are more likely to attain their goals and, in turn, to realize greater levels of performance than firms that do not have aligned workforces. Thus,

Hypothesis 4: Workforce alignment is positively related to firm performance.

Workforce alignment as mediator. SHRM scholars have suggested that high-performance work system use positively affects firm performance through its effect on workforce alignment. Thus far, however, the theoretically mediating link of workforce alignment has yet to be empirically tested.

Several studies have examined the mediating role of other constructs similar to workforce alignment. Collins and Clark (2003), for example, showed that HR practices impacted high-technology firm sales growth through their positive effects on top management team social networks. Wright et. al. (2003), in turn, examined 50 autonomous business units in a single firm and found (1) that high-performance work practices were positively correlated with employee commitment ($r = .55$) and (2) that employee commitment was negatively related to unit operating expenses ($r = -.40$) and positively associated with profitability ($r = .35$). Given the relatively small sample size, however, Wright et. al. (2003) did not formally test for mediation.

Other studies have combined HR practices with employee characteristics to assess workforce ability, motivation, and opportunity. In a study of call center sales growth conducted by Batt (2002), for example, workforce ability was calculated as the number of years of formal education for the typical core employee and the number of years of on-the-job training needed for a new employee to become proficient. Motivation was inferred from firms' ongoing training, employment security, pay level, and electronic performance monitoring practices. And opportunity was captured as the extent to which employees had discretion over their work methods and the degree to which employees participated in work teams. The results revealed that, when assessed collectively, all three dimensions were positively related to sales growth. Given the overlapping nature of Batt's (2002) measures, of course, tests for mediation were not possible.

Bartel (2004) used a similar approach in a study of retail bank performance. Here, ability was captured through an index that assessed employee's average education level, bank tenure, and understanding of bank products. Motivation was assessed by asking employees to rate how well their performance was evaluated, how often their contributions were recognized, and how frequently they received feedback from their supervisors. And opportunity was calculated using two separate indexes: one for communication quality (from peers, upward, from supervisors, and overall) and another for climate (comfort expressing views, level of morale, degree of employee cooperation, and accessibility to supervisors). The results indicated that motivation was positively and significantly related to branch performance while the opportunity and ability dimensions received only limited and no support, respectively. Again, Bartel's (2004) measures integrated workforce

attributes with “perceptions of the HR management environment.” Therefore, once again, tests for mediation were not possible.

In sum, then, prior SHRM theory and research has suggested, but not yet shown, that the high-performance work system use fosters higher levels of firm performance through its effect on workforce alignment. Thus,

Hypothesis 5: High-performance work system use is positively related to workforce alignment.

Hypothesis 6: Workforce alignment mediates the relationship between high-performance work system use and firm performance.

Thus far, I have argued that workforce alignment is a valuable resource that mediates the relationship between high-performance work systems and firm performance. According to the RBV, however, a valuable resource that is easily obtained is at best a source of competitive parity in the marketplace. Workforce alignment (as with any other resource) becomes a source of temporary competitive advantage only when the firm is able to obtain a resource level that is not widely held. Therefore, in order to claim that workforce alignment constitutes even a short-term competitive advantage, it is necessary to identify the circumstances under which firms can achieve levels of workforce alignment that competitors find difficult to match.

RBV scholars generally agree that the RBV perspective is more powerful when employed using a contingent approach (Amit & Schoemaker, 1993; Barney, 2001). Miller and Shamsie (1996: 520), for example, noted that “just as contingency theory attempts to relate structures and strategies to the contexts in which they are most appropriate, so too must the RBV [be used] to consider the contexts in which various kinds of resources will have the best influence on performance.” More recently, Priem and Butler (2001: 59)

suggested that contingent RBV predictions are preferable to main-effects predictions because resource value is not defined in terms of performance.

In the remainder of this chapter, I explore the conditions under which workforce alignment may lead to a temporary competitive advantage. In particular, as Figure 2.2 suggests, I examine the concept of HR scalability and consider the role of several other potential moderating constructs.

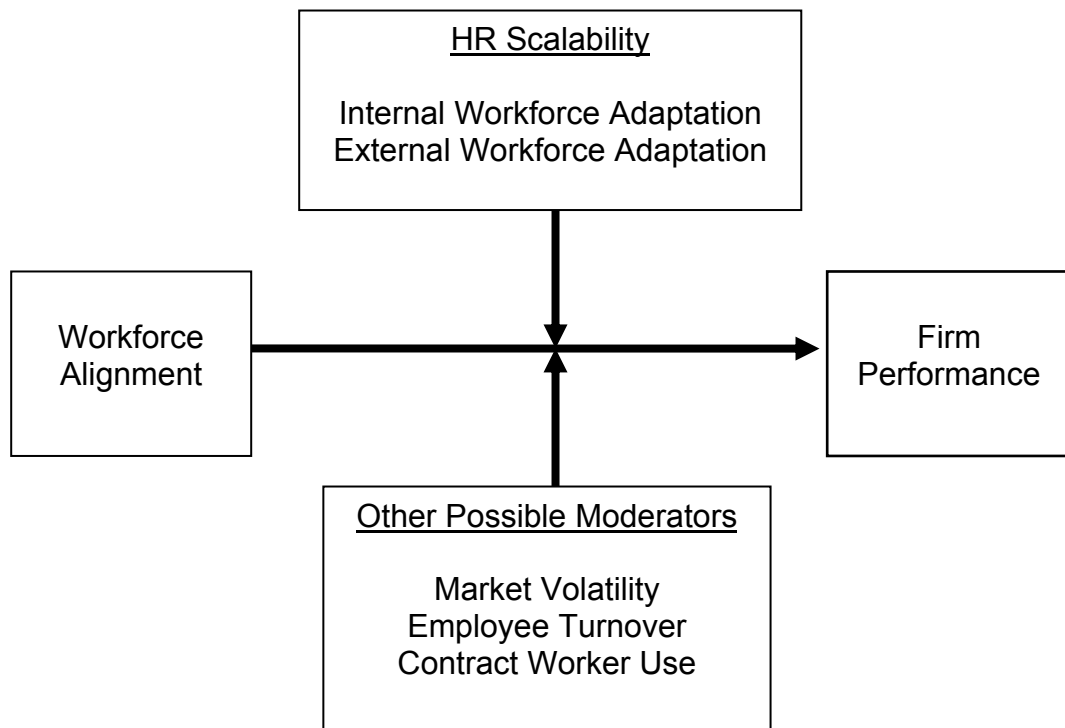


FIGURE 2.2
Workforce Alignment and Temporary Competitive Advantage

Human Resource Scalability

Firms operating with stable and enduring business strategies seek to attain a competitive advantage by aligning their workforces to their business goals and then enhancing and integrating them with other resources to foster complementarities (Milgrom & Roberts, 1990, 1995; Miller & Freisen, 1984). Here firms seek to develop steadfast and specialized human resources focused primarily on doing what they do well even better and workforce adaptation occurs incrementally and slowly. In these settings, workforce alignment alone is likely to be a “hygiene” factor; it can be a problem if done poorly, but it offers a real chance for competitive advantage because sooner or later most firms will figure it out.

Things are quite different, in contrast, for firms pursuing competitive advantage under changing circumstances (Kraatz & Zajac, 2001). Here workforce alignment is a moving target because each strategic or environmental shift requires a (somewhat to totally) different configuration of workforce characteristics, each one of which, for value, must be aligned to extant circumstances. This, in turn, requires that workforce skills, deployments, and behavioral contributions be continually reconfigured and that this be done quickly and easily enough that the right combinations regularly turn up where and when they are needed (Eisenhart & Martin, 2000; Rummelt, 1984; Teece, Pisano, & Shuen, 1997). It also requires the assembled human resources to coalesce sufficiently enough to effectively do the work that needs doing. This type of loose-tight coupling, or resource ambidexterity, has been shown to be exceedingly difficult to achieve so it is probably safe to assume that any firm currently approaching the requisite state of workforce ambidexterity probably has a leg up with respect to resource

rarity (Benner & Tushman, 2002, 2003; Gibson & Birkinshaw, 2003; He & Wong, 2004; Tushman & O'Reilly, 1996).

Thus far, most strategic HR theory and research has been predicated on firm stability. Yet a workforce that is aligned under one set of circumstances is unlikely to be aligned when circumstances change. In a RBV study of the film industry, for instance, Miller and Shamsie (1996) predicted and then found that long-term contracts with movie stars were highly valuable resources when times were stable and predictable but not when conditions became more uncertain. In contrast, studios' investments in technical, creative, collaborative, and coordinative skills (and thus the capability to ebb and flow into and out of projects) showed just the opposite pattern. In a more finely grained analysis, Rindova and Kotha (2001) used the RBV to show how Yahoo! made ongoing adjustments to its workforce as it morphed from an Internet search engine to a destination site during its successful competitive battles with Excite. During a two year period, Yahoo! increased the size of its workforce nearly five-fold (from 80 to 386 employees). When the company was in its Internet search engine phase, half of its total staff consisted of "surfers"; as the company morphed into a destination site, however, this figure dropped to 21% while the proportion of employees focused on sales and marketing increased to 51%. The deployments and contributions of Yahoo!'s employees, particularly its "surfers", also changed markedly. Initially, the primary task of a "surfer" was to locate new and cool sites to add to the company's directory. Less than two years later, however, this same role also involved identifying new content areas to develop, finding and entering into agreements with potential business partners, and joining the efforts of content producer teams. By way of comparison, Yahoo!'s main competitor, Excite,

invested so heavily in software, branding, content development, and distribution partnerships during this same period that it lacked the focus and cash to match Yahoo!'s personnel moves. In the words of a former Excite employee, "They are very much trying to duplicate Yahoo!. Except that Yahoo! actually has a staff" (Thomas, 1997, cited by Rindova and Kotha, 2001: 1271).

These studies suggest that for many firms workforce alignment is a transitory notion; that the human resource skills, deployments, contributions that make good sense at one point in time may be of little value, or even detrimental, a short while later. For these firms, then, performance is enhanced not by human resource stability, but by HR scalability.

HR scalability defined. HR scalability generally indicates an ability to make seamless transitions from one aligned workforce configuration to another, and then another and another, ad infinitum (Dyer and Ericksen, 2005). More specifically, HR scalability refers to a firm's capacity to internally or externally adapt its workforce to fit changing business needs. According to this definition, HR scalability comes in two forms: internal scalability and external scalability.

Internal scalability refers to a firm's capacity to internally adapt its workforce to fit changing business needs. Empirically, it is the statistical interaction between workforce alignment and internal workforce adaptation. Internal scalability thus captures the degree to which the firm is able to internally adapt its workforce to achieve dynamic workforce alignment. Internal workforce adaptation, in turn, reflects the degree to which the firm has adjusted its configuration of employee skills, deployments, and desired behavioral contributions. Internal workforce adaptation is defined a single construct comprised of three related dimensions: (1) skill adaptation, or the

extent to which the firm has altered its workforce's skill mix, (2) deployment adaptation, or the degree to which the firm has reconfigured its existing workforce into a new combination, and (3) contribution adaptation, or the extent to which the firm has modified expected employee behaviors. The three dimensions of internal workforce adaptation are designed to reflect the adaptation component of the three dimensions of workforce alignment. Therefore, the three dimensions of internal workforce adaptation also combine additively to create an overall construct that reflects the degree of internal change that a workforce has experienced. The assumption is that if a firm can achieve alignment with lots of alteration, reconfiguration, and modification going on, then it reflects an ability to make seamless human resource transitions. The lack of any single dimension will reduce, but not eliminate, the overall level of internal workforce adaptation.

External scalability refers to a firm's capacity to externally adapt its workforce to fit changing business needs. Empirically, it is the statistical interaction between workforce alignment and external workforce change, where external workforce change reflects the overall change in the size of the workforce (either up or down). External scalability thus assesses the degree to which the firm is able to externally adapt its workforce to achieve dynamic workforce alignment.

In short, if firms achieve workforce alignment when significant (1) internal alteration, reconfiguration, and modification or (2) external adjustment is going on, then the assumption is that it reflects an ability to make seamless workforce transitions or a capacity to adapt the workforce to fit changing business needs.

HR scalability versus HR flexibility. The notion of HR scalability is not new. Conceptually, it goes back to the well-known Penrose (1959) effect that identified people as a key resource affecting firms' abilities to successfully compete in growing markets. HR scalability is also similar to what strategic HR scholars have referred to as HR flexibility (Atkinson, 1984; Lepak, et. al., 2003; Wright & Snell, 1998). Both HR scalability and HR flexibility, for example, focus on a firm's capacity to achieve dynamic workforce alignment (Atkinson, 2005; Dyer & Shafer, 1999, 2002; Dyer & Ericksen, 2005; Wright & Snell, 1998). Further, both concepts suggest that dynamic workforce alignment is achieved through some combination of internal and/or external workforce adaptation. Initially, Atkinson (1984) argued for the performance benefits of "functional" and "numeric" flexibility. Functional flexibility referred to the capacity of highly-skilled, cross-functional employees to quickly and easily adapt their work to changes in product demand. Numeric flexibility, in turn, referred to the firm's capacity to adjust the size of its workforce to changes in product demand (see also Cappelli & Neumark, 2004). More recently, scholars have suggested that HR flexibility consists of "resource" and "coordination" flexibility (Lepak et. al., 2003; Wright & Snell, 1998). Here, resource flexibility referred to the number of potential alternative uses to which employee skills and behavioral scripts may be applied. Coordination flexibility referred to a firm's capacity to reconfigure and reintegrate human resources into new productive forms.

But, HR scalability differs from HR flexibility in important ways. First, HR scalability focuses directly on dynamic workforce alignment; that is, on the degree to which the firm "has effectively adapted its workforce to achieve alignment to changing or diverse demands from either its environment or from

within the firm itself" (Milliman, Von Glinow, & Nathan, 1991: 325). HR flexibility, in contrast, typically emphasizes "the extent to which the firm's human resources possess skills and behavioral repertoires that give the firm options for pursuing strategic alternatives in the firm's competitive environment" (Wright & Snell, 1998: 761). In short, HR flexibility focuses on the firm's potential to achieve dynamic workforce alignment rather than dynamic workforce alignment itself. For example, an auto assembly plant workforce that possesses the knowledge and repertoires necessary to effectively handle a wide-range of new model changeovers is clearly more flexible than one that does not. Yet this flexible workforce has not achieved dynamic workforce alignment until it seamlessly does so (Adler, Goldftas, & Levine, 1999). In a practical sense, HR flexibility focuses on traits (i.e., the capacity to) whereas HR scalability emphasizes actual dynamic alignment. The former may strongly predict the latter (HR flexibility → dynamic workforce alignment) but they are not conceptual substitutes.

Second, unlike HR flexibility, HR scalability subsumes the idea that firms can adjust resources in ways that reduce, as well as enhance, workforce alignment (Barnett & Freeman, 2001). Indeed, it may be that dynamic workforce alignment is so difficult to obtain that it constitutes a source of temporary competitive advantage to those that are able to achieve it.

HR scalability and firm performance. Prior research has indicated that firms often experience problems when attempting to internally adapt their workforce to fit changing circumstances. Among project teams formed to probe new market opportunities in Fortune 1000 firms, for example, Ericksen and Dyer (2004) found that the poor performers were particularly inhibited by an inability to identify, deploy, and utilize the right types of people. The

slowness with which traditional firms adapt to technological changes is typically attributed to extent to the “stickiness” or immobility of resources, including human resources (Henderson & Clark, 1990; Tripsas, 1997). Other studies indicate that firms find it difficult to explore new markets while simultaneously executing against current opportunities, in part because exploitation-oriented employee behaviors tend to overwhelm and extinguish exploration-oriented employee behaviors in such settings (Benner & Tushman, 2002, 2003; March, 1991). Finally, firms attempting to execute two or more strategic initiatives (e.g., new product introductions, expansions into new foreign markets) at once are often unsuccessful in part because people are overwhelmed (Barnett & Freeman, 2001; Vermuelen & Barkema, 2002).

Research has also shown that external scalability is difficult to achieve. Consider, for example, the challenges a firm faces when growing the size of its workforce. According to the ‘Penrose-effect’, acquiring human resources is “both the accelerator and the brake for the growth process” (Starbuck, 1965: 490). Influxes of talent increase the growth potential of the firm, but they also require existing organizational members to devote substantial time and energy training and assimilating the new hires. During this period, the overall productivity of the workforce may decline, while labor costs increase, and short-run opportunities are missed (Penrose, 1959). Anderson (2001a) summarized the challenge well when he showed that the interaction of lengthy times spent getting new employees up and running in times of rapid market growth regularly causes firms to under-perform by delivering low levels of service at a high cost. Successfully implementing an Enterprise Resource Planning (ERP) system, for example, requires employee knowledge and expertise that often takes up to a year-and-a-half of coursework and on the job

training to obtain (Anderson, 2001a: 503). During periods of rapid growth, ERP implementation firms face problems related to the timing of acquiring talent, as well as the speed with which they can get employees effectively deployed and fully contributing to firm or project goals. Acquiring employees too early will lead to an overly expensive cost-structure and reduced competitiveness. Acquiring employees too late, training them too slowly, or failing to properly utilize and integrate them, in contrast, will lead to some combination of service delays, poor implementation quality, and missed opportunities.

With respect to downsizing, the critical issues mirror those for workforce expansion. Namely, when considering a firm's optimal size, managers need to account for both current and future human resource needs. This is not an easy task. Many firms wait too long—until they are in the throes of crisis—to decide to release people. Further, once the decision is made, it often takes a long time (a year or more is not uncommon) and a lot of money (in the form of early retirement packages, severance packages, job assistance, retraining, and so forth) to execute the process. These challenges, if not managed well, increase the chance that 'right-sizing' firms are actually "wrong-sizing"; that is, when all is said and done, firms find that they have cut too deeply in some areas (and thus have too few people to do the necessary work), not deeply enough in others (thus raising the prospect of initiating additional rounds of releases), or some combination of both (thus leaving the firm with an inappropriate mix of talent). Releasing employees can also disrupt firm functioning in other ways as well. "Survivors" of the downsizing process often experience reduced levels of motivation (Brockner, 1992; Charness & Levine, 2000). And, even if employees' motivation is not adversely affected, their

capacity to explore and pursue new opportunities often is due to overwork, altered internal social networks, and/or disrupted internal processes (Amabile & Conti, 1999; Dougherty & Bowman, 1995; Fisher & White, 2000).

These challenges imply that workforce alignment is more likely to lead to a temporary competitive advantage when it is achieved through HR scalability than when it is achieved through workforce stability. According to Wright and Snell (1998: 769), dynamic workforce alignment constitutes “an even greater strategic asset” than workforce alignment alone. Further, Dyer and Ericksen (2005) noted that HR scalability “represents a major challenge... which means that it has the potential to be a source of competitive advantage for those that are first to figure it out.” In sum, HR scalability represents a resource that is likely to be both valuable and rare; thus,

Hypothesis 7: Internal scalability is a better predictor of firm performance than workforce alignment alone. Specifically, the relationship between workforce alignment and firm performance is stronger when internal workforce adaptation is high than when internal workforce adaptation is low.

Hypothesis 8: External scalability is a better predictor of firm performance than workforce alignment alone. Specifically, the relationship between workforce alignment and firm performance is stronger when external workforce adaptation is high than when external workforce adaptation is low.

Internal scalability and external scalability as complements. Prior strategic HR research has generally suggested that internal scalability and external scalability are complements rather than substitutes. Specifically, firms capable of aligning their workforces to changing business needs through the use of both internal and external forms of workforce adaptation are more likely to obtain a temporary competitive advantage than are firms capable of achieving workforce alignment through only internal or only external workforce adaptation. As Cappelli and Neumark (2004: 8) noted, “simple arguments about diminishing returns suggest that it may be more effective to put one’s efforts into multiple mechanisms to achieve a given result than in only one.” It is difficult, for example, to imagine how a firm could achieve high levels of external scalability without also making adjustments to existing employees’ internal deployments and behavioral contributions. Likewise, most firms require at least some degree of external scalability to adjust overall labor levels (to match periods of growth and decline) in ways that are not always achievable internally. Indeed, the whole idea of a “core-periphery” employment model is rooted in the idea that firms that need to be able to achieve both internal and external scalability should protect “core” employees from the threat of job loss by shifting employment risk to more “peripheral” employees (Lepak & Snell, 1999; Lepak et. al., 2003). Cappelli and Neumark (2004) recently explored these issues by looking at the relationships between internally flexible work systems (i.e., high-performance work systems) and voluntary and involuntary turnover in a nationally probability sample of establishments. They found that, with the partial exception of the manufacturing sector, firms tend to use “flexibility-enhancing” high-performance work systems and employee churn as complements rather than

substitutes. A more sophisticated test of the argument, of course, involves examining the three-way interaction between workforce alignment, internal workforce adaptation, and external workforce adaptation. Thus,

Hypothesis 9: The relationship between internal scalability (external scalability) and firm performance is stronger when external workforce adaptation (internal workforce adaptation) is high than when external workforce adaptation (internal workforce adaptation) is low.

Other Possible Moderators

Market volatility. In stable and predictable contexts, it is fairly easy for managers to specify requisite employee skills, to design effective work processes and employee utilization patterns, and to designate and manage desired employee role behaviors. Further, once particular workforce characteristics have been identified and obtained, they are not likely to substantially or suddenly change. As a result, workforce alignment alone is likely to be a “hygiene factor” in stable settings because sooner or later most firms should be able to figure it out.

Volatile markets, in contrast, are characterized by high levels of competition, unpredictability, and change. In these settings, firms are more likely to have to explore new business strategies, rapidly adjust to the moves of competitors, and even abandon products or services altogether (Brown & Eisenhart, 1997; Eisenhart & Martin, 2000; Illinitch, Lewin, & D’Aveni, 1998; Teece et. al., 1997). Here, workforce alignment becomes a moving target and the firm’s primary strategic HRM goal shifts from workforce stability to HR scalability. Datta et. al. (2005) recently explored the link between high-performance work system use and firm performance across a wide-range of business contexts. They found that the relationship between high-

performance work system use and labor productivity was stronger in more volatile contexts than in more stable and predictable settings. Datta et. al. (2005) concluded that high-performance work system were more valuable in rapidly changing marketplaces because they enhanced firms' capacities to achieve dynamic workforce alignment. Here I offer a more direct test of this proposition,

Hypothesis 10: The relationship between workforce alignment and firm performance is stronger when market volatility is high than when market volatility is low.

Employee turnover. Scholars have regularly demonstrated a negative relationship between employee turnover and organizational performance (see Glebbeek and Bax 2004 for an exception). Specifically, higher levels of turnover have been linked to lower sales growth (Batt, 2002), lower levels of efficiency (Alexander, Bloom, & Nuchols, 1994), lower financial performance (Glebbeek & Bax, 2004), reduced workplace safety (Shaw et. al., 2005), and lower service quality (Kacmar, et. al., 2004). From a workforce alignment perspective, these findings imply that firms generally find it difficult to achieve high levels of workforce alignment when employee turnover is high. Therefore, all things equal, the capacity to effectively “restock” talent (i.e., obtain high levels of workforce alignment when voluntary turnover rates are high) or to effectively “fire and rehire” (i.e., obtain high levels of workforce alignment when involuntary turnover rates are high) may provide firms with a temporary competitive edge. Thus,

Hypothesis 11a: The relationship between workforce alignment and firm performance will be stronger for firms that experience high levels of voluntary turnover than for firms that experience low levels of voluntary turnover.

Hypothesis 11b: The relationship between workforce alignment and firm performance will be stronger for firms that experience high levels of involuntary turnover than for firms that experience low levels of involuntary turnover.

Contract worker use. Managers have increasingly reported using contract workers—or individuals who work at the firm but who are managed and paid by another firm—to enhance workforce flexibility (as well as to minimize labor costs) (Abraham & Taylor, 1996; Houseman, 2001; Pfeffer & Baron, 1988). But, the role of contract worker use on the relationship between workforce alignment and firm performance remains open for debate. On the one hand, prior research has indicated that the use of contract workers can reduce standard employees' loyalty and commitment to the firm, their trust in management, and their desire to remain with the firm (Davis-Blake, Broschak, & George, in press; George, 2003). Thus, workforce alignment may be more difficult to obtain, and therefore more valuable and rare, for firms that employ a higher proportion of contract workers than for firms that employ a lower proportion of contract workers. On the other hand, contract workers are most likely to be used for assignments that require knowledge and skills that are neither particularly valuable (to the firm's business strategy) nor unique (in the labor market) (Lepak & Snell, 1999; Lepak et. al., 2003). Therefore, firms that employ a high proportion of contract workers may be less likely to compete on the basis of workforce alignment than firms that employ a low proportion of

contract workers. If this is true, then one would expect the relationship between workforce alignment and sales growth to be stronger when contract worker use is low than when contract worker use is high. These competing predictions can be tested through the following hypothesis:

Hypothesis 12: The relationship between workforce alignment and firm performance will be stronger for firms that employ a high proportion of contract workers than for firms that employ a low proportion of contract workers.

CHAPTER 3

METHODS

Sample

Context. Small business was chosen as the context for the study for two reasons. First, we know that HR issues are important to firms that employ fewer than 250 employees (see Cardon & Stevens, 2004 and Heneman, Tansky, & Camp, 2000 for recent reviews of HR management in small businesses). Prior research, for example, has indicated that high-performance work system use is positively related to small business performance (Hayton, 2003) and that workforce alignment likely plays an important role in the process (Baron & Hannan, 2002). Further, small business scholars have regularly suggested that HR scalability is a crucial firm resource for many small businesses; indeed, compared to larger firms, small firms are more likely to face “the need for different management skills, priorities, and structural configurations” (Cardon, 2003: 357); ask employees to perform multiple roles (Heneman, Tansky, & Camp, 2000; May, 1997); experience explosive growth in the number of people they employ (Cardon & Stevens, 2004); and struggle when coping with downturns (Chu & Sui, 2001). Yet, according to Baron and Hannan (2002: 29), “issues of organizational scalability capture remarkably little mind-share among [small business leaders]. It is by no means uncommon to see a founder spend more time and energy fretting about the scalability of the phone system or IT platform than about the scalability of the culture and practices for managing employees, even in cases where that same founder would declare with great passion and sincerity that ‘people are the ultimate source of competitive advantage in my business.’”

Second, a focus on small businesses also should enhance the likelihood of obtaining reliable indicators of all HR-related variables. Several strategic HR scholars have questioned the reliability of single-source measures of HR constructs (Gerhart, et. al., 2000; Wright et. al., 2001). These concerns emanate, at least in part, from the fact that prior research has emphasized larger firms and HR policies and practices (as well as workforce characteristics) often vary as widely within large firms as across them (Becker & Gerhart, 1996; Dyer & Reeves, 1995; Lepak & Snell, 1999). Conceptually at least, a focus on small businesses should minimize these concerns. Small businesses typically emphasize a few key products or services and are unlikely to be highly diversified or to have multiple autonomous business units (Cardon & Stevens, 2004). Further, small businesses are less likely than large firms to have employees allocated across multiple, geographically dispersed settings. As a result, the CEOs and employees of small businesses should be in a good position to accurately assess firm-wide HR constructs.

Sales growth was selected as the firm performance indicator. Firms with aligned workforces should be more likely to satisfy customers and to identify or modify products or services to meet customer needs, which should be reflected in the firms' sales growth rates. Further, one would expect firms that have obtained a temporary competitive advantage to report higher levels of sales growth than firms operating under conditions of competitive parity (Anderson, 2001; Baron & Hannan, 2002; Penrose, 1959). Finally, sales growth has been regularly used in prior SHRM research and thus provides some degree of comparability with extant findings as well (Batt, 2002; Collins & Clark, 2003).

Companies studied. This study represents part of a larger effort to better understand the extent to which, and the ways in which, HR policies and practices affect small firm performance. This larger, ongoing project is a collaborative effort between Cornell University's Center for Advanced Human Resource Studies (CAHRS) and Gevity HR—a publicly-traded HR outsourcing firm that provides a wide array of HR services such as payroll systems, employee benefits systems, and so forth. Gevity HR largely funded the study and provided a list of its client firms to survey. CAHRS researchers, in turn, were responsible for designing and conducting the study as well as producing a series of research reports. (These reports can be obtained from CAHRS via its web site at <http://www.ilr.cornell.edu/cahrs/research.html> .)

An examination of the firms that participated in this portion of the research project indicates that the firms represented a wide range of industries. Specifically, 27 percent of the firms provided basic services while 21 percent were in retail, 28 percent provided professional services, 15 percent were in construction, and 9 percent were in manufacturing (these five industry categories are described in the variables and measures section below). Further, the average firm was small (about 20 employees) and fairly well-established (approximately 14 years old with an average CEO tenure of over 10 years and just 1.5 prior CEOs including the founder). Finally, 21 percent of the firms employed an HR manager at the time of the study, and HR managers were reported in 14 percent of firms with fewer than 20 employees, 25 percent of firms with 20-49 employees, 33 percent of firms with 49-100 employees, and 40 percent of the firms with over 100 employees.

Data Collection Procedure

Small business CEOs (CEOs, owners, presidents, or top managers) provided all of the information used to test the study's hypotheses. To help assess the reliability and validity of the key variables, however, information was also gathered from the employees of a smaller subset of participating firms.

CEOs. After an initial survey pilot test, a package of information was mailed to the CEOs of 2250 Gevity HR clients in the summer of 2004 and followed with a reminder letter and a second survey two months later. The initial package of information contained a letter that outlined the goals and scope of the project and identified the various ways in which the results of the study could be obtained. The package also included a survey with a return envelope as well as a web site address where the survey could be completed electronically.

The survey consisted of 132 items organized into seven sections (see Appendix A). In section one, CEOs provided general information about themselves (firm tenure and industry experience) and their firms (industry, age, size, voluntary and involuntary turnover and so forth). In section two, CEOs assessed the degree of volatility and change present in their firm's external environments and identified their firm's primary strategic imperatives. In section three, CEOs supplied detailed current and historical employment information. Specifically, CEOs reported (a) the number of executives, professional and managerial, technical and scientific, and hourly employees that the firm employed both currently and three years prior and (b) the number of regular full-time, part-time, and contract workers that the firm employed both currently and three years prior. In section four, CEOs responded to the items

pertaining to workforce alignment and internal workforce adaptation. In sections five and six, CEOs provided information about their firms' HR principles and practices, respectively. Finally, section seven asked CEOs to provide firm performance information.

In total, complete responses were received from 196 CEOs for a response rate of 8.7 percent. This response rate, while low, is not inconsistent with other survey-based studies of high-performance work systems. Becker and Huselid (1998), for example, reviewed prior SHRM research and found that response rates ranged from 6 to 28 percent with an average of 17.4 percent. More recently, studies by Datta et. al (2005), Hayton (2004), and Lepak and Snell (2002) have reported responses rates of 15, 5, and 7 percent, respectively.

Employees. To help validate the key measures used in the study, CEOs were asked to identify up to 15 employees for a follow-up survey. The CEOs of 124 firms agreed to participate and provided the names of, and contact information for, a total of 623 employees. Logistic regression was used to determine whether firm characteristics made top managers more or less likely to participate in this phase of the study. The dependent variable was defined as 1 if the CEO provided employee names and 0 if he or she did not. The independent variables included industry, age, size, high-performance work system use, workforce alignment, and all three forms of HR scalability. None of the variables were significant.

The employee survey consisted of 118 items organized into three sections (see Appendix B). In the first section, employees reported personal background information (firm tenure, industry experience, job experience, and education level). In the second section, employees assessed workforce

alignment, internal workforce adaptation, and a variety of other workforce attributes (commitment, trust in management, customer service orientation, job involvement, and so forth). All items found in section two were written at the workforce- rather than the individual-level of analysis. Finally, in the third section, employees reported perceptions of their firms' HR management principles and practices.

Initial and follow-up mailings and emails yielded usable responses from 308 employees representing 97 different firms. These figures represented an employee response rate of 49 percent, an overall firm response rate of 78 percent (97 / 124), and an average of 3.18 employee surveys (and 4.18 total surveys) for each firm from which at least one employee response was received. The proportion of each participating firm's workforce surveyed was 19.8 percent (4.18 / 21.1). The average firm tenure of contributing employees was 5.5 years and average employee post-secondary education levels were as follows: 21 percent had none, 38 percent has between one and three years, 29 percent had four years, and 12 percent had more than four years.

Measures

Table 3.1 provides a summary of all study variables. It shows, among other things, that internal scalability was defined as the statistical interaction between workforce alignment and internal workforce adaptation. External scalability, in turn, was defined as the statistical interaction between workforce alignment and external workforce adaptation. In this section, I report the individual measures used to compute the two forms of HR scalability.

TABLE 3.1
Variable Definitions

Variable	Definition
Workforce alignment	A multidimensional construct comprised of three dimensions: skill alignment, deployment alignment, and contribution alignment.
Internal scalability	The statistical interaction between workforce alignment and internal workforce adaptation.
External scalability	The statistical interaction between workforce alignment and external workforce adaptation.
Internal workforce adaptation	A multidimensional construct comprised of three dimensions: employee skill adaptation, employee deployment adaptation, and employee contribution adaptation.
External workforce adaptation	The degree to which a firm has adjusted the size of its workforce.
High-performance work system use	A set of HR practices designed to enhance employee skill, opportunity, motivation.
Market volatility	The degree to which the firm faces stiff competition and experiences fluctuation in the demand for its products, services, or solutions.
Employee turnover	The rate at which employees quit the firm (voluntary turnover) or are released from the firm (involuntary turnover).
Contract worker use	The proportion of a firm's workforce comprised of individuals who work at the firm but who are paid by another organization.
Sales growth	The percentage change in firm sales.

Workforce alignment. Workforce alignment was defined as a multidimensional construct comprised of three dimensions: skill alignment, deployment alignment, and contribution alignment. To assess workforce alignment, I developed an instrument comprised of nine items designed to reflect these three dimensions. Specifically, skill alignment was assessed through “This company has all the expertise it needs to be successful” and “This company has the people with the right knowledge and skill sets” and “We sometimes lack people with the knowledge and skills necessary to do the job right” (reverse coded). Deployment alignment, in turn, was assessed through “This company effectively utilizes its people at all times” and “This company provides people with ample opportunities to do their best possible work” and

“This company consistently gets the most out of its employees’ knowledge and skills”. Finally, contribution alignment was assessed through “The people in this company are highly focused on realizing organizational results” and “The people in this company are always working to improve company performance” and “The people in this company always act in ways that help the organization achieve its goals”. All items were rated from 1, “completely disagree,” to 5, “completely agree.” The coefficient alpha for the nine-item workforce alignment scale was .85 for the CEO data and .88 for the employee data.

Internal workforce adaptation. Internal workforce adaptation was defined as a multidimensional construct comprised of three dimensions: skill adaptation, deployment adaptation, and contribution adaptation. To assess internal workforce adaptation, I developed an instrument comprised of nine items designed to reflect these three dimensions. Skill adaptation was assessed through “Our employees’ knowledge and skills have changed greatly over the last three years” and “Three years ago, this organization employed completely different types of employees” and “Compared to three years ago, our employees possess different kinds of knowledge and skills.” Deployment adaptation was assessed through “Over the last three years, people in this organization shifted roles many times” and “Our employees are working on completely different assignments now than three years ago” and “Every employee’s role at this organization has changed over the last three years.” Finally, contribution adaptation was assessed through “The way work gets done in this organization has changed dramatically over the last three years” and “In the last three years, the ways that employees contribute to this organization’s success have changed considerably” and “What people in this organization do on a daily basis has changed a lot over the last three years.”

All items were rated from 1, “completely disagree,” to 5, “completely agree.” One potential problem with this measure, of course, is that respondents were asked to reflect back over three years, even if they had not been with the company for the entire period. Fortunately, the majority of study participants did not fall into this category; over 90 percent of CEOs and 62 percent of employees had firm tenures of three years or more. The coefficient alpha for the nine-item internal workforce adaptation scale was .87 for the CEO data and .84 for the employee data.

Confirmatory factor analysis was used to assess the dimensionality or discriminant validity of the internal workforce adaptation scale. These results provided strong evidence for the proposed three-factor model. First, I examined the standardized factor loading and inter-dimension correlations for the proposed three-factor model where each of the 9 items was specified to “load” only onto its expected first-order construct (skill adaptation, deployment adaptation, and contribution adaptation). The results, shown in Figure 3.2, indicate that each of the 9 items loaded significantly onto its first-order construct (for both the CEO and employee data) and that the correlations among the three dimensions were positive and significant (from $r = .39$ to $r = .69$, $p < .01$).

Next, I compared the fit of the proposed three factor model to four alternate models: all three possible two-factor models and a one-factor model in which all 9 internal workforce adaptation items were specified to load onto a single factor. For each model, individual items were permitted to load only on their hypothesized factors with no cross-loadings or correlated measurement errors. Table 3.2 presents the results. Chi-square is an index of absolute model fit. It assesses the degree to which the covariances implied by the

model's structure match the observed covariances. Therefore, chi-square is actually a "badness of fit" measure because a significant chi-square indicates a significant difference between the implied and the observed covariances. The computation of chi-square includes sample size, however, and its value is almost always significant for large samples (Boonsma, 2000). For this reason, many researchers gauge chi-square relative to its degrees of freedom (i.e., relative chi-square), with a ratio of 2 often used as an indicator of good fit (Arbuckle, 1995). The relative chi-square for the three-factor workforce alignment model was 2.35 for the CEO data and 3.79 for employee data. Table 3.2 also reports the goodness of fit index (GFI), the comparative fit index (CFI), and incremental fit index (IFI) scores. These fit indices compare the fit of the proposed model to a baseline model with no covariances among the variables (Bentler, 1990). Scores of 1 indicate perfect fit and values of .90 or higher are typically used to demonstrate acceptable fit levels. According to these indices, the proposed three-factor model achieved good fit statistics with the CEO data (GFI = .97, CFI = .97, IFI = .96, RMSEA = .07) as well as the employee data (GFI = .94, CFI = .94, IFI = .94, RMSEA = .09). The results also suggest that the best fitting model was the three-factor model and the worst fitting model was the one-factor model because the 90% confidence intervals of the RMSEA do not overlap.

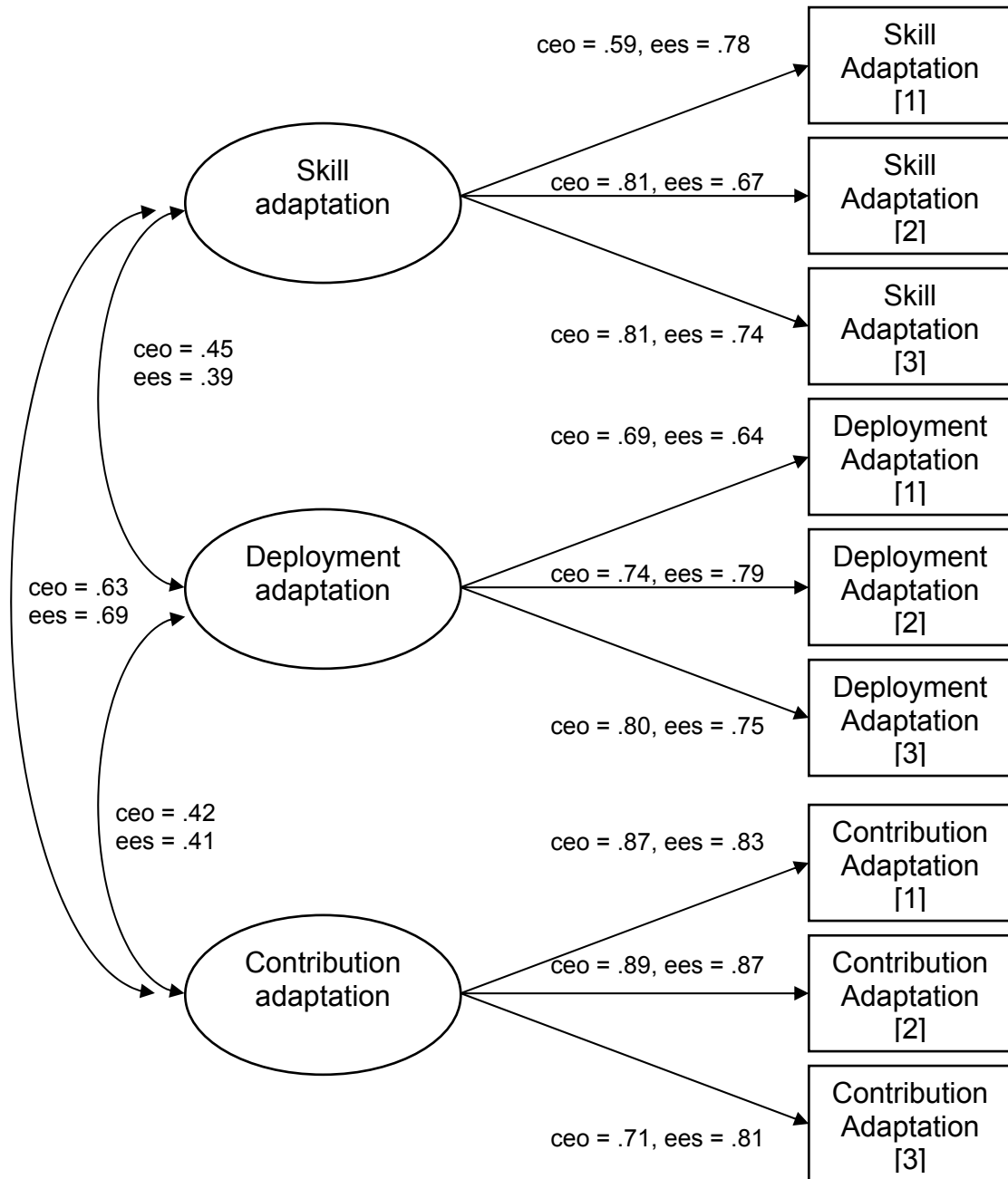


FIGURE 3.1
Results of First-Order Confirmatory Factor Analysis:
Internal Workforce Adaptation

TABLE 3.2
Discriminant Validity of Internal Workforce Adaptation^a

	χ^2/df	GFI	CFI	IFI	RMSEA (C.I.) ^b
CEOs^c					
1-Factor (SDC)	12.98	.74	.74	.77	.20 (.18, .22)
2-Factor (S, DC)	10.99	.79	.79	.80	.18 (.16, .20)
2-Factor (C, SD)	10.69	.84	.84	.83	.16 (.13, .15)
2-Factor (D, SC)	6.33	.89	.89	.88	.13 (.11, .15)
3-Factor (S, D, C)	2.35	.97	.97	.96	.07 (.05, .09)
Employees^d					
1-Factor (SDC)	13.18	.79	.72	.72	.20 (.18, .22)
2-Factor (S, DC)	10.81	.82	.78	.79	.18 (.16, .20)
2-Factor (C, SD)	10.51	.83	.79	.79	.18 (.16, .20)
2-Factor (D, SC)	6.68	.89	.88	.88	.14 (.12, .16)
3-Factor (S, D, C)	3.79	.94	.94	.94	.09 (.07, .11)

^a S, D, and C refer to skill, deployment and contribution adaptation.

^b 90% confidence interval of RMSEA

^c n = 196

^d n = 308

External workforce adaptation. External workforce adaptation was measured as the relative change in firm size:

$$(1) [\text{ABS}(\text{size}_2 - \text{size}_1)] / \text{size}_2$$

where, ABS referred to absolute value, size_2 was the total number of employees at the time of the study, and size_1 was the total number of employees three years prior to the study. size_1 and size_2 information was gathered through the CEO survey. As equation 1 indicates, external workforce adaptation captures relative increases and decreases to workforce size. Therefore, a firm that grew its workforce by 25 percent would receive the same external workforce adaptation score as one that reduced its workforce size by 25 percent.

High-performance work system use. High-performance work systems have been measured in a variety of ways (Becker & Gerhart, 1996; Dyer & Reeves, 1995). The index measure used here was based upon the work of Collins and Clark (2003) and Snell and colleagues (Snell, 1992; Snell & Dean, 1992; Youndt et. al., 1996). Specifically, high-performance work systems use was computed as mean of 13 HR practices: (1) “This company primarily selects new employees based on their long-term potential to contribute to the company,” (2) “This company will leave a position open until it can find the best and brightest possible new employee,” (3) “When evaluating job candidates, this company focuses on determining if they fit the company’s values,” (4) “This company has formal job duties and descriptions so that employees know their roles and responsibilities,” (5) “This company has a formal process of performance appraisals to provide feedback to employees,” (6) “Employees are given discretion to complete their tasks however they see fit,” (7) “This company pays a higher wage than its competitors,” (8) “This company uses individual bonuses or incentive pay to motivate employees,” (9) “This company sponsors social events so that employees can get to know one another,” (10) “This company provides opportunities for employees to continue to learn and grow,” (11) “Employees here expand their skills by rotating through a range of different jobs,” (12) “Managers regularly share information with employees through company-wide meetings,” and (13) “This company provides employees with challenging work opportunities.” All items were rated from 1, “completely disagree,” to 5, “completely agree.” Chronbach’s alpha for the high-performance work system use index was .76.

Market volatility. Market volatility was measured as the mean of two items located on the CEO survey: “There is a high degree of fluctuation in the demand for this organization’s products, services, or solutions” and “This organization faces stiff competition from numerous other competitors.” Both items were rated from 1, “completely disagree,” to 5, “completely agree.” The bivariate correlation between the two items was .33.

Employee Turnover. Voluntary and involuntary turnover data were obtained from CEOs using the following questions, respectively: “How many employees quit your firm in the last year?” and “How many employees left your organization in the last year because they were terminated or released by the firm?” To standardize these figures, I divided the absolute voluntary and involuntary turnover figures by the number of firm employees at the time of the study (Batt, 2002; Glebbeek & Bax, 2004; Shaw et. al., 2005).

Contract worker use. Contract workers were defined as individuals who work at the firm but who are paid by another organization (Houseman, 2001). Examples include staff from temporary agencies or other independent contractors. To assess contract worker use, CEOs were provided the preceding definition and examples and asked to report the number of contract-workers that the firm employed at the time of the study. These figures were then standardized by dividing the contract worker use figure by the number of firm employees at the time of the study.

Control Variables. To control for industry effects, each firm was coded into one of five industry categories on the basis of CEO industry identifications as well as firm background descriptions provided by the HR outsourcing firm. The five industry groups were service, retail, professional service, construction, and manufacturing. Professional service firms were

distinguished from service firms on the basis of the likely level of employee knowledge and expertise required. Service firms included motels, restaurants, auto repair shops, commercial and residential cleaning firms, landscaping companies, and the like. Professional service firms, in contrast, included physician groups, architectural firms, business consulting firms, law firms, software developers, and so forth. Two independent raters were used to ensure that the firms were coded reliably. Each rater separately coded each firm into one of the industry groups using the CEO industry responses, the company information provided by the HR outsourcing firm, and descriptions of the five industry groups. Preliminary rater agreement was approximately 70 percent and discrepancies were resolved through collective discussion and consensus.

According to the RBV, firms with superior (physical, financial, technological, legal, human, etc.) resources are more likely to formulate and implement unique and value-creating strategies than firms with substandard resources (Barney, 1991). Prior research has suggested that older and larger firms are more likely than younger and smaller firms to possess these resource advantages (Henderson, 1999; Bruderl, & Schussler, 1990). Therefore, firm age and firm size were controlled in all analyses. Firm age and size were measured, respectively, as the natural logarithm of the number of years since founding and the number of full time employees at the time of the study.

Gardner, Wright, and Gerhart (2000) have suggested that prior estimates of the relationship between high-performance work system use and firm performance may be overstated due to an “implicit theory of performance” bias among respondents. Specifically, Gardner et. al. (2000) found that individuals asked to represent high-performing firms were more likely to report having “innovative” HR practices than were individuals asked to represent low-performing firms. Therefore, to avoid or minimize an “implicit theory of performance” bias in this study, I controlled for CEO’s general perceptions of firm performance using four items adapted from Gibson and Birkinshaw (2004): “This firm’s performance is much better than the performance of our main competitors;” “This firm is achieving its full potential;” “People are satisfied with the level of performance of this firm;” and “This firm does a good job satisfying its customers.” The coefficient alpha for the four-item scale was .77.

Finally, four additional control variables were considered but not used: (1) the presence of a HR manager (Welbourne & Cyr, 1999), (2) HR costs, or the extent to which the CEO believed that his or her company was at a competitive disadvantage because of its employee management costs, (3) the degree to which firm relied on the HR outsourcing firm to carry out employee management practices, and (4) the number prior CEOs including the founder (Baron & Hannan, 2002). Bivariate correlation and OLS regression analyses indicated that none of these variables were significantly related to high-performance work system use, workforce alignment, internal workforce adaptation, external workforce adaptation, or sales growth.

Sales growth. Recent sales growth figures were obtained directly from CEOs and calculated as the natural logarithm of the percentage change in firm sales. Although externally validated indicators of firm performance are generally preferable to self-reported figures, no such data were available because none of the firms in the study were publicly traded. Prior research, however, suggests that the CEOs of small firms typically provide accurate sales growth estimates. For example, Collins and Clark (2003) reported a correlation between CEO-reported and COMPUSTAT-generated sales growth figures of .94.

Between-Firm Variance and Within-Firm Agreement

Workforce alignment, internal workforce adaptation, and high-performance work system use are workforce-level constructs. Therefore, to justify using CEO responses to represent a firm's level of these variables, it is necessary to demonstrate between-firm variance and within-firm agreement; that is, to show (1) that the constructs vary significantly across firms and (2) that individuals in the same organization share common perceptions of the phenomena (Gerhart, 1999; Gerhart et. al., 2000; Huselid & Becker, 2000; Klein & Kozlowski, 2000). To investigate between-firm variance and within-firm agreement, I merged the CEO and employee data to calculate several statistics. Between-firm variance was assessed using one-way analysis of variance (ANOVA) (Klein et. al., 2000: 517; see also Kenny & LaVoie, 1985). The ANOVA indicated significant variance across firms in workforce alignment, internal workforce adaptation, and high-performance work system use ($p < .01$ or better). Within-firm agreement, in turn, was examined by computing interrater agreement scores (r_{WG}) and intraclass correlation coefficients (ICC[1]). R_{WG} scores range from 0 (no agreement) to 1 (perfect agreement)

and a common rule of thumb is that an acceptable level of within-group agreement exists if the r_{WG} score is .70 or higher. The mean r_{WG} was .83 for workforce alignment, .79 for internal workforce adaptation, and .87 for high-performance work system use. ICC(1), in turn, captures the degree to which a single rating from an individual is likely to provide a reliable rating of the firm mean (Klein & Kozlowski, 2000). The ICC(1) value for workforce alignment, internal workforce adaptation, and high-performance work system use were .30, .24, and .36. These values are at the moderate to high levels of what can be expected in applied research settings (Bliese, 2000). In sum, the variables used in this study demonstrate acceptable levels of between-firm variance and within-firm agreement.

Analyses

Confirmatory factor analysis was used to test hypothesis 1 and thereby establish the discriminant and convergent validity of workforce alignment. For discriminant validity, I compared the fit of five workforce alignment models (Bentley, 1995): a one-factor model in which all nine workforce alignment items were specified to a single factor, three two-factor models, and the hypothesized three-factor model representing skill alignment, deployment alignment, and contribution alignment, respectively. Individual items were permitted to load only on their hypothesized factors with no cross-loadings or correlated measurement errors. For convergent validity, I compared the fit of a hypothesized model in which separate second-order factors represented workforce alignment and workforce adaptation to a model in which a single second-order factor represented both constructs.

Hierarchical ordinary least squares (OLS) regression was used to test all other study hypotheses. To avoid multicollinearity problems and to ease the interpretation of regression coefficients, all study variables (except the control variables) were transformed to z-scores (Aiken & West, 1991). Therefore, the intercept represents the estimated mean of the dependent variable with all independent variables held at their means. Predictor regression coefficients, in turn, indicate the change in the dependent variable with a one standard deviation increase in the independent variable. An examination of variance inflation factors (VIFs) indicated that multicollinearity was not a problem in the study. Also, since apparent interactions between correlated measures can actually be curvilinear effects of one of the measures (Cortina, 1993; Gonzach, 1998), I sought to identify curvilinear relationships within the variables prior to creating interaction variables. None were found. Finally, the goal of this study was to provide as robust a test of study hypotheses as possible. Therefore, unless otherwise noted, all study variables were controlled in all analyses.

CHAPTER 4

RESULTS

Table 4.1 presents the means, standard deviations, and correlations of the measured variables. Sales growth averaged 17.7 percent. High-performance work system use averaged 3.32 (on a 5-point scale). Workforce alignment averaged 3.57 (on a 5-point scale). Internal workforce adaptation averaged 2.58 (on a 5-point scale). External workforce adaptation averaged 33.3 percent. Market volatility averaged 3.41 (on a 5-point scale). Voluntary and involuntary turnover averaged 16 and 17 percent, respectively. Finally, on average, about 5 percent of the firms' employees were contract workers.

High-performance work system use ($r = .23$), workforce alignment ($r = .21$), internal workforce adaptation ($r = .20$), external workforce adaptation ($r = .38$), and voluntary turnover ($r = -.15$) were all significantly related to sales growth ($p < .05$ or better). High-performance work system use was positively related to workforce alignment ($r = .48, p < .01$). Workforce alignment, in turn, was not significantly related to either internal workforce adaptation or external workforce adaptation. Thus, on average, firms found it difficult to adapt their workforces to fit changing business needs.

TABLE 4.1
Means, Standard Deviations, and Pairwise Correlations

Variable	Means	s.d.	1	2	3	4	5	6	7
1. Sales growth ^a	2.87	1.03							
2. Retail	0.21	0.41	-.08						
3. Professional services	0.28	0.45	.14 [†]	-.32 ^{**}					
4. Construction	0.15	0.36	.09	-.22 ^{**}	-.27 ^{**}				
5. Manufacturing	0.09	0.29	.08	-.16 [*]	-.20 [*]	-.14 [†]			
6. Age ^a	2.66	0.73	-.22 ^{**}	.10	-.11	.09	.04		
7. Size ^a	3.05	0.81	.05	-.08	-.00	-.03	.06	.02	
8. Perceptual performance	3.60	0.75	.08	-.04	.08	.08	-.06	.06	.08
9. Internal workforce adaptation (IWA)	0.00	1.00	.20 ^{**}	-.17 [*]	.12 [†]	.06	.10	-.08	-.03
10. External workforce adaptation (EWA)	0.00	1.00	.38 ^{**}	-.12 [†]	.11	-.01	.07	-.34 ^{**}	.09
11. Market volatility (MV)	0.00	1.00	.05	.04	-.02	-.04	-.05	.01	-.02
12. Voluntary turnover (VTO)	0.00	1.00	-.15 [*]	.04	-.20 ^{**}	.07	-.03	.03	-.13 [†]
13. Involuntary turnover (IVTO)	0.00	1.00	-.03	.18 [*]	-.10	.03	-.04	.07	-.12 [†]
14. Contact worker use (CW)	0.00	1.00	-.01	-.11	.05	.13 [†]	-.03	.11	-.08
15. High-performance work system (HPWS)	0.00	1.00	.23 ^{**}	-.10	.14 [*]	.08	-.07	-.04	.19 ^{**}
16. Workforce alignment (WA)	0.00	1.00	.21 ^{**}	-.05	.10	.01	-.08	-.04	.10
17. Internal scalability (WA x IWA)	0.01	1.04	.13 [†]	.05	.00	.02	-.05	.03	-.11
18. External scalability (WA x EWA)	0.04	1.06	.12 [†]	-.15 [*]	.12 [†]	-.01	.02	-.06	.01
19. WA x IWA x EWA	0.08	0.96	-.04	-.08	.05	.09	-.14 [*]	.04	.08
20. WA x MV	0.04	1.13	.17 [*]	.06	.02	.01	-.11	-.02	.11
21. WA x VTO	-0.22	1.02	.09	-.02	.05	-.02	.04	-.10	.08
22. WA x IVTO	-0.21	1.78	.09	-.20 ^{**}	.05	.08	.01	-.09	.03
23. WA x CW	0.04	0.56	-.22 ^{**}	-.00	-.03	-.00	-.00	.08	-.03

^a Logarithm

[†] $p < .10$; * $p < .05$; ** $p < .01$

TABLE 4.1 (Continued)

Variable	8	9	10	11	12	13	14	15
9. Internal workforce adaptation (IWA)	-.05							
10. External workforce adaptation (EWA)	-.04	.26**						
11. Market volatility (MV)	-.11	.15*	-.07					
12. Voluntary turnover (VTO)	-.07	-.03	-.01	-.02				
13. Involuntary turnover (IVTO)	-.09	.03	.06	-.00	.28**			
14. Contact worker use (CW)	.15*	.15*	-.00	-.02	.00	-.06		
15. High-performance work system (HPWS)	.33**	.18*	.09	-.05	-.16*	-.16*	.01	
16. Workforce alignment (WA)	.51**	.01	.04	.03	-.22**	-.21**	.04	.48**
17. Internal scalability (WA x IWA)	.09	.07	.08	-.11	.07	.11	-.06	.06
18. External scalability (WA x EWA)	.03	.08	-.10	.13 [†]	-.11	-.26**	-.05	-.01
19. WA x IWA x EWA	.20**	.03	.16*	-.06	.04	.21**	-.01	.14 [†]
20. WA x MV	.09	-.10	.12 [†]	-.04	-.02	.11	-.08	.16*
21. WA x VTO	-.04	.07	-.12 [†]	-.03	-.62**	-.28**	.00	-.00
22. WA x IVTO	.06	.07	-.15*	.07	-.16*	-.77**	.03	.11
23. WA x CW	-.07	-.10	-.09	-.16*	.01	.08	.13 [†]	-.12 [†]

Variable	16	17	18	19	20	21	22
17. Internal scalability (WA x IWA)	.03						
18. External scalability (WA x EWA)	.13 [†]	.15*					
19. WA x IWA x EWA	.17*	.23**	-.20**				
20. WA x MV	-.06	.24**	-.25**	.32**			
21. WA x VTO	.04	-.04	.10	-.19**	-.07		
22. WA x IVTO	.16*	-.06	.29**	-.32**	-.14	.37**	
23. WA x CW	-.20**	.05	-.15*	-.06	.01	.15*	-.10

^a Logarithm

[†] $p < .10$; * $p < .05$; ** $p < .01$

Workforce Alignment

Hypothesis 1 predicted three distinct dimensions of workforce alignment. Figure 4.1 presents the results of the proposed three-factor model in which each of the 9 items was specified to load only onto its expected first-order construct (skill alignment, deployment alignment, and contribution alignment). It indicates that each of the 9 items loaded significantly onto its first-order construct for both the CEO and employee data. It also shows the correlations among the three dimensions were positive and significant (from $r = .48$ to $r = .70$, $p < .01$). Table 4.2, in turn, presents the fit estimates obtained for the five first-order confirmatory factor analysis models used to test hypothesis 1. For each model, items were permitted to load only on their hypothesized factors with no cross-loadings or correlated measurement errors. As Table 4.2 shows, the three-factor model achieved good fit statistics for both the CEO data ($\chi^2/df = 1.25$, GFI = .98, CFI = .99, IFI = .99, RMSEA = .04) and the employee data ($\chi^2/df = 2.18$, GFI = .96, CFI = .98, IFI = .98, RMSEA = .06). Further, the results also indicated that the best fitting model was the three-factor model and the worst fitting model was the one-factor model because the 90% confidence intervals of the RMSEA did not overlap. In sum, then, these results provide strong evidence for discriminant validity and thus hypothesis 1 was supported.

Hypothesis 2 predicted that each dimension of workforce alignment would contribute to an overall construct. Figure 4.2 presents the results of a confirmatory factor analysis in which workforce alignment and internal workforce adaptation were modeled as two distinct second-order constructs. Specifically, each of the workforce alignment and internal workforce adaptation items was specified to load only onto its expected first-order constructs (skill

alignment, deployment alignment, contribution alignment, skill adaptation, deployment adaptation, and contribution adaptation). The first-order constructs, in turn, were specified to load only onto their respective second-order constructs (workforce alignment and internal workforce adaptation). The fit that was obtained for the model was acceptable for both the CEO data ($\chi^2/df = 2.21$, GFI = .97, CFI = .96, IFI = .97, RMSEA = .07) and the employee data ($\chi^2/df = 1.54$, GFI = .99, CFI = .99, IFI = .99, RMSEA = .04). All items loaded significantly onto their first-order constructs, and all first-order constructs loaded significantly onto their second-order constructs. The correlation between the second-order workforce alignment and internal workforce adaptation constructs was negative and significant for the employee data ($r = -.10$, $p < .05$) but not for the CEO data ($r = -.01$, $p = n.s.$). These results suggest that the three dimensions of workforce alignment contribute to an overall construct. Thus hypothesis 2 was supported.

Hypothesis 3 predicted a positive relationship between high-performance work system use and firm performance. The results are shown in Table 4.3. Model 1, which included the control variables (industry, age, size, and perceptual performance) as well as market volatility, voluntary turnover, involuntary turnover, contract worker use, internal workforce adaptation, and external workforce adaptation explained 23 percent of the variance in sales growth. In model 2, high-performance work system use was added to the equation. The results indicated that high-performance work system use explained an additional 1.8 percent of the variation in sales growth and that the coefficient was positive and significant ($\beta = .16$, $p < .01$). Thus, hypothesis 3 was supported.

Hypothesis 4 predicted a positive relationship between high-performance work system use and workforce alignment. As model 3 indicates, other variables equal, high-performance work system use incrementally explained 8.7 percent of the variance in workforce alignment and the coefficient was positive and significant ($\beta = .34, p < .01$). Thus, hypothesis 4 was supported.

Hypothesis 5 predicted a positive relationship between workforce alignment and firm performance. Model 4 shows the results of the regression analysis obtained when workforce alignment was added to the base model (model 1). It indicates that workforce alignment explained an additional 2.2 percent of the variance in sales growth and its coefficient was positive and significant ($\beta = .18, p < .01$). Thus, hypothesis 5 was supported.

Hypothesis 6 predicted that workforce alignment mediates the relationship between high-performance work system use and firm performance. Testing for mediation involves three steps (Baron & Kenny, 1986; Kenny, Kashy, & Bolger, 1988). First, one must show that high performance work system use (the independent variable) is positively related to sales growth (the dependent variable). This was accomplished in model 2. Second, one must establish that high-performance work system use (the independent variable) is positively related to workforce alignment (the mediator variable). This was accomplished in model 3. Finally, one must show that workforce alignment (the mediator variable) is positively related to sales growth (the dependent variable) with the high performance work system use (the independent variable) controlled. If the effect of high-performance work system use is no longer significant when the mediator is in the model, then full-mediation is supported. If, on the other hand, the effect of high-

performance work system use is reduced but still significant when the mediator is in the model, then partial-mediation is suggested.

Model 5 was used to test for mediation. It indicates that the coefficient for workforce alignment remained positive and significant ($\beta = .15, p < .05$) when high-performance work system use was controlled. Further, with workforce alignment in the equation, the coefficient for high-performance work system use was no longer significant as both the size of the coefficient and the corresponding test statistic (t) decreased from model 2 ($\beta = .16, t = 2.07, p < .01$) to model 5 ($\beta = .10, t = 1.33, p = \text{n.s.}$). Thus, workforce alignment fully mediated the relationship between high-performance work system use and sales growth and hypothesis 6 was supported.

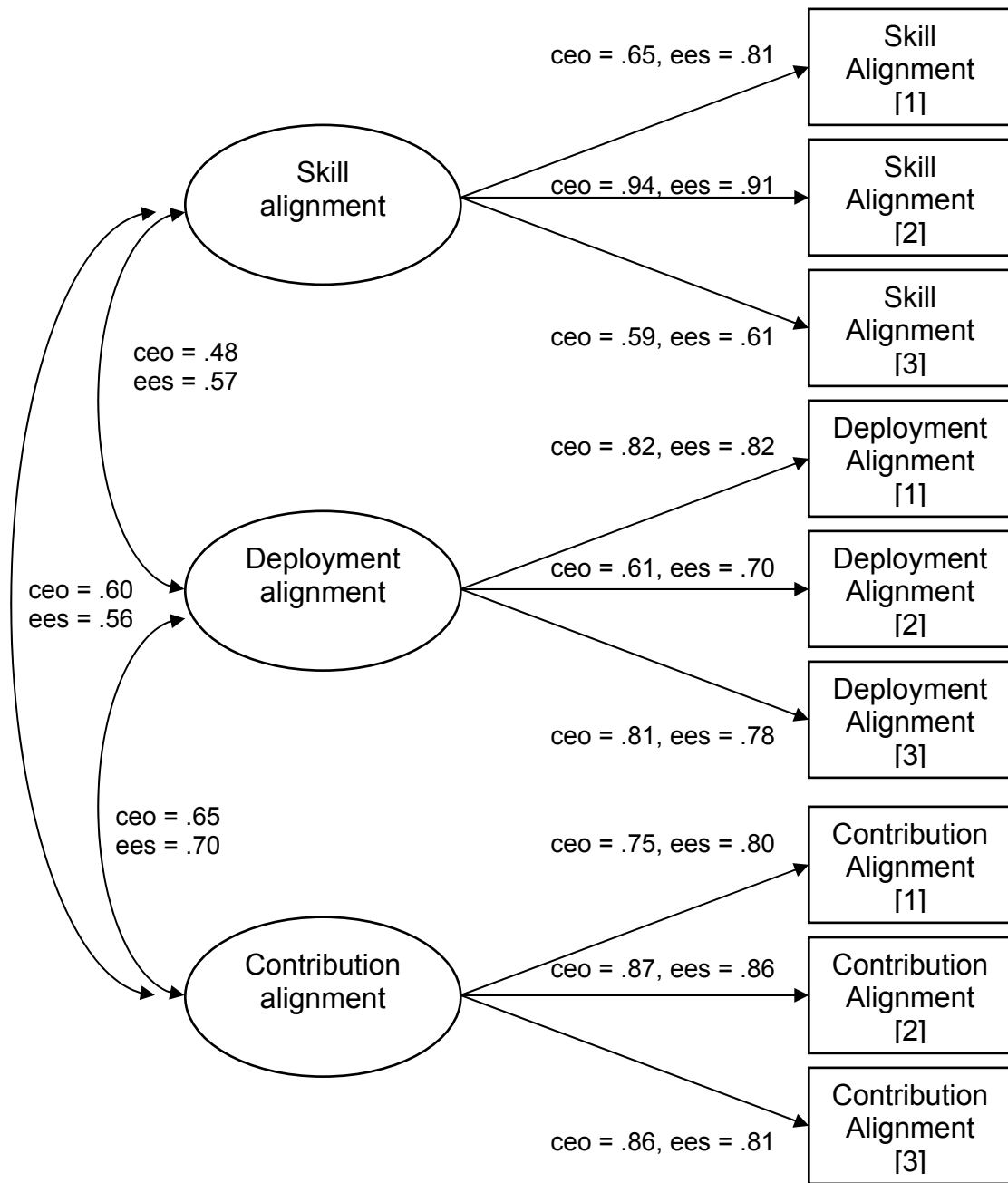


FIGURE 4.1
Results of First-Order Confirmatory Factor Analysis:
Workforce Alignment

TABLE 4.2
Discriminant Validity of Internal Workforce Alignment^a

	χ^2/df	GFI	CFI	IFI	RMSEA (C.I.) ^b
CEOs ^c					
1-Factor (SDC)	11.52	.88	.89	.90	.18 (.15, .22)
2-Factor (D, SC)	6.28	.88	.88	.88	.13 (.11, .15)
2-Factor (C, SC)	5.57	.90	.89	.90	.12 (.10, .14)
2-Factor (S, DC)	4.73	.91	.92	.92	.11 (.09, .06)
3-Factor (S, D, C)	1.25	.98	.99	.99	.03 (.00, .06)
Employees ^d					
1-Factor (SDC)	13.32	.78	.76	.76	.20 (.18, .22)
2-Factor (D, SC)	10.54	.82	.82	.82	.18 (.16, .20)
2-Factor (C, SC)	9.75	.82	.83	.84	.17 (.15, .19)
2-Factor (S, DC)	5.97	.88	.91	.91	.13 (.11, .15)
3-Factor (S, D, C)	2.18	.96	.98	.98	.06 (.04, .08)

^a S, D, and C refer to skill, deployment and contribution alignment.

^b 90% confidence interval of RMSEA

^c n = 196

^d n = 308

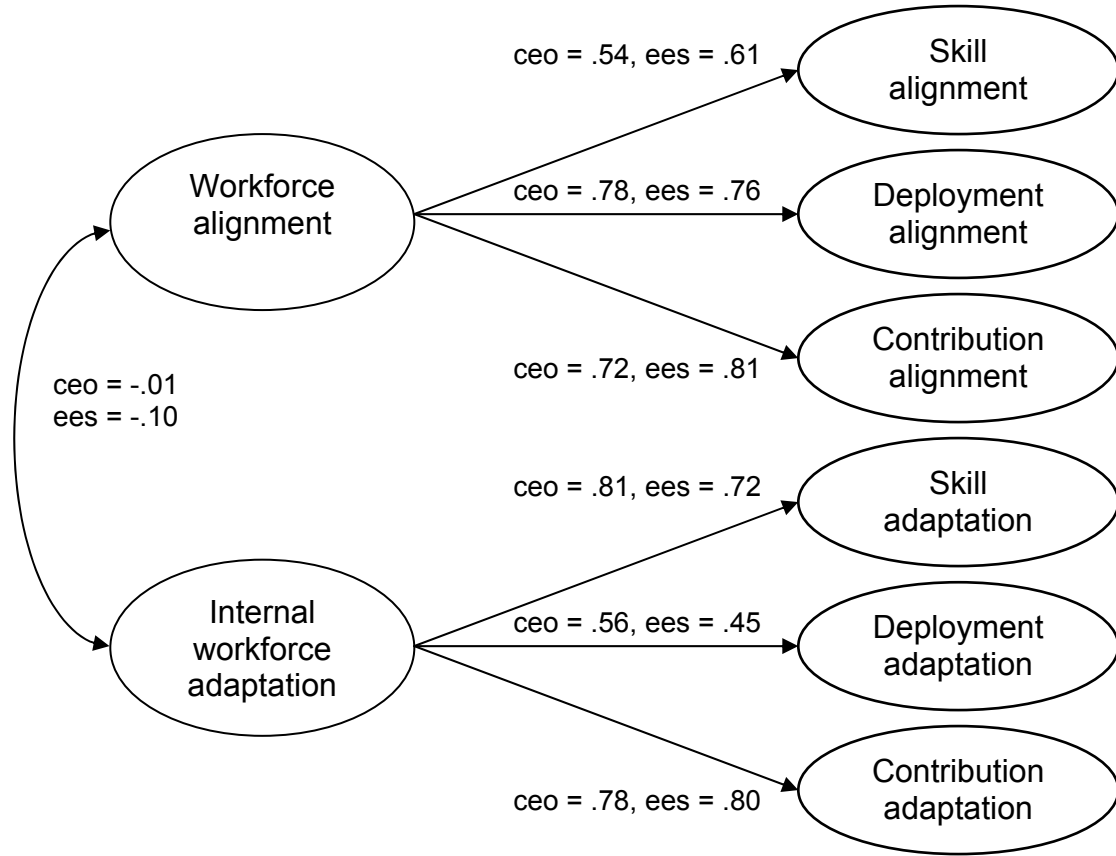


FIGURE 4.2
Results of Second-Order Confirmatory Factor Analysis

TABLE 4.3
High-Performance Work Systems, Workforce Alignment,
and Firm Performance

Variable	Model 1 Sales growth	Model 2 Sales growth	Model 3 Workforce alignment	Model 4 Sales growth	Model 5 Sales growth
Intercept	2.57**	2.88**	-2.34**	3.04**	3.12**
Retail	0.24	0.24	-0.04	0.25	0.25
Professional serve	0.35*	0.32*	-0.05	0.38**	0.34*
Construction	0.54**	0.51**	-0.07	0.56**	0.53**
Manufacturing	0.47*	0.51**	-0.23	0.52**	0.53**
Age	-0.17*	-0.17*	-0.04	-0.17*	-0.16*
Size	0.02	-0.07	0.03	0.01	-0.03
Perceptual performance	0.12	0.05	0.54**	-0.01	0.02
Market volatility	0.07	0.08	0.10*	0.06	0.07
Voluntary turnover	-0.11	-0.10	-0.12**	-0.09	-0.09
Involuntary turnover	0.01	0.02	-0.09	0.02	0.03
Contract wrker use	-0.03	-0.02	-0.01	-0.02	-0.02
Internal workforce adaptation	0.09	0.06	-0.05	0.08	0.07
External workforce adaptation	0.31**	0.31**	0.05	0.31**	0.30**
High-performance Wrk system use		0.16**	0.34**		0.10
Workforce alignment				0.18**	0.15*
R ²	0.23	0.25	0.42	0.25	0.26
Adjusted R ²	0.17	0.19	0.37	0.20	0.20
F	4.11**	4.19**	5.81**	4.37**	4.14**
ΔR^2 ^b		0.02	0.09	0.02	0.03
F for ΔR^2		4.29**	26.88**	5.36**	3.59**

^a n = 196. Unstandardized coefficients are reported.

^b Compared to base model.

* p < .05

** p < .01

One tailed tests.

HR Scalability

Hypothesis 7 predicted a positive relationship between internal scalability and sales growth. The results for all HR scalability predictions are shown in Table 4.4. To test hypothesis 7, I examined whether a workforce alignment-internal workforce adaptation interaction term explained additional variation in sales growth after controlling for all main effects (model 5). Model 6 indicates that internal scalability explained an additional 1.4 percent of sales growth variance and the coefficient was positive and significant ($\beta = .11, p < .05$). A plot of the interaction, shown in Figure 4.3, indicates that the relationship between workforce alignment and sales growth was stronger when internal workforce adaptation was high than when internal workforce adaptation was low. Thus, hypothesis 7 was supported.

Hypothesis 8 predicted a positive relationship between external scalability and sales growth. To test hypothesis 8, I examined whether a workforce alignment-external workforce adaptation interaction term explained additional variation in sales growth after controlling for the main effects (model 5). As model 7 shows, external scalability positively explained an additional 1.2 percent of the sales growth variance and the coefficient was positive and significant ($\beta = .11, p < .05$). A plot of the interaction, shown in Figure 4.4, indicates that the relationship between workforce alignment and sales growth was stronger when external workforce adaptation was high than when external workforce adaptation was low. Thus, hypothesis 8 was supported.

Hypothesis 9 predicted that the relationship between internal scalability (external scalability) and firm performance would be stronger when external scalability (internal scalability) was high than when external scalability (internal scalability) was low. Hypothesis 9 was tested by determining whether the

three-way workforce alignment-internal workforce adaptation-external workforce adaptation interaction term explained variation in sales growth after controlling for all main and two-way interaction effects (model 8). As model 9 indicates, the three-way interaction term explained an additional 1.9 percent of the sales growth variance. In contrast to hypothesis 9, however, the coefficient was negative and significant ($\beta = -.16, p < .01$). A plot of the interaction, shown in Figure 4.5, suggests that internal scalability (external scalability) combined with high external (internal) workforce adaptation was positively related to sales growth. It also shows that sales growth was significantly higher for firms that reported high levels of internal scalability combined with low external workforce adaptation, as well as for firms that reported high levels of external scalability combined with low levels of internal workforce adaptation. Thus, hypothesis 9 was not supported.

TABLE 4.4
HR Scalability and Firm Performance

Variable	Model 6	Model 7	Model 8	Model 9
Intercept	3.15**	3.09**	3.12**	2.98**
Retail	0.24	0.27	0.27	0.21
Professional service	0.34*	0.31*	0.30	0.30
Construction	0.53**	0.52**	0.53**	0.53**
Manufacturing	0.55**	0.52**	0.52**	0.44*
Age	-0.17*	-0.15*	-0.16	-0.14*
Size	-0.02	-0.02	-0.02	0.04
Perceptual performance	-0.04	-0.02	-0.04	-0.03
Market volatility	0.08	0.06	0.08	0.09
Voluntary turnover	-0.09	-0.08	-0.09	-0.10
Involuntary turnover	0.02	0.06	0.04	0.07
Contract worker use	-0.01	-0.01	-0.00	-0.01
Internal workforce adaptation (IWA)	0.06	0.05	0.05	0.05
External workforce adaptation (EWA)	0.29**	0.32**	0.31**	0.33**
High-performance work system use	0.10	0.11	0.11	0.11
Workforce alignment (WA)	0.15*	0.13	0.13	0.16*
Internal scalability (WA x IWA)	0.11*		0.10	0.13*
External scalability (WA x EWA)		0.11*	0.10	0.07
IWA x EWA			-0.06	-0.07
WA x IWA x EWA				-0.17**
R ²	0.27	0.27	0.28	0.30
Adjusted R ²	0.20	0.20	0.21	0.22
F	4.11**	4.10**	3.81**	3.94**
Δ R ² ^b	0.01	0.01		0.02
F for Δ R ²	3.00*	2.94*		4.75**

^a n = 196. Unstandardized coefficients are reported.

^b Compared to base model.

* p < .05

** p < .01

One tailed tests.

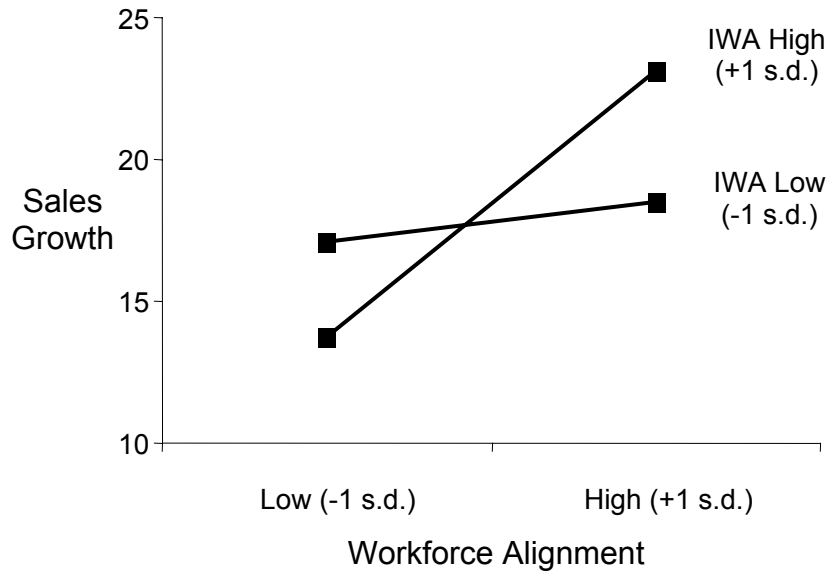


FIGURE 4.3
Internal Scalability

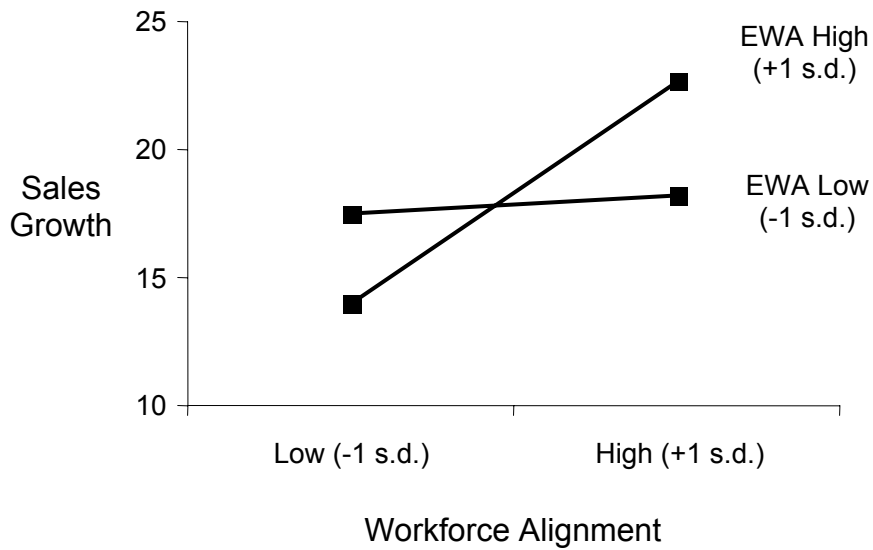


FIGURE 4.4
External Scalability

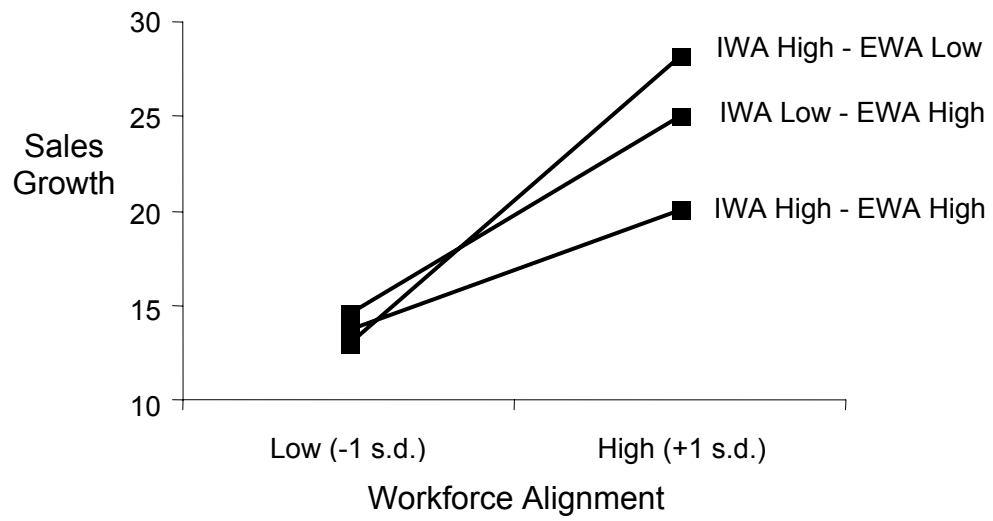


FIGURE 4.5
Overall HR Scalability

Other Possible Moderators

Hypothesis 10 predicted that the relationship between workforce alignment and firm performance would be stronger when market volatility was high than when market volatility was low. To test hypothesis 10, I examined whether a workforce alignment-market volatility interaction term explained additional variation in sales growth after controlling for the main effects (model 5). As model 10 indicates, the workforce alignment-market volatility interaction term positively explained an additional 1.9 percent of the sales growth variance and the coefficient was positive and significant ($\beta = .14$, $p < .01$). A plot of the interaction, shown in Figure 4.6, suggests that the relationship between workforce alignment and sales growth was stronger when firms experienced high levels of market volatility than when firms experienced low levels of market volatility. Thus, hypothesis 10 was supported.

Hypothesis 11 predicted that the relationship between workforce alignment and firm performance would be stronger for firms that experienced high levels of (a) voluntary turnover and (b) involuntary turnover than for firms that experienced low levels of voluntary turnover and involuntary turnover. To test hypotheses 11, I assessed whether a workforce alignment-voluntary turnover interaction term or a workforce alignment-involuntary turnover interaction term explained variance in sales growth after controlling for all other variables (model 5).² Model 11 shows that the two interaction terms collectively explained 2.1 percent of the variance in sales growth ($p < .05$) and that the coefficient for the workforce alignment-voluntary turnover interaction term, while positive, was not significant. Thus, the ability to effectively

² By controlling for external workforce adaptation, I effectively assessed the capacity to “fire and hire” rather than the ability to effectively reduce workforce size.

“restock” talent that decided to leave was not positively related to sales growth and hypothesis 11a was not supported.

Model 11 also indicates that the coefficient for the workforce alignment-involuntary turnover interaction term was positive and significant ($\beta = .13, p < .05$). A plot of the interaction, shown in Figure 4.7, suggests that the relationship between workforce alignment and sales growth was stronger when firms experienced high levels of involuntary turnover than when firms experienced low levels of involuntary turnover. Thus, the capacity to effectively realign talent by “firing and rehiring” was positively related to sales growth and hypothesis 11b was supported

Hypothesis 12 predicted that the relationship between workforce alignment and firm performance would be stronger for firms that employed a high proportion of contract workers than for firms that employed a low proportion of contract workers. Hypothesis 12 was tested by determining whether a workforce alignment-contract worker use interaction variable explained variation in sales growth after controlling for all main effects (model 5). As model 12 indicates, the workforce alignment-contract worker use interaction term explained an additional 1.7 percent of sales growth variance. In contrast to hypothesis 12, however, the coefficient was negative and significant ($\beta = -.25, p < .01$). A plot of the interaction, shown in Figure 4.8, suggests that the relationship between workforce alignment and sales growth was strong and positive when contract worker use was low and weak and negative when contract worker use was high. Thus, hypothesis 12 was not supported.

TABLE 4.5
Other Possible Moderators

Variable	Model 10	Model 11	Model 12
Intercept	3.26**	3.04**	3.14**
Retail	0.24	0.27	0.23
Professional service	0.34*	0.35*	0.32*
Construction	0.53**	0.48**	0.52**
Manufacturing	0.58**	0.55**	0.52**
Age	-0.17*	-0.13	-0.16
Size	-0.01	-0.00	-0.00
Perceptual performance	-0.05	-0.02	-0.03
Market volatility	0.07	0.06	0.05
Voluntary turnover	-0.08	-0.07	-0.10
Involuntary turnover	0.01	0.21**	0.04
Contract worker use	-0.01	-0.00	-0.00
Internal workforce adaptation	0.09	0.03	0.05
External workforce adaptation	0.28**	0.34**	0.29**
High-performance work system use	0.07	0.11	0.10
Workforce alignment	0.19**	0.15*	0.13
Workforce alignment x market volatility	0.14**		
Workforce alignment x voluntary turnover		0.04	
Workforce alignment x involuntary turnover		0.13*	
Workforce alignment x contract worker use			-0.25**
R ²	0.28	0.28	0.27
Adjusted R ²	0.21	0.21	0.21
F	4.26**	4.01**	4.20**
ΔR^2 ^b	0.02	0.02	0.02
F for ΔR^2	4.77**	2.54*	4.05**

^a n = 196. Unstandardized coefficients are reported.

^b Compared to base model.

* p < .05

** p < .01

One tailed tests.

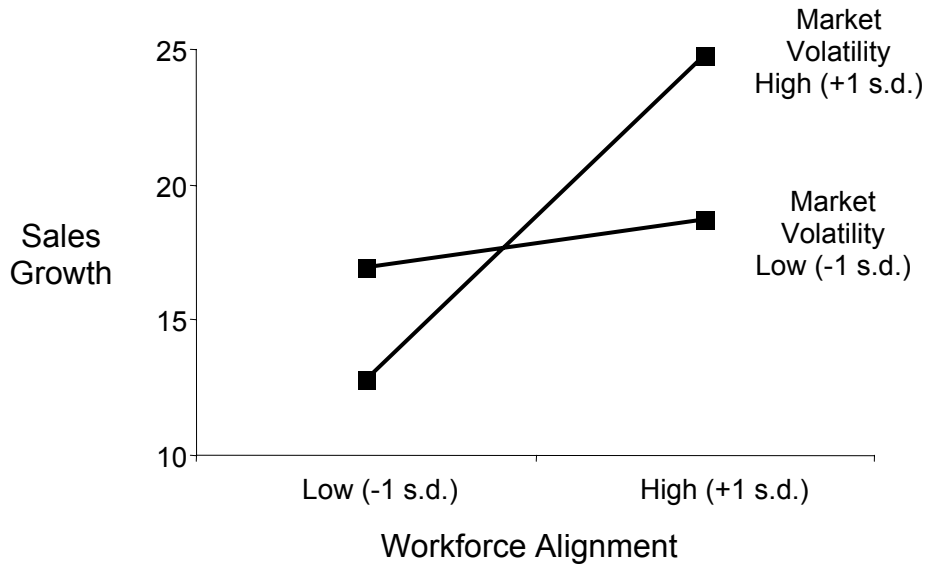


FIGURE 4.6
Workforce Alignment and Market Volatility

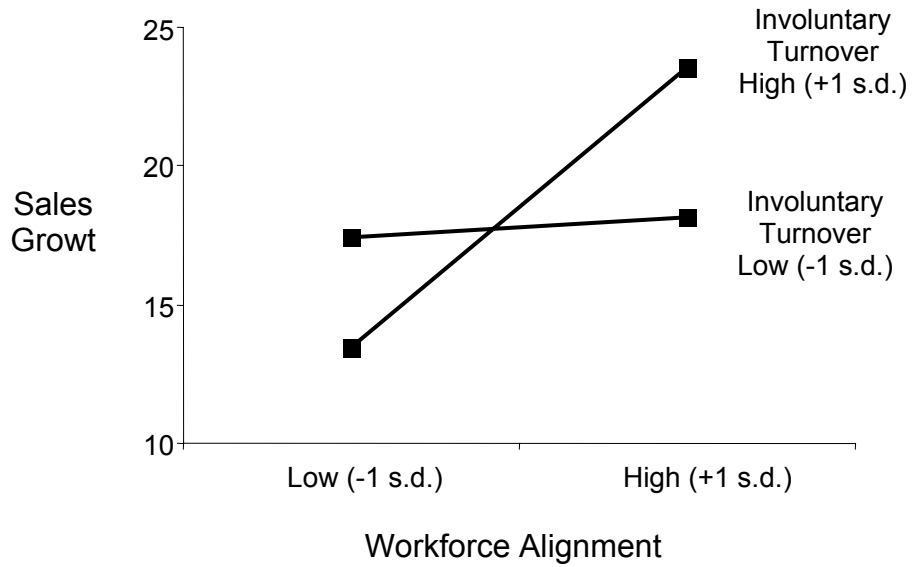


FIGURE 4.7
Workforce Alignment and Involuntary Turnover

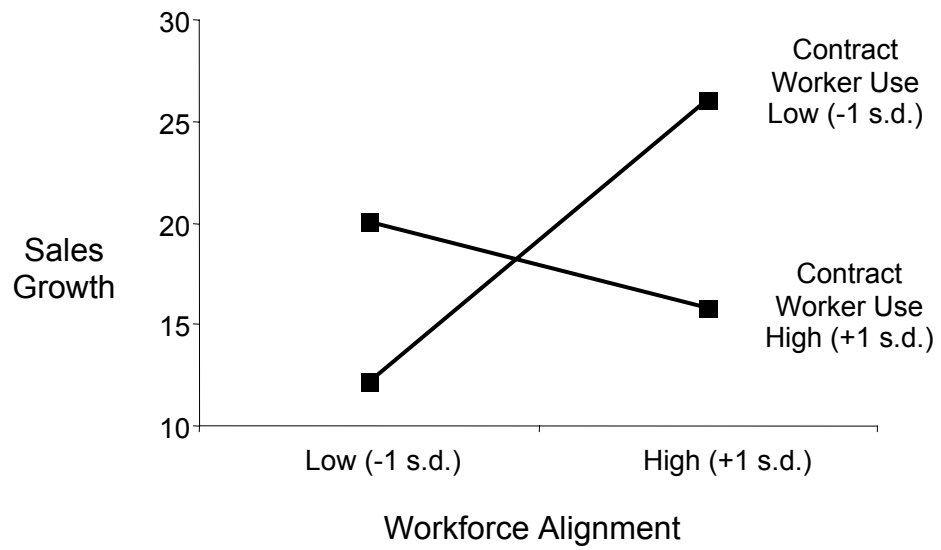


FIGURE 4.8
Workforce Alignment and Contract Worker Use

Exploratory Analyses

As the preceding results indicate, several constructs moderated the relationship between workforce alignment and firm performance. Given these results, I decided to examine the degree to which these constructs also moderated the relationships between internal and external scalability and firm performance. The results were universally non-significant for analyses involving voluntary turnover, involuntary turnover, and contract worker use. In contrast, the results obtained with market volatility were quite interesting. Table 4.6 presents the results.

First, I explored whether the relationship between internal scalability and firm performance was stronger for firms that reported high levels of market volatility than for firms that reported low levels of market volatility. To test this relationship, I assessed whether a three-way internal scalability-market volatility interaction term explained variation in sales growth after first controlling for all main and two-way interaction effects. As Model 13 indicates, the three-way interaction explained an additional 3.6 percent of sales growth variation and the coefficient was positive and significant ($\beta = .20, p < .01$). A plot of the interaction, shown in Figure 4.9, indicates that the relationship between internal scalability and sales growth was strong and positive when market volatility was high and negative when market volatility was low.

Next, I examined whether the relationship between external scalability and firm performance was stronger for firms that reported high levels of market volatility than for firms that reported low levels of market volatility; that is, whether a three-way external scalability-market volatility interaction term explained variation in sales growth after controlling for main and two-way interaction effects. As Model 14 indicates, the three-way interaction term

explained no variation in sales growth and the coefficient was not significant. Thus, the relationship between external scalability and firm performance was not moderated by market volatility.

Finally, I explored whether a four-way workforce alignment-internal workforce adaptation-external workforce adaptation-market volatility interaction term explained variation in sales growth after controlling for all main, two-way, and three-way interaction effects. Model 15 indicated that four-way interaction term explained an additional 2.3 percent of the sales growth variance and that its coefficient was positive and significant ($\beta = .25, p < .01$). A plot of the interaction, shown in Figure 4.10, indicates that overall HR scalability (i.e., high workforce alignment combined with high internal workforce adaptation and high external workforce adaptation) was positively related to sales growth when market volatility was high and negatively related to sales growth when market volatility was low.

TABLE 4.6
Exploratory Analyses

Variable	Model 13	Model 14	Model 15
Intercept	3.23**	3.09**	3.38**
Retail	0.20	0.27	0.12
Professional service	0.25	0.31*	0.20
Construction	0.52**	0.52**	0.53**
Manufacturing	0.48*	0.52**	0.35
Age	-0.19*	-0.15*	-0.13
Size	-0.03	-0.02	-0.03
Perceptual performance	-0.05	-0.02	-0.06
Market volatility (MV)	0.08	0.06	0.03
Voluntary turnover	-0.10	-0.08	-0.11
Involuntary turnover	0.03	0.06	0.11
Contract worker use	-0.01	-0.01	-0.01
Internal workforce adaptation (IWA)	0.09	0.05	0.09
External workforce adaptation (EWA)	0.27**	0.32**	0.35**
High-performance work system use	0.06	0.11	0.05
Workforce alignment (WA)	0.13	0.17*	0.15*
WA x MV	0.14**	0.16**	0.08
Internal scalability (WA x IWA)	0.01		0.10
External scalability (WA x EWA)		0.15**	0.03
WA x IWA x EWA			-0.14*
Internal scalability x MV (WA x IWA x MV)	0.20**		0.07
External scalability x MV (WA x EWA x MV)		-0.02	0.10
Overall scalability x MV (WA x IWA x EWA x MV)			0.25**
R ²	0.32	0.30	0.37
Adjusted R ²	0.25	0.22	0.29
F	4.41**	3.92**	4.43**
ΔR^{2b}	0.04	0.00	0.03
F for ΔR^2	9.26**	0.08	7.88**

^a n = 196. Unstandardized coefficients are reported.

^b Compared to base model.

* p < .05

** p < .01

One tailed tests.

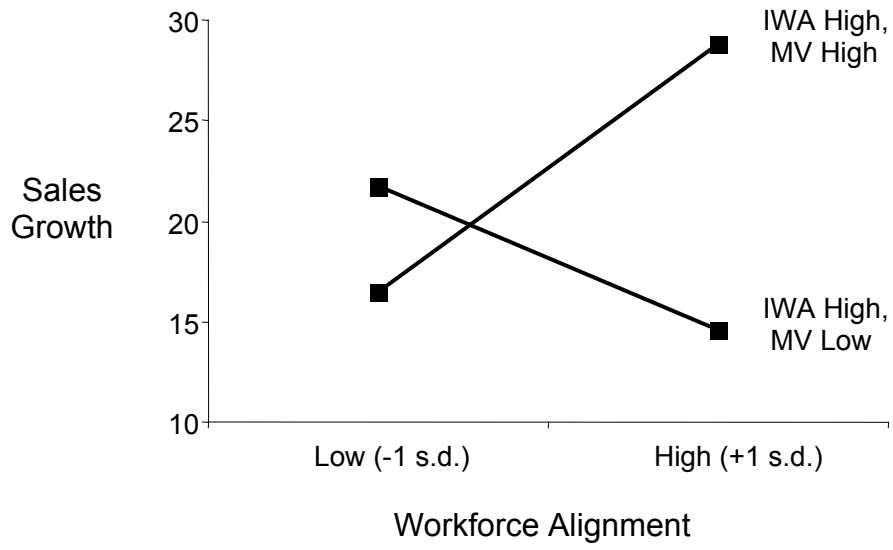


FIGURE 4.9
Internal Scalability and Market Volatility

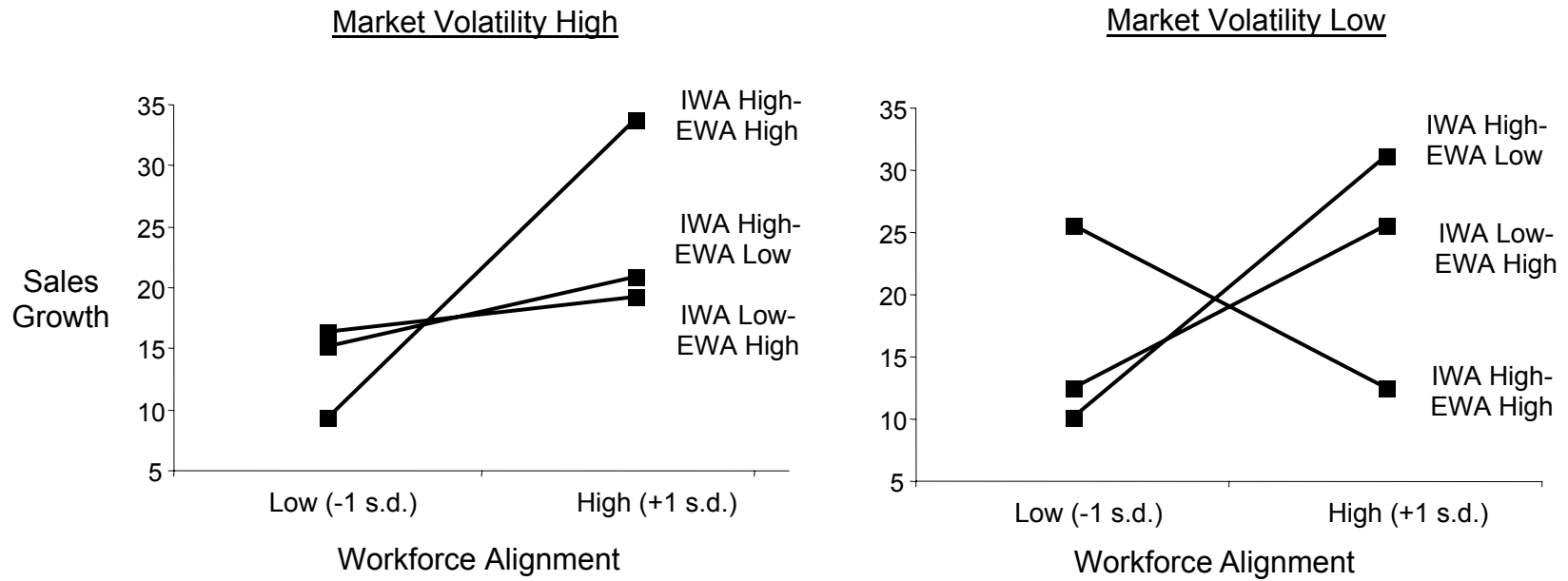


FIGURE 4.10
Overall HR Scalability and Market Volatility

CHAPTER 5

DISCUSSION

This study was designed to provide preliminary insights into the extent to which, and the conditions under which, workforce alignment leads to enhanced firm performance. Three specific research goals were pursued: (1) develop and validate a measure of workforce alignment, (2) ascertain whether firms that achieve high levels of workforce alignment through HR scalability are more likely to achieve rapid firm growth than are firms that achieve high levels of workforce alignment through HR stability, and (3) explore other circumstances under which workforce alignment may lead to higher levels of firm performance.

Workforce Alignment

Researchers in the field of SHRM have demonstrated a positive relationship between high-performance work system use and firm performance across a wide range of settings and firm performance indicators. More recently, however, SRHM scholars have underscored the idea that competitive advantage emanates from people, not HR systems, and called for future SHRM research to identify the workforce characteristics that mediate the relationship between high-performance work system use and firm performance (Collins & Clark, 2003; Snell, Youndt, and Wright, 1996; Wright et, al., 2001; Wright & Gardner, 2002; Wright & Snell, 1998).

Meantime, a substantial and growing body of SHRM theory has suggested that high-performance work systems enhance firm performance through workforce alignment; that is, by producing a configuration of employee skills, deployments patterns, and behavioral contributions that allows the firm to successfully formulate and execute its particular strategic goals (Appelbaum

et. al., 2000; Becker & Huselid, 1998; Dyer & Shafer, 1999, 2002; Kochan & Osterman, 1994; Lawler, 1992; Vetter, 1967; Wright & Snell, 1998; Wright et. al., 2001). Empirically, however, workforce alignment research has been impeded by the lack of a direct measure of the construct. As a result, we still do not know whether high-performance work systems use enhances workforce alignment, whether workforce alignment fosters firm performance, or whether workforce alignment mediates the relationship between the two.

Therefore, the first goal of this study was to develop and initially validate a multidimensional measure of workforce alignment. The results contribute to the SHRM literature in several ways.

First, one important finding pertains to the discriminant and convergent validity of the workforce alignment construct itself. Scholars have suggested that employee skills, deployments patterns, and behavioral contributions represent a sufficient and complementary set of workforce attributes necessary for understanding how human resources affect firm performance. But, this is the first study to directly measure skill alignment, deployment alignment, and contribution alignment to determine whether they constitute distinct components of an overall construct. The results indicated that the three dimensions of workforce alignment were not construct-equivalent and that the dimensions loaded onto a single high-order factor that was distinct from internal workforce adaptation. High levels of within-firm agreement in assessments of workforce alignment further suggested that firm-members shared common perceptions concerning the degree to which the firm possessed a workforce with the characteristics necessary to formulate and implement its strategic goals. Taken together, these findings provide strong

evidence of discriminant and convergent validity and justify future development of, and research with, the workforce alignment construct.

The workforce alignment scale used here is not perfect. For example, although the third item for skill alignment loaded significantly onto its first-order construct, the standardized factor loading was somewhat low (.59 for CEOs and .61 for employees). One likely explanation for the result is that the negative wording (and reverse-coding) of the item confused respondents and increased measurement error. Researchers using the workforce alignment scale may therefore want to replace the item “We sometimes lack people with the knowledge and skills necessary to do the job right” with “This firm’s people always have the knowledge and skills necessary to do the job right.” Another recommended adjustment to the workforce alignment scale concerns the use of item qualifiers such as “consistently” and “always.” These qualifiers are necessary, of course, to differentiate higher levels of workforce alignment from lower levels workforce alignment. But, it may be more consistent to remove the qualifiers from the items themselves in favor of asking people to rate the unqualified items on a 1, “never,” to 5, “always” scale. A revised workforce alignment scale with the suggested revisions can be found in Appendix C.

Finally, although confirmatory factor analyses supported a three-factor model of workforce alignment, the correlation between the deployment alignment dimension and the contribution alignment dimension was quite high (.65 for CEOs and .70 for employees). Future research should therefore examine the discriminant validity of these two dimensions so that firm conclusions can be drawn.

Second, the study adds to the large and growing body of SHRM research that has demonstrated a positive relationship between high-performance work system use and firm performance. As expected, I found a positive and significant relationship between high-performance work system use and small business sales growth. Specifically, with all study variables held constant, a one standard deviation increase in high-performance work system use was associated with a sales growth increase of 3.1 percentage points. This figure represents a substantial 18 percent increase over the average study sales growth rate of 17.7 percent. Compared to other SHRM studies, however, the practical effect of high-performance work system use was somewhat modest. Batt (2002), for instance, reported that a one standard deviation increase in high-performance work system use was associated with a 16.3 percent increase in average call center sales growth rates (average call center growth rates were about 35 percent). Collins and Clark (2003), in turn, found that a one standard deviation increase in network building HR practices and incentive pay HR practices were associated, respectively, with an 18.7 and 17.2 percent increase in sales growth (average firm growth was 33 percent). These cross-study differences primarily appear to emanate from differences in research samples and control variables since the bivariate correlation between HR practices and sales growth is more or less constant across the studies: .21 in the present study, .27 for Batt (2002), and .19 and .21, respectively, for Collins and Clark (2003).

Third, I found that high-performance work system use was positively and significantly related to workforce alignment. This finding is conceptually important from a RBV perspective because it distinguishes workforce characteristics from HR practices. Still, the result was not too surprising. After all, high-performance work systems have been defined as “coherent sets of HR practices that enhance employee skills, participation in decisions, and motivation” (Batt, 2002: 587; see also, Applebaum et. al., 2000). What was somewhat surprising, though, was the amount of workforce alignment variance left unexplained. In the study, high-performance work system use explained 8.7 percent of the variance in workforce alignment. This means that more than 90 percent of the variance was the result of other factors (as well as error). What are these other factors? Here the study provided only limited guidance. According to model 3, workforce alignment was positively related to perceptions of firm performance and negatively related to voluntary turnover. But, workforce alignment was not significantly related to industry, age, size, use of contract workers, involuntary turnover, market volatility, or internal or external workforce adaptation. Thus, future research is needed to identify a broader set of environmental (e.g., number of direct competitors), strategic (e.g., number of new products or services introduced in the prior year), and organizational (e.g., changes to organizational structure, processes, or technologies) antecedents of workforce alignment. A close examination of the high-performance work system scale also suggests that only a few of the items are directly aimed at skill alignment (item 1) or contribution alignment (items 1, 4, 5, 6, 7). Further, the high-performance work system items are all about usage, not effectiveness. Therefore, future research using a wider

range of HR practices and considering HR system implementation success could provide additional insights into how firms obtain workforce alignment.

Future SHRM research could also use workforce alignment to more fully examine the notion of horizontal HR system alignment. According to this stream of SHRM research, HR practices can combine with one another as complements, substitutes, or even “deadly combinations” (Baird & Meshoulam, 1988; Becker & Huselid, 1998; Delery, 1998). To date, however, horizontal HR system alignment research has “provided few real insights” into firm performance (Delery, 1998: 1; for exceptions, see MacDuffie, 1995; Ichniowski, Shaw & Prennushi, 1997). But, workforce alignment represents a more conceptually appropriate dependent variable for horizontal alignment research than firm performance. Therefore, future research might reveal that various combinations of HR practices enhance (or diminish) workforce alignment in theoretically and practically important ways.

Fourth, the results suggested that workforce alignment was positively and significantly related to firm performance. In practical terms, with all other study variables held constant, a one standard deviation increase in workforce alignment was associated with a 3.7 percentage point increase in small business sales growth, or a 21 percent increase over the average study sales growth rate. This finding represents an important, if initial, step in demonstrating the criterion-related validity of the workforce alignment construct (DeVellis, 2003; Schwab, 1999). To fully demonstrate that workforce alignment represents a source of temporary competitive advantage, however, it is necessary to place workforce alignment within a broader nomological network of firm performance indicators. Specifically, it would be helpful to know whether workforce alignment is positively related to labor productivity,

innovation, return on assets, profitability, and so forth. Unfortunately, I did not have the data necessary to test these relationships.

Finally, I found that workforce alignment mediated the relationship between high-performance work system use and firm performance. This finding is consistent with RBV logic that suggests that it is the firm's workforce, and not its HR system, that represents a potential source of competitive advantage (Wright, MacMahan, & McWilliams, 1994). Further, this is the first SHRM study that I know of to show that workforce characteristics mediate the relationship between high-performance work system use and firm performance (see Collins & Clark, 2003 for a partial exception).

Human Resource Scalability

Taken together, the results of the construct validation portion of the study suggest that workforce alignment is a valuable firm resource. And yet, according to the RBV, obtaining a valuable resource alone is not enough to confer a competitive advantage. To claim that workforce alignment provides firms with a even a temporary competitive edge, it is also necessary to identify the particular circumstances under which firms can achieve levels of workforce alignment that competitors have difficulty matching, at least in the short-run.

In this study, I suggest that internal scalability and external scalability represent two such circumstances. In particular, I argue (1) that workforce alignment is a transitory notion for many firms because the human resource skills, deployments, contributions that are aligned at one point in time may be of little value, or even detrimental, at a later point in time (Kraatz & Zajac, 2001; Miller & Shamsie, 1996; Rao & Drazin, 2002; Rindova & Kotha, 2001); (2) that HR scalability refers to a firm's capacity to transition from one aligned configuration of human resources to another and comes in two forms, internal

and external, depending on the particular workforce adaptation processes used; (3) that firms generally find it difficult to internally or externally adapt their workforces to fit changing business needs; and, therefore (4) that workforce alignment is more likely to lead to a temporary competitive advantage and thus higher firm performance when it is achieved through internal or external scalability than when it is achieved through workforce stability.

Therefore, the second goal of the study was to empirically ascertain whether firms that achieve workforce alignment through HR scalability perform better than firms that achieve workforce alignment through workforce stability.

The results provided strong support with respect to internal scalability. For starters, the low correlation between workforce alignment and internal workforce adaptation ($r = .01$) indicated that, on average, firms that internally adapted their workforces were no more (or less) likely to achieve workforce alignment than were firms that did not internally adapt their workforces. The results further suggested that workforce alignment was a “hygiene” factor in stable settings: all else equal, a one standard deviation increase in workforce alignment was associated with only a 0.9 percent increase in sales growth when internal workforce adaptation was low (-1 s.d.). Finally, and most important of course, I found that firms that achieved workforce alignment through internal scalability performed better than firms that achieved workforce alignment through internal workforce stability. Specifically, a one standard deviation increase in workforce alignment was associated with a 6.9 percent increase in sales growth when internal workforce adaptation was high (+1 s.d.). In short, firms that reported high levels of workforce alignment and internal scalability grew more than seven times faster than did firms that

reported high levels of workforce alignment and low levels of internal workforce adaptation.

The results for external scalability were nearly identical to those obtained for internal scalability. Again, a low correlation between external workforce adaptation and workforce alignment ($r = .04$) suggested that, on average, firms that externally adjusted their workforces were no more (or less) likely to achieve workforce alignment than firms that did not externally adapt their workforces. Further, workforce alignment also appeared to be a “hygiene” factor in externally stable settings. A one standard deviation increase in workforce alignment was associated with only a 0.4 percent increase in sales growth when external workforce adaptation was low (-1 s.d.). Finally, the results indicated that firms that achieved workforce alignment through external scalability performed significantly better than did firms that achieved workforce alignment through external workforce stability. Specifically, holding all study variables constant, a one standard deviation increase in workforce alignment was associated with a 6.0 percent increase in sales growth when external workforce adaptation was high (+1 s.d.). In sum, firms that reported high levels of external scalability grew 15 times faster than firms that reported high levels of workforce alignment and low levels of external workforce adaptation.

This was the first study to directly assess the relationship between HR scalability (or dynamic alignment more generally) and firm performance. The results support the theory that workforce alignment is more likely to lead to a temporary competitive advantage when it is achieved through HR scalability than when it is achieved through workforce stability. The results are also fairly conservative because I controlled for voluntary turnover, involuntary turnover,

contract worker use, as well as the main effects of internal workforce adaptation and external workforce adaptation in order to isolate the particular workforce adaptation processes that firms used. Further, I also controlled for high-performance work system use to ensure that the HR scalability results were not confounded by firms' HR practices. Without these controls, the results would have been substantially stronger, especially for internal scalability.

It is important to note that the HR scalability findings pertain only to the workforce alignment-workforce adaptation interaction terms and not to the main effects of internal or external workforce adaptation. Clearly, firms that internally adapted and/or increased the size of their workforces were also more likely to increase sales growth than firms that did not (for example, the correlation between internal workforce adaptation and sales growth was .20, $p < .01$ and the correlation between external workforce adaptation and sales growth, in turn, was .38, $p < .01$). What was not so clear, however, is whether firms that internally or externally adapted their workforces would experience even greater levels of sales growth if they did so in ways that enhanced or maintained workforce alignment.

According to the RBV, internal scalability and external scalability should be complements. After all, if workforce alignment is a valuable resource and internal scalability and external scalability are independently difficult to achieve, then it logically follows that firms that achieve high levels of workforce alignment through both internal and external forms of HR scalability should obtain greater levels of performance than firms that emphasized one process or the other. The results, however, suggest a different view. Namely, that firms achieve greater levels of performance when they experience high levels

of either internal scalability or external scalability, but not both. Consider the practical effects. With all other study variables held constant, a one standard deviation increase in internal scalability (or external scalability) combined with high external (or internal) workforce adaptation (+1 s.d.) was associated with a sales growth increase of 2.4 percent. In contrast, a one standard deviation increase in internal scalability combined with low external workforce adaptation (-1 s.d.) was associated with a sales growth increase of 10.5 percent. Further, a one standard deviation increase in external scalability combined with low internal workforce adaptation (-1 s.d.) was associated with a sales growth increase of 7.3 percent. Thus, firms suffered sales growth penalties of 8.1 percent and 4.9 percent, respectively, when they combined high internal scalability with high external workforce adaptation, or high external scalability with high internal workforce adaptation.

This finding extends prior SHRM thinking. Scholars have speculated that internal and external scalability are complements, but so far there has been little evidence to support (or refute) the claim. In fact, I am aware of only one study that has empirically addressed the issue. In it, Cappelli and Neumark (2004) found a positive and significant relationship between “flexibility-enhancing” high-performance work system use and overall employee churn rates and therefore concluded that internal and external workforce adaptation are complements. In this study, I also found a positive relationship between internal workforce adaptation and external workforce adaptation ($r = .26, p < .01$) as well as between internal scalability and external scalability ($r = .15, p < .05$). This suggests that internal scalability and external scalability may be used as complements but the data noted above suggest

that this is bad practice since internal scalability and external scalability represented a “deadly combination” when it comes to firm performance.

Other Possible Moderators

The final research goal of the study was to explore other circumstances under which workforce alignment might lead to higher firm performance. The results revealed three such conditions: high involuntary turnover, low contract worker use, and high market volatility.

First, although the results did not support the hypothesis that workforce alignment is more likely to lead to enhanced firm performance when voluntary turnover is high than when voluntary turnover is low, I did find a significant moderating effect for involuntary turnover. Specifically, a one standard deviation increase in workforce alignment was associated with a 5.9 percent increase in sales growth when involuntary turnover was high (+1 s.d.) and a 0.5 percent decrease in sales growth when involuntary turnover was low (-1 s.d.). This finding suggests that SHRM scholars might fruitfully examine the ways in which firms utilize a strategy of “fire and rehire” to foster workforce alignment.

Thus far, SHRM scholars have emphasized two related arguments with respect to employee turnover. One is that high-performance work systems reduce employee turnover and thus enhance firm performance because firms that carefully select employees, invest in training, offer good pay, provide opportunities to advance, and so forth are less likely to have employees quit or to have to fire poor performers and, as a consequence, experience fewer disruptions and avoid the costs of hiring replacements (Batt, 2002; Huselid, 1995). The other is that high-performance work system use moderates the relationship between employee turnover and firm performance such that

employee turnover is significantly more costly in terms of performance when firms use high-performance work systems (and thus invest in employees) than when firms use control-oriented HR strategies (and thus treat employees as interchangeable components) (Arthur, 1994; Guthrie, 2001). Generally, these lines of reasoning do not distinguish between voluntary and involuntary turnover. The results of this study, however, suggest that future researchers should separate the two and then more fully examine how each affects workforce alignment to either enhance or diminish firm functioning and performance.

Second, I found that the relationship between workforce alignment and firm performance was significantly stronger when contract worker use was low than when contract worker use was high. Specifically, one standard deviation increase in workforce alignment was associated with an 8.3 percent increase in sales growth when contract worker use was low (-1 s.d.) and a 1.9 percent decline in sales growth when contract worker use was high (+1 s.d.). In general, this finding contradicts RBV thinking that workforce alignment is more likely to be both valuable and rare for firms that employ a higher proportion of contract workers than for firms that employ a lower proportion of contract workers. However, the result is consistent with the idea that firms that employ a high proportion of contract workers are less likely to compete on the basis of human resources or workforce alignment than firms that employ a low proportion of contract workers because contract workers tend to be used for assignments that require knowledge and skills that are neither particularly valuable to firm goals nor unique in the labor market (Lepak & Snell, 1999; Lepak et. al., 2003). Future research that examines the ways in which contract workers are utilized might provide more definitive insights.

Interestingly, I did not find evidence to suggest that contract worker use fostered HR scalability (Abraham & Taylor, 1996; Houseman, 2001; Pfeffer & Baron, 1988). Although contract worker use was positively and significantly related to both internal workforce adaptation ($r = .15, p < .05$) and external workforce adaptation ($r = .15, p < .05$), firms that relied more heavily on contract workers were no more likely to achieve workforce alignment ($r = .04, n.s.$), internal scalability ($r = -.05, n.s.$), or external scalability ($r = -.06, n.s.$), than firms that did not rely on contract workers. Thus, the use of contract workers may have advantages with respect to labor cost savings that are more than offset by challenges to workforce alignment and the resulting negative effects on revenues.

Finally, I found that market volatility moderated the relationship between workforce alignment and firm performance in important and interesting ways. For instance, firms that achieved workforce alignment in volatile marketplaces grew significantly faster than did firms that achieved workforce alignment in more stable settings. With other variables held at their means, a one standard deviation increase in workforce alignment was associated with a 7.1 percent increase in sales growth when market volatility was high (+1 s.d.) and only a 1.0 percent increase in sales growth when market volatility was low (-1 s.d.). Further, the relationship between internal scalability and sales growth was strong and positive when market volatility was high, and weak and negative when market volatility was low. All else equal, a one standard deviation increase in internal scalability was associated with an 11.1 percent increase in sales growth when market volatility was high (+1 s.d.) and a 3.1 percent decline in sales growth when market volatility was low (-1 s.d.). Perhaps the most interesting finding of the study was that market volatility moderated the

relationship between overall HR scalability and firm performance such that internal scalability and external scalability were complements in volatile marketplaces and a “deadly combination” in more stable settings. In practical terms, a one standard deviation increase in overall workforce scalability (i.e., workforce alignment, internal workforce adaptation, and external workforce adaptation) was associated with a 5.4 percent increase in sales growth when market volatility was high (+1 s.d.) and a 3.1 percent decrease in sales growth when market volatility was low (-1 s.d.).

There are at least two possible interpretations of these market volatility findings. One, of course, is that the results support the claim that workforce alignment is a moving target in competitive and rapidly changing markets and therefore that firms are more likely to obtain a workforce alignment advantage when market volatility is high rather than low (Data et. al., 2005; Dyer & Ericksen, 2005). This interpretation is supported by the weak correlation between market volatility and workforce alignment ($r = .03$, n.s.) and the positive correlation between market volatility and internal workforce adaptation ($r = .15$, $p < .05$). And yet, it is also possible that market volatility captured the underlying motivation behind firms’ decisions to internally or externally adjust their workforces. For instance, firms that reported high levels of workforce adaptation and market volatility may have been adjusting their workforces to proact or respond to changes in the marketplace. Thus in volatile markets, it makes sense to use all possible actions to attain alignment, whereas in stable environments it is unnecessary and unwise to churn people. Indeed, when internal and external workforce adaptation occurs in a stable setting, it may be to adjust the workforce to address pre-existing workforce deficiencies. If this latter explanation is true, then the implication is that the relationship between

workforce alignment (and HR scalability) and firm performance is stronger when firms have a solid market-driven reason to adapt their workforces (Barnett & Freeman, 2001). In any case, the result warrants additional empirical attention. Specifically, future research should more fully examine how particular environmental conditions (such as technological change, munificence, and industry complexity) and strategic changes (such as new product introduction, product adaptation, geographic expansion, and so forth) affects the relationships among workforce alignment, HR scalability, and firm performance.

Limitations and Areas for Future Research

It is important to note certain limitations of this study. First, the focus was small business sales growth. As a result, the findings may not generalize to other settings, samples, or performance indicators. However, the goal of the study was not to develop generalizable empirical results, but rather to preliminarily identify some circumstances under which workforce alignment may lead to a temporary competitive advantage. Further, given my interest in HR scalability, small business sales growth was a conceptually appropriate context in which to begin (1) because small business scholars have regularly suggested that HR scalability is a crucial firm resource for many small businesses (Cardon & Stevens, 2004; Heneman et. al., 2000; Penrose, 1959) and (2) firms with aligned workforces should be more likely to satisfy customers and to identify or modify products or services to meet customer needs which, in turn, should result in higher sales growth rates (Anderson, 2001; Baron & Hannan, 2002).

Still, the results need to be interpreted in light of the fact that all of the firms studied used HR services provided by Gevity HR. Although the extent to which firms relied on Gevity HR to carry out employee management practices did not affect any of the empirical results, the firms in the study were remarkably stable. Thus, it may be that small businesses that used Gevity HR to manage employee payroll and benefits are also, on average, more stable and successful than those that do not. It will be recalled, for instance, that the average firm in the study employed only slightly more than 20 employees even after 14 years of existence. Further, the average CEO tenure was greater than 10 years and the firms reported relatively low mean internal workforce adaptation scores (2.58 on a 5-point scale), low mean external workforce adaptation scores (11.1 percent per year, or a workforce size change of slightly more than 2 employees), and fairly low mean sales growth rates (17.7 percent). Obviously, further research is required to determine the extent to which the present findings hold up in more dynamic environments.

Second, CEOs provided the majority of the data used in the study, which raises the specter of common method, or single source, bias (Brewer, et. al., 1970; Podsakoff et. al., 2003; Thomas & Kilman, 1975). Several characteristics of the study, however, suggest that this was not a serious problem. First, the small size and stable leadership of the firms suggest that CEOs were in a good position to accurately assess their firms' workforce alignment, internal workforce adaptation, and high-performance work system use. Second, the data from firms with multiple responses showed acceptable levels of within-firm agreement for each of the variables. Third, the confirmatory factor analyses did not reveal a single or general factor that would have suggested the presence of bias (Brewer et. al., 1970). Fourth,

although common method bias inflates the relationships among variables, it generally does not increase the likelihood of finding significant two- and three-way interactions. Fifth, both internal scalability and external scalability were supported even though internal workforce adaptation was a perceptual measure and external workforce adaptation was not. Finally, by controlling for CEO perceptions of firm performance in all analyses, I reduced (if not eliminated) the most likely and problematic source of method bias in SHRM research—an implicit theory of performance bias (Gardner et. al., 2000).

Interestingly, however, in terms of firm performance, the results would not have changed much either way. Specifically, controlling for perceptions of performance did not change the model coefficients for workforce alignment, internal scalability, or external scalability at all. Further, the perceptual performance measure only slightly reduced the coefficient for high-performance work system use from ($\beta = .17, t = 2.38, p < .01$) to ($\beta = .16, t = 2.07, p < .01$). In practical terms, a one standard deviation increase in high-performance work system use was associated with a 3.2 percent increase in sales growth when perceptual performance was controlled, and a 3.4 percent increase in sales growth when perceptual performance was not controlled. Nonetheless, all contrary evidence aside, future research using data from multiple sources would eliminate any bias concerns.

Third, this study did not address the issue of HR flexibility, or the degree to which “the firm’s human resources possess skills and behavioral repertoires that give the firm options for pursuing strategic alternatives in the firm’s competitive environment” (Wright & Snell, 1998: 761). According to Wright and Snell (1998), HR flexibility represents a key mechanism through which firms can achieve dynamic workforce alignment. Thus, the study may

suffer from an unmeasured variables problem. Interestingly, however, if one considers how HR flexibility theoretically impacts workforce alignment, the most likely effect would be to reduce the strength of the HR scalability findings. For example, if employees possess a wide range of skills and behavioral repertoires, then firms would be able to achieve dynamic workforce alignment *without* having to significantly adapt employee numbers, skills, deployment patterns, or behavioral contributions. Dyer and Shafer (1999), for instance, even defined organizational agility as a firm's capacity to be infinitely adaptable without having to change. Future research should more fully examine the relationships between HR flexibility (and skill and behavioral flexibility in particular) and workforce alignment, internal workforce adaptation, external workforce adaptation, and firm performance.

Finally, the data used in this study were cross-sectional. Therefore, one cannot conclude that workforce alignment and HR scalability cause greater levels of firm performance. I would point out, however, that this was an exploratory study aimed at providing initial support for the workforce alignment and HR scalability constructs. In the early stages of research, criterion-related validity may be predictive, concurrent, or even postdictive so long as the constructs relate to the dependent variable in expected ways (DeVellis, 2003; Schwab, 1999). Further, demonstrating causality is a tall order: one that SHRM research has yet to fill with respect to the high-performance work system use -- firm performance relationship (Wright, Gardner, Moynihan, & Allen, 2004; see Huselid & Becker, 1996 for a partial exception). In order to claim that workforce alignment and HR scalability cause higher levels of firm performance, one would need to collect workforce adaptation data at time 1, workforce alignment and firm performance data at

time 2, and firm performance data at time 3. Then, for workforce alignment, one would have to show that workforce alignment at time 2 is positively related to firm performance at time 3, with firm performance at time 2 and all else held constant. Next, for HR scalability, one would need to demonstrate that internal and external workforce adaptation at time 1 positively interact with workforce alignment at time 2 to predict firm performance at time 3, with firm performance at time 2 and all else held constant. It would, of course, be nice if future researchers could collect these kinds of longitudinal data so that causal conclusion can be drawn.

Conclusion

On the whole, this study provided important, if initial, insights into the extent to which, and the conditions under which, workforce alignment leads to greater firm performance. In particular, I developed a measure of workforce alignment and showed that workforce alignment mediated the relationship between high-performance work system use and small business sales growth. I also found that firms that achieved workforce alignment through either internal scalability or external scalability (but not both) were more likely to obtain high sales growth than firms that achieved workforce alignment through HR stability. Finally, I revealed other circumstances such as involuntary turnover, contract worker use, and market volatility that moderated the relationship between workforce alignment and sales growth in expected and interesting ways.

What is needed now is more finely grained qualitative analyses to begin digging more deeply into the dynamics involved. For instance, the results here strongly suggest that in order to fully understand how firms obtain a human resource advantage, it is necessary to understand how firms achieve overall

HR scalability in volatile marketplaces. Therefore, it would be helpful for future work to track over time the links among market volatility, strategic adaptation, overall HR scalability, and firm performance. Further, given the somewhat surprising finding that contract worker use attenuated the relationship between workforce alignment and firm performance, it would be worthwhile to probe the ways in which firms utilize contract workers and examine the effects that these various utilization approaches have on both workforce alignment and wider range of firm performance indicators (i.e., labor costs as well as innovation and sales growth). Finally, more work is needed to document the HR practices and organizational processes that firms use to employ a “fire and rehire” strategy that fosters workforce alignment and, in turn, firm performance.

APPENDIX A:

CEO SURVEY

General Instructions – Top Manager Survey

We wish to thank you in advance for your participation in this study. In return for your participation, we will provide you with a summary report of our findings as well as a benchmark report comparing your company to an average of companies which are similar to yours in terms of size and industry. We are confident that these reports will benefit your organization and will provide important insights into ways of increasing organizational effectiveness.

Please try to answer the questions as honestly and as candidly as possible. ***There are no trick questions:*** this is *NOT* a test, so there are no right or wrong answers. We suggest that you move through the survey quickly without spending too much time on any one question—your first response usually will be the most accurate. The survey will take some time to complete—we estimate about twenty minutes. You will probably find some redundancy in the questions. This is deliberate and is done for statistical reasons. Please answer the questions even if they seem similar to ones you've already answered; you need not go back to the previous questions to make sure that your answers are consistent.

This survey is strictly confidential. ***Under no circumstances will your individual responses be made available to anyone other than the Cornell research team.*** Information from the survey will be compiled into overall research reports consisting of aggregated results from many companies. The results may be published at a later time in aggregate form only. Please remember, individual responses will ***not*** be a part of these reports and participating companies will not be identified in any publications or reports generated from this study.

Please complete the survey by **JUNE 30th, 2004** and send your survey back to the Cornell research team using the preaddressed, stamped envelope included in this mailing.

If you have any questions, please contact one of the research directors at the School of Industrial and Labor Relations at Cornell University:

Part1: Personal and Company Background Information

1. What is the name of your company?

2. In what industry does your company compete?

3. What is your title or position?

4. How many CEOs has your organization had including the founder

5. When was the company founded? _____
6. Does your organization currently employ a manager whose primary responsibilities are Human Resource Management?
() Yes () No
7. If you answered yes to question 6, when did you begin to employ a person in this role? _____
8. How many years have you worked at your present company?
_____ years _____ months
9. How many years have you worked in this industry?
_____ years _____ months
10. How many years have you held a position similar to the one you currently hold?
_____ years _____ months
11. How many employees does your organization currently employ?

12. How many employees did your organization employ three years ago?

13. How many employees left your organization in the last year because they were terminated or released by the organization?

14. How many employees quit your organization in the last year?

Part 2: Business Environment

1 = strongly disagree 2 = moderately disagree 3 = neutral
4 = moderately agree 5 = strongly agree

Using the scale above, assess the degree to which the following statements characterize the uncertainty of the environment of your business.

- _____ 1. There is a high degree of fluctuation in the demand for this organization's products, services, or solutions.
- _____ 2. There are frequent changes in technology in our industry.
- _____ 3. This organization faces stiff competition from numerous other organizations.
- _____ 4. It is easy to make money in this industry segment.
- _____ 5. It is easy to understand this industry.
- _____ 6. Things change quickly in this industry.

Using the scale above, assess the degree to which the following statements characterize the uncertainty of the environment of your business.

- _____ 7. There is a high degree of fluctuation in the demand for this organization's products, services, or solutions.
- _____ 8. There are frequent changes in technology in our industry.
- _____ 9. This organization faces stiff competition from numerous other organizations.
- _____ 10. It is easy to make money in this industry segment.
- _____ 11. It is easy to understand this industry.
- _____ 12. Things change quickly in this industry.

Part 3: Changes in Employment

In the following two tables, please record the total number of employees that your organization (1) currently employs and (2) employed 3 years ago in the following areas:

	Currently	3 Years Ago
Executives		
Professional and managerial		
Technical and scientific		
Hourly		
	Currently	3 Years Ago
<u>Regular full-time workers.</u> Individuals on the organization's payroll who work a full work week and a full work year.		
<u>Part-time workers.</u> Individuals on your company's payroll who work less than a full work week and/or less than a full work year. Examples include part-time, on-call, and seasonal hires.		
<u>Contract workers.</u> Individuals who work at your organization but who are paid by another organization. Examples include staff from temporary agencies or contractors.		

Part 4: Alignment and Adaptation

Please use the scale below to indicate the extent to which you agree with each of the following statements.

1 = strongly disagree 2 = moderately disagree
3 = neutral 4 = moderately agree 5 = strongly agree

- _____ 1. This company always has the right number of people.
- _____ 2. We often have more work to do than employees to do it.
- _____ 3. This company always has an appropriately sized workforce.
- _____ 4. This company has all the expertise it needs to be successful.
- _____ 5. This company has the people with the right knowledge and skill sets.
- _____ 6. We sometimes lack people with the knowledge and skills necessary to do the job right.
- _____ 7. This company tightly controls the costs associated with managing its employees.
- _____ 8. We would benefit from investing more heavily in employee management practices.
- _____ 9. This company is at a competitive disadvantage because of its employee management costs.
- _____ 10. The people in this company are highly focused on realizing organizational results.
- _____ 11. The people in this company are always working to improve company performance.
- _____ 12. The people in this company always act in ways that help the organization achieve its goals.
- _____ 13. This company effectively utilizes its people at all times.
- _____ 14. This company provides people with ample opportunities to do their best possible work.
- _____ 15. This company consistently gets the most out of its employees' knowledge and skills.
- _____ 16. Our employees' knowledge and skills have changed greatly over the last three years.
- _____ 17. Three years ago, this organization employed completely different types of employees.
- _____ 18. Compared to three years ago, our employees possess different kinds of knowledge and skills.
- _____ 19. The size of this company's workforce has changed dramatically over the last three years.
- _____ 20. The number of employees who work at this organization has fluctuated over the last 3 years.
- _____ 21. The size of this company's workforce has remained stable over the last three years.

- _____ 22. Over the last three years, people in this organization shifted roles many times.
- _____ 23. Our employees are working on completely different assignments now than three years ago.
- _____ 24. Every employee's role at this organization has changed over the last three years.
- _____ 25. We do a better job managing employee management costs now than three years ago.
- _____ 26. Over the last three years, this organization has become more competitive with respect to employee management costs.
- _____ 27. Compared to three years ago, we do a considerably better job managing the costs of employee management practices.
- _____ 28. The way work gets done in this organization has changed dramatically over the last three years.
- _____ 29. In the last three years, the ways that employees contribute to this organization's success have changed considerably.
- _____ 30. What people in this organization do on a daily basis has changed a lot over the last three years.

Part 5: Assessment of Employee Management Practices

The items below are about the practices your company uses to manage its employees. Using the scale below, please write in the number that indicates your agreement with each of the following statements.

1 = strongly disagree 2 = moderately disagree 3 = neutral 4 = moderately agree 5 = strongly agree

- _____ 1. When screening job applicants, we mainly assess their fit to the requirements of specific job openings.
- _____ 2. The practices that we use for selection focus on the potential long-term contribution of applicants.
- _____ 3. We tend to evaluate candidates based on their ability to contribute immediately in their job without training.
- _____ 4. Our hiring practices focus on how well the individual fits with the culture of our company.
- _____ 5. When screening applicants for jobs, we focus on the ability to perform right away.
- _____ 6. We will leave a positions open until we can find the best and brightest possible new employee.
- _____ 7. When interviewing applicants, we primarily assess their ability to work with our current employees.
- _____ 8. We look to elite sources (e.g., top universities, head hunters)

- _____ to find the best available talent.
- _____ 9. When selecting new employees, we primarily assess their overall fit with the organization's values.
- _____ 10. Managers closely monitor the day-to-day activities of employees.
- _____ 11. We have formal job duties and descriptions so that employees know their roles and responsibilities.
- _____ 12. Peers have a great deal of input into the performance evaluations of other employees.
- _____ 13. We give employees a great deal of discretion to monitor their own performance.
- _____ 14. We employ a high percentage of managers and supervisors relative to other organizations.
- _____ 15. Managers follow a regular schedule in providing feedback to employees.
- _____ 16. In general, employees are expected to provide feedback to one another on job performance.
- _____ 17. Managers tightly control the pace and schedule at which employees complete their work.
- _____ 18. Employees are trusted to get the job done right the first time without direct oversight.
- _____ 19. Employees in this organization are expected to track one another's work and effort.
- _____ 20. We have a formal process of performance appraisals to provide feedback to employees.
- _____ 21. Employees are given discretion to complete their tasks however they see fit.
- _____ 22. We attract and retain employees primarily by paying a higher wage than our competitors.
- _____ 23. We use individual bonuses or incentive pay to motivate employees.
- _____ 24. We allow employees to work flexible hours.
- _____ 25. We sponsor company social events so employees can get to know one another.
- _____ 26. We provide opportunities for employees to continue to learn and grow.
- _____ 27. We sponsor outside activities (e.g., sports teams, events) to build a sense of community.
- _____ 28. Employee bonuses are based mainly on how the organization as a whole is performing.
- _____ 29. Performance appraisals are used primarily to determine pay raises.
- _____ 30. We use job rotation to expand the skills of employees.

- _____ 31. We use incentives (e.g., stock options, sign-on bonuses) to attract individuals to this organization.
- _____ 32. We hold regular company-wide meetings to share information about the organization with employees.
- _____ 33. We provide employees with challenging work opportunities.
- _____ 34. We use performance appraisals primarily to help employees identify new skills to develop.
- _____ 35. This company relies on external sources such as consultants or service providers to carry out employee management practices (payroll, recruiting, training, risk-management, etc.)
- _____ 36. This company depends on external sources to provide us with the knowledge and information necessary to design and implement effective employee management practices.
- _____ 37. The top managers at this company lack the knowledge needed to design and implement effective employee management practices.
- _____ 38. The top managers here do not have the time or resources to effectively design and implement effective employee management practices.

Part 6 Company Performance

Please use the scale below to indicate the extent to which you agree with the following questions regarding your company's current performance.

1 = strongly disagree 2 = moderately disagree
3 = neutral 4 = moderately agree 5 = strongly agree

- _____ 1. This organization's performance is much better than the performance of our main competitors'.
- _____ 2. This organization is achieving its full potential.
- _____ 3. People are satisfied with the level of performance of this organization.
- _____ 4. This organization does a good job of satisfying its customers.

Company Financial Performance: please fill in percentage in space available

- _____ % 5. By what % has your organization's revenues increased (decreased) in the past year?
- _____ % 6. By what % has your organization's profitability increased (decreased) in the past year?

Using the scale below, compare your organization's performance over the last three years to that of other organizations that do the same kind of work in terms of:

1 = worse 2 = slightly worse 3 = about the same
4 = slightly better 5 = much better

- _____ 7. Quality of products, services, or solutions?
- _____ 8. Development of new products, services, or solutions?
- _____ 9. Satisfaction of customers or clients?
- _____ 10. Marketing?
- _____ 11. Growth in sales?
- _____ 12. Profitability?
- _____ 13. Market share?

Additional Research and Participation in the Study:

Thank you once again for your time and participation in this first phase of our study. In the next phase of our study, we will explore how the employment practices that we measured in this survey impact employee outcomes such as turnover, commitment to the organization, willingness to contribute extra effort, customer service attitudes, willingness to think of and share new ideas or innovations, etc. We think this additional information will be very useful to managers like you, because it can help you to identify the different practices that could be used to influence the employee actions, knowledge, and attitudes that are important to the success of your company.

Because you have taken the time to complete this management practices survey, it would be of great value if we could send a short survey to some of your employees to see how the practices that you are using are affecting your employees. In return for allowing us to survey some of your employees, we will provide you with a full report of the relationships that we find. As with the current study, no one will have access to the responses of your employees except the research team and at no time will we publish reports that identify the responses of any individuals or your company. The reports that we provide will contain a summary of what we found regarding the relationships

across participating companies. In addition, we will provide you with a summary of the data from your employees compared to the employees of similar companies. If you wish to participate in this part of the study, please list up to 15 employees and provide us with their contact information.

Employee Name	e-mail address or mailing address
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	

APPENDIX B:

EMPLOYEE SURVEY

General Instructions – Employee Survey

This survey is designed to find out about the perceptions of employees within your organization. Key themes covered in the survey concern your background and your perceptions of certain characteristics of your organization and work. We believe that employee beliefs about what is going on in the company are very important, therefore, we are trying to assess your beliefs about the company, not those of the owner or your manager.

Please try to answer the questions as honestly and as candidly as possible. ***There are no trick questions:*** this is NOT a test, so there are no right or wrong answers. We suggest that you move through the survey quickly without thinking about it too much—your first response usually will be the most accurate. The survey appears somewhat lengthy, but should take approximately 15 minutes to complete. Also, you will probably find some redundancy in the questions. This is deliberate and is done for statistical reasons. Please answer the questions even if they seem similar to ones you've already answered; you need not go back to the previous questions. Some questions ask you to assess fairly specific management practices and/or to reflect back over three years. Please answer these questions to the best of your ability even if you have not been with the company for three years or if you are somewhat unsure of the answer.

Participation is strictly voluntary. Your decision whether or not to participate will not affect your current or future relations with Cornell University or with other cooperating entities. You may skip any question that you do not feel comfortable answering. If you decide to participate, you are free to withdraw at any time without affecting those relationships. This is also a strictly confidential survey. ***Under no circumstances will your individual responses be made available to anyone in your organization.*** Information from the survey will be compiled at the University into overall research reports consisting of aggregated results from many individuals across many companies. The results may be published at a later time in aggregate form only. Please remember, individual responses will ***not*** be a part of these reports and will ***not*** be available to anyone except the research team. If you have any questions or concerns regarding your rights as a subject in this study, you may contact the University Committee on Human

Subjects (UCHS) at 607-255-5138, or access their website at <http://www.osp.cornell.edu/Compliance/UCHS/homepageUCHS.htm>.

In advance, we wish to thank you for your participation in this study. We are confident that results of this study will benefit your organization and will provide important insights into ways of increasing organizational effectiveness.

Please complete the survey by _____, place in the attached pre-paid envelope and send your survey back to the researchers using the attached preaddressed, stamped envelope by the date listed above.

Matt Allen
e-mail: mra26@cornell.edu

Jeff Ericksen
e-mail: gae1@cornell.edu

Dr. Christopher Collins
Phone: (607) 255-8859
e-mail: cjc53@cornell.edu

Part 1: Personal Background

1. What is your name?

2. What is the name of your company?

3. What is your title or position?

4. In what department do you work?

5. How many years have you worked at your present organization?
_____ years _____ months

6. How many years have you worked in this industry?
_____ years _____ months

7. How many years have you held a position similar to the one you currently hold? _____ years _____ months

8. How many years of post-high school education have you completed?

Part 2: Employee Beliefs About the Company

- _____ 1. Employees at this company would be happy to spend the rest of their careers here.
- _____ 1. Employees enjoy discussing our organization with the people outside of it.
- _____ 2. Employees here really feel as if this company's problems are their own.
- _____ 3. This company has a great deal of meaning for the employees here.
- _____ 4. Employees feel emotionally attached to this company.
- _____ 5. Employees at this company help out others who have been absent and return to work.
- _____ 6. Employees at this company help out others that have heavy workloads.
- _____ 7. Employees at this organization help orient new employees to the company.
- _____ 8. Employees at this company willingly help others who have work related problems.
- _____ 9. Employees here are always ready to lend a helping hand to other employees around them.
- _____ 10. Overall, employees in this company are very satisfied with their jobs.
- _____ 11. This company always has the right number of people.
- _____ 12. We often have more work to do than employees to do it.
- _____ 13. This company always has an appropriately sized workforce.
- _____ 14. This company has all the expertise it needs to be successful.
- _____ 15. This company has the people with the right knowledge and skill sets.
- _____ 16. We sometimes lack people with the knowledge and skills necessary to do the job right.

- _____ 17. The people in this company are highly focused on realizing organizational results.
- _____ 18. The people in this company are always working to improve company performance.
- _____ 19. The people in this company always act in ways that help the organization achieve its goals.
- _____ 20. This company effectively utilizes its people at all times.
- _____ 21. This company provides people with ample opportunities to do their best possible work.

- _____ 22. This company consistently gets the most out of its employees' knowledge and skills.
- _____ 23. When performing their jobs, the customer is the most important thing to employees at this company.
- _____ 24. Where I work, day-to-day employee actions demonstrate that customers are a top priority.
- _____ 25. If possible, employees in this company meet all requests made by customers.
- _____ 26. Employees in this company work to ensure that customers receive the best possible service available.
- _____ 27. Employees here believe that providing timely, efficient service is a major function of their jobs.
- _____ 28. Overall, our employees are known for delivering superior customer service to employees.
- _____ 29. Employees have the job knowledge and skills to deliver superior quality service to customers.
- _____ 30. This company's performance is much better than the performance of our main competitors.
- _____ 31. This company is achieving its full potential.

- _____ 32. People are satisfied with the level of performance of this company.
- _____ 33. This company does a good job of satisfying its customers.

Part 3: Employee Perceptions of Work

- _____ 1. Employees here would be very happy to spend the rest of their careers working for their current manager.
- _____ 2. Employees here really feel that their managers' problems are also the employees' problems.
- _____ 3. Working with their managers has a great deal of meaning for the employees at this company.
- _____ 4. Employees here feel emotionally attached to their managers.

- _____ 5. Many employees will leave this company within the next year.

- _____ 6. Employees in this company will actively seek a new employer within the next year.
- _____ 7. Employees often think about quitting this company.

- _____ 8. Employees here expect full cooperation from each other when it comes to work.
- _____ 9. Our employees often feel that they are competing against each other.
- _____ 10. Employees at this company look down on people who don't try and work well with others.
- _____ 11. At this company, we expect that employees will fully disclose critical information to one another.
- _____ 12. Employees at this company are supportive of each other when they make mistakes.
- _____ 13. In general, I expect that the employees here will cooperate with each other.
- _____ 14. The way work gets done in this organization has changed dramatically over the last three years.
- _____ 15. The ways that employees contribute company success have changed considerably over the last 3 years.
- _____ 16. What people in this organization do on a daily basis has changed a lot over the last three years.
- _____ 17. Our employees' knowledge and skills have changed greatly over the last three years.
- _____ 18. Three years ago, this organization employed completely different types of employees.
- _____ 19. Compared to three years ago, our employees possess different kinds of knowledge and skills.
- _____ 20. The size of this company's workforce has changed dramatically over the last three years.
- _____ 21. The number of employees who work at this organization has fluctuated over the last 3 years.
- _____ 22. The size of this company's workforce has remained stable over the last three years.
- _____ 23. Over the last three years, people in this organization shifted roles many times.
- _____ 24. Our employees are working on completely different assignments now than three years ago.
- _____ 25. Every employee's role at this organization has changed over the last three years.
- _____ 26. Employees at this company will stay overtime to finish a project even if they are not paid for it.
- _____ 27. Employees here show up for work a little early to get things ready.
- _____ 28. Our employees live, eat, and breathe their jobs.

- _____ 29. Employees avoid taking on extra duties and responsibilities at work.
- _____ 30. The people at this company are very much personally involved in their work.
- _____ 31. People in this company often do extra work which isn't part of their job.
- _____ 32. Our employees tend to hold back from fully applying themselves on the job.
- _____ 33. Employees here work harder than people doing this type of work at other organizations.
- _____ 34. Employees would be willing to let top management have complete control over their future with this company.
- _____ 35. Employees really wish they had a good way to keep an eye on top management.
- _____ 36. Employees would be comfortable with managerial decisions that affect employees even if they could not monitor managements' actions.
- _____ 37. This company's structures, technologies, and processes work coherently to support the overall objectives of this company.
- _____ 38. This company's structures, technologies, and processes cause us to waste resources on unproductive activities.
- _____ 39. People in this organization often end up working at cross-purposes because our structures, technologies, and process give them conflicting objectives.
- _____ 40. This company's structures, technologies, and processes encourage people to challenge outdated traditions or practices.
- _____ 41. This company's structures, technologies, and processes evolve rapidly to shifts in business priorities.
- _____ 42. This company's structures, technologies, and processes are flexible enough to allow us to respond quickly to changes in our markets.

Part 4: Management Practices and Policies

- _____ 1. When we hire new employees, we focus on assessing their fit to the requirements of a specific job opening.
- _____ 2. The company primarily selects new employees based on their long-term potential to contribute to the company.
- _____ 3. This company only hires people who can contribute immediately in their job without training.
- _____ 4. When interviewing for new employees, the company focuses on how well the individual fits our culture.

- _____ 5. When we screen applicants for jobs, this company focuses on their ability to perform right away.
- _____ 6. This company will leave a position open until it can find the best and brightest possible new employee.
- _____ 7. When interviewing applicants, we primarily assess their ability to work with other employees in this company.
- _____ 8. This company uses elite sources (e.g., top universities, head hunters) to find the best available talent in the country.
- _____ 9. When evaluating job applicants, this company focuses on determining if they fit with the company's values.
- _____ 10. Managers closely monitor the day-to-day activities of employees.
- _____ 11. This company has formal job duties and descriptions so that employees know their roles and responsibilities.
- _____ 12. Peers have a great deal of input into the performance evaluations of other employees.
- _____ 13. Managers give employees a great deal of discretion to monitor their own performance.
- _____ 14. This company has a higher percentage of managers and supervisors than do similar companies.
- _____ 15. Managers follow a regular schedule in providing feedback to employees.
- _____ 16. In general, employees are expected to provide feedback to one another on job performance.
- _____ 17. Managers tightly control the pace and schedule at which employees complete their work.
- _____ 18. Employees are trusted to get the job done right the first time without direct oversight.
- _____ 19. Employees in this company are expected to track one another's work and effort.
- _____ 20. This company has a formal process of performance appraisals to provide feedback to employees.
- _____ 21. Employees are given discretion to complete their tasks however they see fit.
- _____ 22. This company attracts and retains employees because it pays a higher wage than its competitors.
- _____ 23. This company uses individual bonuses or incentive pay to motivate employees.
- _____ 24. This company allows employees to work flexible hours.
- _____ 25. This company sponsors social events so employees can get to

know one another.

- _____ 26. This company provides opportunities for employees to continue to learn and grow.
- _____ 27. This company sponsors outside activities (e.g., sports teams, events) to build a sense of community.
- _____ 28. Employee bonuses are based mainly on how the company as a whole is performing.
- _____ 29. Performance appraisals are used primarily to determine pay raises.
- _____ 30. Employees here expand their skills by rotating through a range of different jobs.
- _____ 31. This company uses incentives (e.g., stock options, sign-on bonuses) to attract individuals to this company.
- _____ 32. Managers regularly share information with employees through company-wide meetings.
- _____ 33. This company provides employees with challenging work opportunities.
- _____ 34. Performance appraisals at this company are primarily used to help employees identify new skills to develop.

APPENDIX C:
REVISED WORKFORCE ALIGNMENT SCALE

Please indicate the extent to which you agree with each of the following statements. (1 = Never; 5 = Always).

Skill alignment

1. This company has the expertise it needs to be successful.
2. This company has people with the right knowledge and skill sets.
3. This firm's people have the knowledge and skills necessary to do the job right

Deployment alignment

4. This company effectively utilizes its people.
5. This company provides people with ample opportunities to do their best possible work.
6. This company consistently gets the most out of its employees' knowledge and skills.

Contribution alignment

7. The people in this company are highly focused on realizing organizational results.
8. The people in this company are work to improve company performance.
9. The people in this company act in ways that help the company achieve its goals.

REFERENCES

- Abraham, K.G. & Taylor, S.K. 1996. Firms' use of outside contractors: Theory and evidence. *Journal of Labor Economics*, 14: 394-424.
- Adler, P.S., Goldoftas, B., & Levine, D. 1999. Flexibility versus efficiency? A case study of model changeovers in the Toyota production system. *Organization Science*, 10: 43-69.
- Aiken, L.S., & West, S.G. 1991. *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Amabile, T.M., & Conti, R. 1999. Changes in work environment for creativity during downsizing. *Academy of Management Journal*, 42: 630-640.
- Amit, R., & Schoemaker, P.J.H. 1993. Strategic assets and organizational rent. *Strategic Management Journal*, 14: 33-47.
- Anderson, E.G. 2001. The nonstationary staff-planning problem with business cycle and learning effects. *Management Science*, 47: 817-832.
- Anderson, E.G. 2001. Managing the impact of high market growth and learning on knowledge worker productivity and service quality. *European Journal of Operational Research*, 134: 508-524.
- Applebaum, E., Bailey, T., Berg, P., & Kalleberg, A. 2000. *Manufacturing advantage*. Ithaca, NY: ILR Press.
- Arthur, J.B. 1992. The link between business strategy and industrial relations systems in American steel mini-mills. *Industrial and Labor Relations Review*, 45: 488-506.

- Arthur, J.B. 1994. Effects of human resource systems on manufacturing performance and turnover. *Academy of Management Journal*, 37: 670-688.
- Atkinson, J. 1984. Manpower strategies for flexible organizations. *Personnel Management*, August: 28-31.
- Baron, R.M., & Kenny, D.A. 1986. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51: 1173-1182.
- Barnett, W.P., & Freeman, J. too much of a good thing? Product proliferation and organizational failure. *Organization Science*, 12: 539-559.
- Baron, J.N., & Hannan, M.T. 2002. Organizational blueprints for success in high-tech start-ups: lessons from the Stanford project on emerging companies. *California Management Review*, 44:
- Barney, J.B. 2001. Is the resource based “view” a useful perspective for strategic management research? Yes. *Academy of Management Review*, 26: 41-57.
- Barney, J.B. 1991. Firm resources and sustained competitive advantage. *Journal of Management*, 17: 99-120.
- Bartel, A.P. 2004. Human resource management and organizational performance: Evidence from retail banking. *Industrial and Labor Relations Review*, 57: 181-202.

- Batt, R. 2002. Managing customer services: Human resource practices, quit rates, and sales growth. *Academy of Management Journal*, 45: 587-598.
- Becker, B., & Gerhart, B. 1996. The impact of human resource management on organizational performance: Progress and prospects. *Academy of Management Journal*, 39: 779-801.
- Becker, B. & Huselid, M.A. 1998. High performance work systems and firm performance: A synthesis of research and managerial implications. In G.R. Ferris (Ed.), *Research in Personnel and Human Resources Management*, vol. 16: 53-101. Greenwich, CT: JAI Press.
- Benner, M.J., & Tushman, M.L. 2003. Exploitation, exploration, and process management: The productivity dilemma revisited. *Academy of Management Review*, 28: 238-
- Benner, M.J., & Tushman, M.L. 2002. Process management and technological innovation: A longitudinal study of the photography and paint industries. *Administrative Science Quarterly*, 47: 676-
- Boxall, P., & Purcell, J. 2000. Strategic human resource management: Where have we come from and where are we going? *International Journal of Management Reviews*, 2: 183-203.
- Brewer, M.B., Campbell, D.T., & Crano, D.W. 1970. Testing a single-factor model as an alternative to the misuse of partial correlations in hypothesis-testing research. *Sociometry*, 33: 1-11.

- Brockner, J. 1992. Managing the effects of layoffs on survivors. *California Management Review*, 24: 9-28.
- Brown, S.A., & Eisenhardt, K.M. 1997. The art of continuous change: Linking complexity theory and time-paced evolution in relentlessly shifting organizations. *Administrative Science Quarterly*, 42: 1-35.
- Bruderl, J., & Schussler, R. 1990. Organizational mortality: The liabilities of newness and adolescence. *Administrative Science Quarterly*, 35: 530-548.
- Campbell, D.T. & Fiske, D.W. 1959. Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56: 81-105.
- Cappelli, P., & Neumark, D. 2004. External job churning and internal flexibility: Evidence on the functional flexibility and core-periphery hypothesis. *Industrial Relations*, 43: 148-182.
- Cappelli, P., & Singh, H. 1992. Integrating strategic human resources and strategic management. In D. Lewin, O.S. Mitchell, & P.D. Sherer (Eds.), *Research frontiers in industrial relations and human resources*: 165-192. Madison, WI: IRRA.
- Cardon, M.S. Contingent labor as an enabler of entrepreneurial growth. *Human Resource Management*, 42: 357-374.
- Cardon, M.S., & Stevens, C.E. 2004. Managing human resources in small organizations: What do we know? *Human Resource Management Review*, 14: 295-114.

- Carroll, G.R., & Harrison, J.R. 1998. Organizational demography and culture: Insights from a formal model and simulation. *Administrative Science Quarterly*, 43: 637-668.
- Cascio, W.F. 2002. Strategies for responsible restructuring. *Academy of Management Executive*, 16: 80-92.
- Chadwick, C. & Cappelli, P. 1999. Alternatives to generic strategy typologies in strategic human resource management. In P. Wright, L. Dyer, J. Budreau, & G. Milkovich (Eds.), *Research in Personnel and Human Resources Management*, 14. Greenwich, CT: JAI Press.
- Charness, G., & Levine, D.I. 2002. Changes in the employment contract? Evidence from a quasi-experiment. *Journal of Economic Behavior and Organization*, 47:391-406.
- Chu, P., & Sui, W.S. 2001. Coping with the Asian economic crisis: The rightsizing strategies of small- and medium-sized enterprises. *International Journal of Human Resource Management*, 12: 845-859.
- Colbert, B.A. 2004. The complex resource-based view: Implications for theory and practice in strategic human resource management. *Academy of Management Review*, 29: 341-358.
- Collins, C.J., & Clark, K.D. 2003. Strategic human resource practices, top management team social networks, and firm performance: The role of human resource practices in creating organizational competitive advantage. *Academy of Management Journal*, 46: 740-752.

- Conner, K.R., & Prahalad, C.K. 1996. A resource-based theory of the firm: Knowledge versus opportunism. ***Organization Science***, 7: 477-502.
- Data, D.K., Guthrie, J.P., Wright, P.M. 2005. Human resource management and labor productivity: Does industry matter? ***Academy of Management Journal***, 48: 135-146.
- Davis-Blake, A., Broschak, J., George, E. 2003. Happy together? How using nonstandard workers affects exit, voice, and loyalty among standard employees. ***Academy of Management Journal***, 46: 475-485.
- Delaney, J.T., & Huselid, M.A. 1996. The impact of human resource management practices on perceptions of organizational performance. ***Academy of Management Journal***, 39: 949-970.
- Delery, J.E. 1998. Issues of fit in strategic human resource management: Implications for research. ***Human Resource Management Review***, 8: 289-310.
- Delery, J., & Doty, H. 1996. Modes of theorizing in strategic human resource management: Tests of universalistic, contingency, and configurational performance. ***Academy of Management Journal***, 39: 812-835.
- Delery, J., & Shaw, J. 2001. The strategic management of people in work organizations: Review, synthesis, and extension. In G. Ferris (Ed.), ***Research in Personnel and Human Resources Management***, Vol. 20. Oxford, UK: Elsevier Science.
- Dougherty, D., & Bowman, E. 1995. The effects of organizational downsizing on product innovation. ***California Management Review***, 37(4): 28-44.

- Drazin, R., & Ven de Ven, A.H. 1985. Alternative forms of fit in contingency theory. *Administrative Science Quarterly*, 30: 514-540.
- Dyer, L., & Ericksen, J. 2005. In pursuit of marketplace agility: Applying precepts of self-organizing systems to optimize human resource scalability. *Human Resource Management*, 44: 183-189.
- Dyer, L., & Holder, G.W. 1988. *Human resource management: Evolving roles and responsibilities*. Washington, D.C.: Bureau of National Affairs.
- Dyer, L., & Reeves, T. 1995. Human resource strategies and firm performance: What do we know and where do we need to go? *The International Journal of Human Resource Management*, 6: 656-670.
- Dyer, L., & Shafer, R.A. 2003. Dynamic organizations: Achieving marketplace and organizational agility with people. In R.S. Peterson & E.A. Mannix (Eds.): *Leading and Managing People in the Dynamic Organization*. Mahwah, NJ: Lawrence Erlbaum.
- Dyer, L., & Shafer, R.A. 1999. From human resource strategy to organizational effectiveness: Lessons from research on agile organizations. In P. Wright, L. Dyer, J. Budreau, & G. Milkovich (Eds.): *Research in Personnel and Human Resources Management*. Stamford, CT: JAI Press.
- Dougherty, D., & Bowman, E. 1995. The effects of organizational downsizing on product innovation. *California Management Review*, 37(4): 28-44.

- Edwards, J.R. 2000. Multidimensional constructs in organizational behavior research: An integrative analytical framework. ***Organizational Research Methods***, 4 (2).
- Eisenhardt, K.M., & Martin, J.A. 2000. Dynamic capabilities: What are they? ***Strategic Management Journal***, 21: 1105-1121.
- Ericksen, J., & Dyer, L. 2004. Right from the start: Exploring the effects of early team events on subsequent team development and performance. ***Administrative Science Quarterly***, 49: 438-472.
- Fisher, S.R., & White, M.A. 2000. Downsizing in a learning organization: Are there hidden costs? ***Academy of Management Review***, 25: 244-251.
- Gardner, T.M. 2005. Interfirm competition for human resources: Evidence from the software industry. ***Academy of Management Journal***, 48: 237-257.
- Gardner, T.M., Wright, P.M., & Gerhart, B.A. 2000. The HR-firm performance relationship: Can it be in the mind of the beholder? CAHRS working paper: 00-02.
- George, E. 2003. External solutions and internal problems: The effects of employment externalization on internal workers' attitudes. ***Organization Science***, 14: 386.
- Gerhart, B., Wright, P.M., McMahan, G.C., & Snell, S. 2000. Measurement error in research on human resources and firm performance: How much error is there and does it influence size estimates? ***Personnel Psychology***, 53: 803-834.

- Gibson, C.B., & Birkinshaw, J. 2004. The antecedents, consequences, and mediating role of organizational ambidexterity. ***Academy of Management Journal***, 47: 209-226.
- Glebbeek, A.C., & Bax, E.H. 2004. Is high employee turnover really harmful? An empirical test using company records. ***Academy of Management Journal***, 47: 277-287.
- Guthrie, J.P. 2001. High-involvement work practices, turnover, and productivity: Evidence from New Zealand. ***Academy of Management Journal***, 44: 180-191.
- Hammonds, T. 2003. Gauging Google's growth. ***Fast Company***, April: 14.
- Hayton, J.C. 2003. Strategic human capital management in SMEs: An empirical study of entrepreneurial performance. ***Human Resource Management***, 42: 375-391.
- He, Z., & Wong, P. 2004. Exploration and exploitation: An empirical test of the ambidexterity hypothesis. ***Organization Science***, 15: 481-494.
- Henderson, A.D. 1999. Firm strategy and age dependence: A contingent view of the liabilities of newness, adolescence, and obsolescence. ***Administrative Science Quarterly***, 44: 281-315.
- Henderson, R.M., & Clark, K.B. 1990. Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. ***Administrative Science Quarterly***, 35: 9-31.
- Heneman, R.L., Tansky, J.W., & Camp, S.M. 2000. Human resource management practices in small and medium-sized enterprises:

Unanswered questions and future research perspectives.

Entrepreneurship: Theory and Practice, 25: 11-27.

Houseman, S. 2001. Why employers use flexible staffing arrangements:

Evidence from an establishment survey. ***Industrial and Labor***

Relations Review, 5: 149-170.

Hill, C.W.L., & Rothaermel, F.T. 2003. The performance of incumbent firms in

the face of radical technological innovation. ***Academy of Management***

Review, 28: 257-.

Huselid, M.A. 1995. The impact of human resource management practices on

turnover, productivity, and corporate performance. ***Academy of***

Management Journal, 38: 635-673.

Huselid, M.A., & Becker, B.E. Comment on "Measurement error in research on

human resources and firm performance: How much error is there and

how does it influence effect size estimates?" ***Personnel Psychology***,

53: 835-855.

Ichniowski, C., Shaw, K., & Prennushi, G. 1997. The effects of human

resource management practices on productivity: A study of steel

finishing lines. ***American Economic Review***, 87: 291-313.

Ilinitch, A.Y., D'Aveni, R.A., & Lewin, A.Y. 1996. New organizational forms and

strategies for managing in hypercompetitive environments.

Organization Science, 7: 211-221.

Katz, D., & Kahn, R.L. 1978. ***The social psychology of organizations***. New

York: Wiley.

- Klein, K.J., & Kozlowski, S.W.J. 2000. ***Multilevel theory, research, and methods in organizations***. San Francisco: Jossey-Bass.
- Koch, M.J., & McGrath, R.G. 1996. Improving labor productivity: Human resource management policies do matter. ***Strategic Management Journal***, 17: 335-354.
- Kochan, T., & Osterman, P. 1994. ***The mutual gains enterprise***. Boston: Harvard Business School Press.
- Kraatz, M.S., & Zajac, E.J. 2001. How organizational resources affect strategic change and performance in turbulent environments: Theory and evidence. ***Organization Science***, 12: 632-658.
- Lado, A.A., & Wilson, M.C. 1994. Human resource systems and sustained competitive advantage: A competency-based perspective. ***Academy of Management Review***, 19: 699-727.
- Lawler, E. 1992. ***The ultimate advantage: Creating the high-involvement organization***. San Francisco: Jossey-Bass.
- 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 relationships among human capital, employment, and human resource configurations. ***Journal of Management***, 28: 517-544.
- Lepak, D.P., Takeuchi, R., & Snell, S.A. Employment flexibility and firm performance: Examining the interaction effects of employment mode,

- environmental dynamism, and technological intensity. *Journal of Management*, 29: 681-704.
- Lippman, S.A., & Rumelt, R. 1982. Uncertain imitability: An analysis of interfirm differences in efficiency under competition. *Bell Journal of Economics*, 13: 418-436.
- 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: 197-201.
- Madsen, T.L., Mosakowski, E., & Zaheer, S. 2003. Knowledge retention and personnel mobility: The nondisruptive effects of inflows of experience. *Organization Science*, 14: 173-191.
- March, J.G. 1991. Exploration and exploitation in organizational learning. *Organization Science*, 2: 71-86.
- May, K. 1997. Work in the 21st century: Understanding the needs of small businesses. *Industrial and Organizational Psychologist*, 35: 94-97.
- Miles, R.E., & Snow, C.C. 1984. Designing strategic human resources systems. *Organizational Dynamics*, 13: 36-53.
- Milgrom, P., & Roberts, J. 1990. The economics of modern manufacturing: Technology, strategy, and organization. *American Economic Review*, 80: 511-528.

- Milgron, P., & Roberts, J. 1995. Complementaries and fit: Strategy, structure, and organizational change in manufacturing. ***Journal of Accounting and Economics***, 19: 179-208.
- Miller, D. 1986. Configurations of strategy and structure: Towards a synthesis. ***Strategic Management Journal***, 7: 233-249.
- Miller, D., & Friesen, P.H. ***Organizations: A quantum view***. Englewood Cliffs, NJ: Prentice-Hall.
- Miller, D., & Shamsie, J. 1996. The resource-based view of the firm in two environments: The Hollywood film studios fro 1936-1965. ***Academy of Management Journal***, 39: 519-543.
- Milliman, J., Von Glinow, M., & Nathan, M. 1991. Organizational life cycles and strategic international human resource management in multinational companies: Implications for congruence theory. ***Academy of Management Review***, 16: 318-340.
- O'Reilly, C.A., & Tushman, M.L. 2004. The ambidextrous organization. ***Harvard Business Review***, 82: 74-82.
- Penrose, E.T. 1959. *The Theory of the Growth of the Firm*. Oxford: Oxford University Press.-
- Peteraf, M.A. 1993. The cornerstones of competitive advantage: A resource-based view. ***Strategic Management Journal***, 14: 179-192.
- Peteraf, M.A., & Bergen, M.A. 2003. Scanning dynamic competitive landscapes: A market-based and resource-based framework. ***Strategic Management Journal***, 24: 1027-1042.

- Pfeffer, J. 1995. ***Competitive Advantage Through People: Unleashing the Power of the Workforce***. Boston, MA: Harvard Business School Press.
- Pfeffer, J. 1998. ***The Human Equation: Building Profits by Putting People First***. Boston, MA: Harvard Business School Press.
- Pfeffer, J., & Baron, J.N. 1988. Taking the workers back out: Recent trends in the structuring of employment. In B.M. Staw & L.L. Cummings (Eds.), ***Research in Organizational Behavior***, 10: 257-303. Greenwich, CT: JAI Press.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J., & Podsakoff, N.P. 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. ***Journal of Applied Psychology***, 88: 879-903.
- Priem, R.L., & Butler, J.E. 2001. Is the resource based “view” a useful perspective for strategic management research? ***Academy of Management Review***, 26: 22-40.
- Rao, H., & Drazin, R. 2002. Overcoming resource constraints on product innovation by recruiting talent from rivals: A study of the mutual fund industry, 1986-1994. ***Academy of Management Journal***, 45: 491-507.
- Reed, R., & DeFillippi, R.J. (1990). Causal ambiguity, barriers to imitation, and sustainable competitive advantage. ***Academy of Management Review***, 15: 88-102.

- Rindova, V.P., & Kotha, S. 2001. Continuous “morphing”: Competing through dynamic capabilities, form, and function. ***Academy of Management Journal***, 44: 1263-1281.
- Rogers, E.W. & Wright, P.M. 1998. Measuring organizational performance in strategic human resource management: Problems, prospects, and performance information markets. ***Human Resource Management Review***, 8: 311-332.
- Roberts, P.W. 1999. Product innovation, product market competition, and persistent profitability in the U.S. pharmaceutical industry. ***Strategic Management Journal***, 20: 655-
- Rummelt, R.P. 1984. Toward a strategic theory of the firm. In R. Lamb (Ed.), ***Competitive Strategic Management***. 556-570. Englewood Cliffs, NJ: Prentice-Hall.
- Schuler, R., & Jackson, S. 1987. Linking competitive strategies and human resource management practices. ***Academy of Management Executive***, 1: 207-219.
- Shaw, J.D., Gupta, N., Delery, J.E. 2005. Alternative conceptualizations of the relationship between voluntary turnover and organizational performance. ***Academy of Management Journal***, 48: 50-69.
- Shafer, R., Dyer, L., Kilty, J., Amos, J., & Ericksen, J. 2001. Crafting a human resource strategy to foster organizational agility: A case study. ***Human Resource Management***, 40: 197-211.

- Siggelkow, N. 2001. Change in the presence of fit: The rise, the fall, and the renaissance of Liz Claiborne. *Academy of Management Journal*, 44: 838-857.
- Snell, S.A. 1992. Control theory in strategic human resource management: The mediating effects of administrative information. *Academy of Management Journal*, 35: 292-328.
- Snell, S.A., & Dean, J.W. 1992. Integrated manufacturing and human resource management: A human capital perspective. *Academy of Management Journal*, 35: 467-505.
- Snell, S.A., Youndt, M.A., & Wright, P.M. 1996. Establishing a framework for research in strategic human resource management: Managing resource theory and organizational learning. In G.R. Ferris (Ed.), *Research in Personnel and Human Resource Management*, vol. 14: 61-90. Greenwich, CT: JAI Press.
- Song, J., Almeida, P., & Wu, G. 2003. Learning-by-hiring: When is mobility more likely to facilitate interfirm knowledge transfer? *Management Science*, 49: 351-365.
- Teece, D.J., Pisano, G., & Shuen, A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal*, 18: 509-533.
- Thomas, K.W. 1975. The social desirability variable in organizational research: An alternative explanation for reported findings. *Academy of Management Journal*, 18: 741-752.

- Thomas, O. 1997. Is there a future for Excite? *Red Herring*, May.
<http://www.redherring.com>.
- Tripsas, M. 1997. Unraveling the process of creative destruction:
Complementary assets and incumbent survival in the typesetter
industry. *Strategic Management Journal*, 18: 119-143.
- Vermeulen, F., & Barkema, H. 2002. Pace, rhythm, and scope: Process
dependence in building a profitable multinational corporation. *Strategic
Management Journal*, 23: 637-654.
- Vetter, E.W. 1967. **Manpower planning for high talent personnel**. Ann
Arbor, University of Michigan, Graduate School of Business, Bureau of
Industrial Relations.
- Welbourne, T.M., & Cyr, L.A. 1999. The human resource executive effect in
initial public offering firms. *Academy of Management Journal*, 42:
616-630.
- Wernerfelt, B. 1984. A resource-based view of the firm. *Strategic
Management Journal*, 5: 171-180.
- Wright, P.M., Dunford, B., & Snell, S.A. 2001. Contributions of the resource
based view of the firm to the field of HRM: Convergence of two fields.
Journal of Management, 27: 701-727.
- Wright, P., & Gardner, T. 2002. Theoretical and empirical challenges in
studying the HR practice-firm performance relationship. In D. Holman,
T. Wall, C. Clegg, P. Sparrow, & A. Howard (Eds.), *The new*

workplace: People, technology, and organization. London, UK: Wiley.

- Wright, P.M., Gardner, T.M., & Moynihan, L.M. 2003. The impact of HR practice on the performance of business units. ***Human Resource Management Journal***, 13: 21-37.
- Wright, P.M., Gardner, T.M., Moynihan, L.M., & Allen, M.R. 2004. The relationship between HR practices and firm performance: Examining causal order. ***CAHRS Working Paper***. 04-06.
- Wright, P.M., Gardner, T.M., Moynihan, L.M., Park, H.J., Gerhart, B., & Delery, J.E. 2001. Measurement error in research on human resources and firm performance: Additional data and suggestions for future research. ***Personnel Psychology***, 54: 875-901.
- Wright, P.M., McMahan, G.C., & McWilliams, A. 1994. Human resources and sustained competitive advantage: A resource-based perspective. ***International Journal of Human Resource Management***, 5: 301-326.
- Wright, P.M., Smart, D.L., & McMahan, G.C. 1995. Matches between human resources and strategy among NCAA basketball teams. ***Academy of Management Journal***, 38: 1052-1074.
- Wright, P.M., & Snell, S.A. 1998. Toward a unifying framework for exploring fit and flexibility in strategic human resource management. ***Academy of Management Review***, 23: 756-772.

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