

The people make the process: commitment to employees, decision making, and performance

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Abstract

This study argues that a well designed decision making process will have its most positive impact on company financial performance when it is carried out by a capable, motivated and dedicated workforce. Prior research has determined that such a workforce can be developed via an organization's commitment to its employees (OCE) in the form of ample training and compensation, fairness, and meaningful personal consideration. We argue that OCE will enhance financial performance where it is able to improve the quality of a decision making process that emphasizes ample information processing, collaboration, and initiative. Conversely, these three dimensions of decision making are expected to be of little value where OCE—and hence a capable and motivated workforce—are lacking. These expectations were borne out in our study of Korean companies. Specifically, we found positive associations between return on assets and the interactions between OCE and information processing, collaboration, and initiative, respectively. We found also that these interactions contributed the most to return on assets in uncertain environments, where effective information processing, collaboration and initiative were especially important. © 2001 Elsevier Science Inc. All rights reserved.

1. People, process and performance

For many years, scholars of organizations have attempted to link different aspects of the decision making process to organizational performance outcomes. But efforts to date have met with only modest success. Although there has been a great deal of discussion about the

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importance of decision making dimensions such as careful analysis, environmental scanning, collaboration, and even initiative, the jury is not yet in on how useful these qualities are to a firm's bottom line (Mintzberg, 1994; Noda & Bower, 1996). While convincing conceptual arguments have been advanced to support the utility of decision and environmental analysis, cooperation among decision makers, and a bias towards action, the supporting empirical evidence has been weak and conflicting (compare, for example, Fredrickson & Mitchell, 1984; Eisenhardt, 1989; Miller & Cardinal, 1994).

The thesis of this article is that the most frequently discussed process dimensions of decision making, by themselves, are unlikely to contribute to superior performance. Rather, it is only when an organization is able to build a cadre of capable, dedicated decision **makers** that it will be able to execute process effectively and earn superior financial returns (Barney, 1986; Barney & Zajac, 1994; Lado & Wilson, 1994). For example, analysis or scanning of the competitive environment is apt to be more effective when performed by a corps of able, committed individuals using their imaginations and initiative than when executed in rote fashion. Similarly, consultation among decision makers will be more productive when it is done in a spirit of cooperation and dedication than when it serves as an occasion for politicking or bickering. In addition, proactive decision making is best when employees have the interests of the organization at heart, not when it serves to further empire building or advance individual careers. We are not arguing that these process dimensions of decision making are not important—they are. But they alone are unlikely to have much impact on the bottom line without a capable, dedicated, and motivated workforce to ensure their quality. The question then becomes: How can an organization develop such a force of inspired decision makers?

Recent research in organizational behavior and human resource management has shown that an organization's commitment to its employees (OCE) tends in turn to create a more committed and responsible workforce (Eisenberger et al., 1986; 1987; 1990; Organ, 1990; Moorman, Blakely & Niehoff, 1998; Mowday, Porter & Steers, 1984; Shore & Wayne, 1993; Steers & Porter, 1987: 575–583). OCE is evidenced by factors such as a company's care for its employees' well being and satisfaction, by the fairness and compassion shown in its rewards and punishments, and by the level of its investment in human resource development and compensation (Eisenberger et al., 1986; 1987; 1990; Organ, 1990). Outcomes of actual or even perceived OCE have been demonstrated to include: more dedicated and motivated employees (Organ, 1988; Shore & Wayne, 1993), greater initiative and creativity at work (Eisenberger et al., 1990), and a stronger sense of cooperation and community (Setton et al., 1996; Wayne et al., 1997).

An emerging body of research at a more macro, organizational level of analysis has confirmed many of these findings. Studies have begun to show that some types of OCE, namely progressive human resources management practices in training, compensation, and reward-sharing, have improved manufacturing quality, reduced turnover, and enhanced financial performance (Arthur, 1994; Delaney & Huselid, 1996; Huselid, 1995; Snell & Youndt, 1995). Lee and Miller (1999) have shown that OCE can even help ensure that market cost leadership and differentiation strategies will be better executed. In short, effects of organizational practices on individual perceptions, attitudes, and behaviors, can collectively produce critical effects at the organizational level.

But to date, too few studies have delved into the potential reasons for a relationship between high commitment work practices and organizational performance and effectiveness. The causal and moderating mechanisms are buried inside a “black box.” We believe that one critical reason why OCE and progressive HRM practices may have a profound impact on performance is because they lead to better decision making. This study will argue that three of the most often discussed dimensions of decision making process: information processing, collaboration, and initiative, will enhance financial performance where OCE is strong—that is, where a high level of commitment to employees contributes to the capability, dedication, and motivation of the entire workforce. That workforce includes everyone involved in making decisions, from the upper and middle managers charged with deciding issues, to the staff experts gathering and analyzing information and presenting options, to the equally important line personnel who must recognize problems and opportunities and suggest ways of addressing them. We will argue further that the stronger decision making process that results from OCE will be especially valuable for financial performance in uncertain environments, where intelligent and energized decision making is very much required to keep an organization in tune with its competitive setting (Brown & Eisenhardt, 1998).

Our research is on Korean companies. In Korea, the relationship of firms or superiors to their employees is typically one of paternalism. There, businesses or bosses are expected to assume responsibility for the overall well-being and development of their subordinates (Steers, Shin & Ungson, 1989: 98–103). Also, a Confucian work ethic prevails which truly prizes the importance of superior and subordinate contributing together to the work group and the corporation (Choi, 1985; Ko, 1992; Han, 1991; Ungson, Steers & Park, 1997). Anecdotal accounts suggest that these Confucian ethics coupled with managerial paternalism blend to create a climate in which those firms most committed to their employees receive unusual dedication from them in return (Lee & Lee, 1994; Lee & Miller, 1999). Korean organizations, therefore, were deemed to be especially promising sites for establishing the relationships between OCE, decision making, and financial performance—they are especially apt to show an effect from OCE.

1.1. The nature and effects of OCE

We have already indicated that OCE is a multifaceted concept. And indeed, an organization can exhibit commitment to its employees in many ways. A firm may be solicitous of workers’ physical and emotional well-being, devote itself to a high level of job satisfaction and employee development, provide fair and ample compensation, and share its profits (Eisenberger et al., 1986; 1990; Huselid, 1995; Mowday et al., 1984; Organ, 1990; Orpen, 1995; Williams & Anderson, 1991). Companies committed to their employees typically invest more than similar firms in progressive HRM practices such as training and education, and in the total package of compensation (Arthur, 1994; Huselid, 1995). They also distribute rewards more equitably and charitably. Companies may, for example, share profits in times of abundance or, when conditions tighten, cut top managers’ compensation to avoid layoffs. Also they may try to ensure good working conditions and, wherever possible, create rewarding, well-designed jobs (Eisenberger et al., 1986).

These forms of OCE were found to have important effects on behavior at work. Eisenberger et al. (1990), Moorman et al. (1998) and Shore and Wayne (1993) discovered that perceived OCE made employees more conscientious in carrying out their job responsibilities. It also engendered a sense of involvement with the company, and greater employee initiative and innovation. Organ and Konovsky (1989) and O'Reilly and Chatman (1986) noticed that an organization's commitment to its employees even stimulated more company "citizenship" behavior from people. Specifically, it caused employees at all levels to become more dedicated to the organization and more prepared to exceed their job requirements. At the organizational level of analysis, studies of progressive HRM practices in training, compensation and reward sharing have shown that these can lead to reduced turnover and absenteeism, better quality work, and better financial performance (Arthur, 1994; Delaney & Huselid, 1996; Huselid, 1995; Snell & Youndt, 1995).

Anecdotal evidence has shown these reactions to be especially strong within Korean companies (Lee & Lee, 1994). This may be because of the sense of community and devotion that OCE engenders within Confucian cultures (Park, 1984; Ko, 1992; Han, 1991). According to sociologists, community can be construed as an emotional environment that induces members to cooperate in the pursuit of common goals (Brownwell, 1950; Nisbet, 1962). Members are sustained emotionally by the community—here by an organization. They experience a sense of belonging and of devotion to the group. Such attachment is a strong motivator in performing group-related tasks, fostering cooperation and collaboration, and unleashing initiative (Choi, 1994).

1.2. Commitment, decision making, and performance

Organizational processes are only as good as the people who carry them out. The best conceived programs are unlikely to succeed if the people designing and executing them are incapable or unmotivated (Lado & Wilson, 1994). In the same way, decision making processes, no matter how intendedly rational, putatively collaborative, or proactive by design, will falter unless they are performed with intelligence, cooperation, and dedication to firm objectives. In short, the positive outcomes reported for OCE may be highly pertinent for enhancing the quality of decision making.

Drucker (1993), Pfeffer (1993), and Whitney (1994), for example, have shown how the emotional and social climate inside a firm can enhance productivity, spur creativity, and speed implementation. Ghoshal and Bartlett (1995) believe that the most responsive and competitive organizations—those that develop the deepest and most relevant competencies—are the ones that are best able to pull their managers and workers together, commit them to the organization, and help them transcend narrow personal interests. The resulting workforce is better at identifying important challenges and opportunities, and far more willing to collaborate across functional areas.

Unfortunately, there has so far been little research on the impact of OCE on profitability. Most studies have been conducted on many employees within a single organization, and focus on outcomes such as turnover, satisfaction, and attitudes towards work. Although some organization level studies of HRM practices have shown some bottom line effects, only the more concrete, policy driven aspects of OCE are captured by HRM. In addition, the decision

making process has been ignored as a potential mediating construct between OCE and financial performance. We believe that although OCE may enhance profitability, it will have its greatest effect where the employee capabilities and motivations it unleashes are harnessed by an effective decision making process. Unless decision makers at all levels of a company are guided to make decisions in a manner that stresses awareness, reflection, collaboration and initiative, their firm will not be able to recognize and adapt to the most important challenges and opportunities. In other words, unless a capable and dedicated workforce is embedded in an effective process of decision making that exploits its talents, the benefits of OCE may not exceed its costs.

2. Hypotheses

In integrative reviews of the literature on decision making process, three dimensions come up again and again as being potentially vital to the quality of decision making (c.f. the syntheses of Fredrickson, 1986, Miller, 1987, Mintzberg, 1973, and Hart, 1992). Although they have been named differently we call these dimensions information processing, collaboration, and initiative. The **information processing** dimension reflects the effort devoted to scanning and analyzing information to better understand a company's threats, opportunities and options. The **collaboration** dimension gauges how much people consult and collaborate together in making decisions. And the **initiative** dimension assesses whether decision makers are biased towards action or proactiveness in competing and getting things done. While each of these dimensions has the potential to contribute to more effective decisions, we suspect that this potential will not be realized unless decision makers are capable, motivated, and committed to their companies. In other words, even the most promising approaches to making decisions will produce little benefit without the support of a cadre of competent, motivated human resources (Barney, 1986; Barney & Zajac, 1994; Lado & Wilson, 1994). Previous research has shown that OCE will help to create these resources (Eisenberger et al., 1986; 1990; Moorman et al., 1998; O'Reilly & Chatman, 1986; Organ & Konovsky, 1989; Shore & Wayne, 1993).

2.1. Information processing

A recurrent theme in the literature on decision making concerns what may broadly be termed information processing. Different aspects of the information processing dimension have variously been referred to as analysis and scanning (Aguilar, 1967), intended rationality (Miller, 1987), comprehensiveness (Fredrickson, 1986), and synoptic decision making (Hart, 1992). The essential contrast here is between unreflective and intuitive decision making and a process that takes into account, more thoroughly and systematically, a wider range of information. One might, for example, contrast Cyert and March's (1963) and Lindblom's (1968) locally focused and cognitively truncated modes of decision making with Ansoff (1965) and Andrews' (1971) more systematic and painstaking approaches. Our own information processing construct is not, however, concerned with achieving some rational ideal, with all the delays that entails. Rather it assesses the range of information considered in

making decisions, the depth of such consideration, and the assurance that external as well as internal matters are taken into account.

Previous studies reveal conflicting evidence of the efficacy of comprehensive approaches to information processing. The earliest literature argued that formal analysis and planning were useful for helping managers understand their environments and better utilize their resources (Steiner, 1969). But most empirical studies of systematic planning have not detected links with performance (Mintzberg, 1994). Indeed, Mintzberg (1994) has argued that rigid planning processes are counterproductive.

Although there is little reason to believe that planning rituals per se will have any effect on the quality of decisions, some scholars have rightly maintained that information processing, more broadly defined, can support more effective decision making. For example, creative option generation, incisive analysis, and dedicated environmental scanning might all improve the quality and relevance of decisions (Wilensky, 1971; Wildavsky, 1979). Unfortunately, here again empirical research results were mixed and conflicting. Some analyses indicated that such aspects of information processing are useful even in turbulent environments (Eisenhardt, 1989), other studies that they are useful only in stable environments (Fredrickson & Mitchell, 1984), and other research still that they are of questionable utility altogether (Mintzberg, 1994).

We believe that information processing in the form of assiduous scanning of the environment and intelligent and systematic analysis of problems and opportunities *can* be useful for many companies. Scanning can uncover important customer needs, market threats and opportunities, as well as areas of strategy requiring improvement (Aguilar, 1967). By the same token, devoted and expert analysis of conditions inside and outside a company decreases chances of making errors and improves the quality of the options considered and the choices made (Andrews, 1971; Hart, 1992; Wilensky, 1971). So why does the literature fail to show clearly the benefits of such information processing?

We think the reason is that the **amount** of scanning or analysis and even the techniques used fail to get at what is most important about information processing—namely its **quality**—that is, the intelligence and commitment that is brought to bear on information processing activities. Scanning can be broad, but misdirected; intensive but irrelevant. Analysis too can be systematic, but off the mark and uninspired. Only a capable and dedicated cadre of decision makers—from managers to staff experts to line operatives—can make scanning and analysis really work. Employees who are well trained and dedicated to the interests of their organizations are more likely to engage in scanning that is important, follow leads that matter, poll customers with real interest, and monitor competitors with concern. Such employees will also work harder to generate creative decision options, dedicate themselves to discovering opportunities and challenges, and act in an informed and timely fashion. In referring to the quality of information processing, we do not mean its informality or flexibility. Formal processes can be hidebound, or they can serve as useful guides for informed and motivated decision makers. Similarly, flexible processes can be chaotic when performed by poorly trained managers, or they can be liberating when engaged by managers working in the best interests of their organizations.

We noted above that prior research has demonstrated that OCE has an important impact on employee behavior and attitudes. It contributes to the capability, dedication, motivation

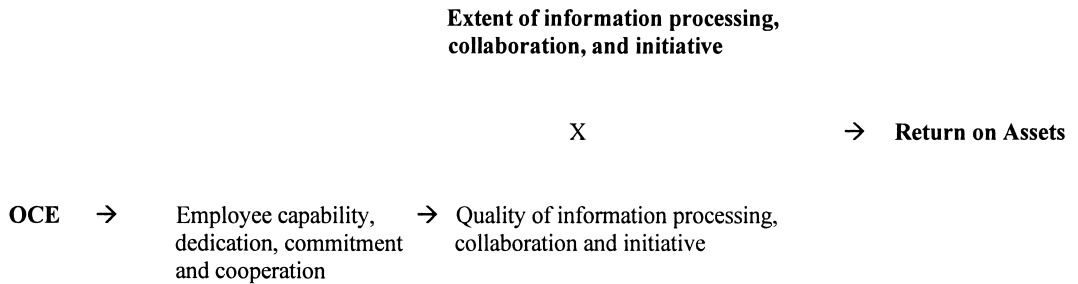


Fig. 1. Relating OCE and Decision Making to Company Performance.

Items in boldface are those measured in this study; others are mediating constructs that we could not assess in this research. We showed that the relationships of OCE with employee capability, dedication, commitment and cooperation have already been well established by numerous researchers. The effects of those decision maker characteristics on the quality of information processing, collaboration and initiative—and hence on profitability, have been argued in the paper, and are reflected, indirectly, in the analyses of Tables 3 and 4.

and initiative of the workforce. If so, it is reasonable to believe that OCE will enhance the **quality** of information processing, and through it, the level of financial returns (please see our model on Fig. 1). Thus our first hypothesis:

H1: Financial returns will be positively influenced by the interaction between OCE and information processing. Specifically, scanning and analysis are apt to improve financial performance only if there is a high level of OCE.

Qualification: We do not expect the quantity information processing, by itself, to have much impact on performance. It is only the happy combination of quantity *and* quality that can truly enhance performance. Unfortunately, most survey research on decision making is unable to assess the quality of processes such as information processing. We believe that the null and conflicting results of past process studies reflect this inability. And since our study too cannot directly assess the quality of decision making, our measures of process alone are unlikely to bear any direct relationship to profitability.

2.2. Collaboration

Another central dimension of decision making is collaboration—the degree to which people consult and interact with one another in making decisions. Collaboration is a function of the number of individuals and departments involved in making decisions, as well as the scope and intensity of their deliberations (Floyd & Wooldridge, 1996; Fredrickson, 1986; Miller, 1987). A high level of collaboration exists, for example, when different parties or groups communicate frequently in identifying and resolving a broad range of issues.

Some studies have argued that collaboration allows managers to reconcile or creatively integrate diverse perspectives. As a result, it renders decisions more informed and more pertinent (Amason, 1995; Mason & Mitroff, 1981). Such collaboration has been deemed especially useful among middle managers (Floyd & Wooldridge, 1996; Miller, 1987; Wooldridge & Floyd, 1990). By contrast, other scholars have suggested that collaborative activity

can slow things down, especially when there is broad involvement from functional units that embrace conflicting ideologies or perspectives (Fiol, 1994; Labovitz & Rosansky, 1998; Wildavsky, 1979). Interaction may also bring warring parties together, allowing political agendas and gamesmanship to take precedence over organizational needs (Pettigrew, 1973; Whitney, 1994). In some cases, so much emphasis may be put on consultation and meetings, that responsibility is diffused and no one feels accountable for any decision (Wilensky, 1971).

This Janus-faced aspect of collaboration suggests that its implications for performance are unclear. Again, it seems, it is not only the quantity of collaboration that is important, but also the **quality**. And the latter relies on the capabilities, and dedication of decision makers: Will they be subject to political scuffling, or will they subordinate their parochial interests for the good of the firm? Will they interact to improve the quality of their decisions and sharpen their sensitivity, or will they meet endlessly and mire themselves in peripheral matters?

We believe that OCE, by building a workforce that has the interests of the company at heart, will minimize parochial politics and facilitate effective collaboration. It will make employees more willing to sacrifice their short term interests to the overall needs of the company (Moorman et al., 1998; Setton et al., 1996). It will also foster trust, making decision makers at all levels more willing to share information with superiors, peers and subordinates (Senge, 1990; Wayne et al., 1997). In this climate, discussions may focus on more meaningful information and more accurate interpretations (Senge, 1990). Clearly then, OCE can improve the quality of collaboration and so lead to more informed and timely decisions and to better financial performance.

H2: Financial returns will be positively influenced by the interaction between OCE and collaboration. Specifically, collaboration among decision makers is more apt to improve financial performance if there is a high level of OCE.

2.3. Initiative

Our initiative dimension assesses the degree to which decision makers take a proactive stance in addressing problems and opportunities (Collins & Moore, 1970; Miller, 1987; Mintzberg, 1973). Initiative may be contrasted with inertia or purely reactive behavior. For example, do managers look for opportunities, try to beat competitors to the punch, or take substantial risks in pursuing growth or innovation? Or do they delay taking action, lag their rivals, and eschew risk taking to the point of stagnation?

Some scholars have argued that initiative is healthy for a company. It can keep a firm energized, innovative, and entrepreneurial. It combats stagnation, makes a company adaptive, and keeps it in tune with its environment (Eisenhart, 1989; Miller, 1987). It also allows some organizations to beat their rivals in seizing market opportunities and establishing first mover advantages (Collins & Moore, 1970; Teece et al., 1997). And it can generate rapid growth (Miller, 1990). But there is a darker side to initiative. It may allow too much risk taking. Bold actions are notoriously costly when they miss their mark. And if initiatives at lower levels of an organization are uncoordinated, they can result in conflicting product offerings and market positions (Pettigrew, 1973). Bold initiative may also take the form of

empire building that serves the interests of a single manager at the expense of the whole company (Miller, 1990; Pettigrew, 1973).

It seems then that as with information processing and collaboration, it is not only the quantity but the quality of initiative that matters most to the bottom line. And once again the soundness of the entire cadre of decision makers may be crucial in this regard. Dedicated, responsible employees are far more apt to use their initiative intelligently and responsibly—by pursuing the most sensible opportunities, eschewing unnecessary risks, and avoiding actions that conflict with the best interests of the company. OCE, once again, may help create such a workforce. It has been shown to engender a greater sense of community and responsibility (Eisenberger et al., 1987, 1990); one that makes employees take to heart the mission, principles, and well-being of the larger group (Moorman et al., 1993; 1995). OCE should therefore enhance the quality—the promise, judiciousness, and organization-wide benefits—of initiative.

H3: Financial returns will be positively influenced by the interaction between OCE and initiative. Specifically, initiative among decision makers is more apt to improve financial performance if there is a high level of OCE.

2.4. Environment

Some scholars have argued that the decision making process is especially important to an organization's success in more challenging environments. Intensive *and* effective information processing, collaboration, and initiative among decision makers are needed to help companies to adapt to uncertain, dynamic environments (Brown & Eisenhardt, 1998; Eisenhardt, 1989; Eisenhardt & Bourgeois, 1988). In these contexts it is particularly vital to track competitor initiatives, technological changes, and altering demand patterns, as these challenges evolve rapidly and are of real consequence to a firm's performance. The need to adapt to these challenges requires that more information be gathered from the environment and subjected to incisive analysis (Aguilar, 1967; Wilensky, 1971). The complexity of an uncertain environment also demands more effective collaboration—more discussion and interaction among decision makers with different kinds of knowledge (Katzenbach & Smith, 1993). In addition, the higher levels of change in uncertain settings make inertia especially dangerous. They demand that managers act quickly, assume the initiative, and take calculated risks to stave off obsolescence and seize opportunities (Brown & Eisenhardt, 1998; Eisenhardt, 1989). In summary, under demanding conditions of uncertainty, the quality of information processing, collaboration, and initiative are particularly important as they help to facilitate complex adaptation. As we have argued, OCE can contribute to such quality.

By contrast, in stable environments where products, customer tastes, and technologies change very slowly and predictably, fewer complex decisions are needed to adapt the firm to its environment. Effective information processing, collaboration and initiative thus become less important to profitability.

H4: The interactions between OCE and all three of our process dimensions will contribute more to performance in uncertain than in stable environments.

3. Method

3.1. The sample

We stated earlier that we chose to study Korean companies in part because of their communal, paternalistic cultures and the potential importance of commitment to employees within these organizations (Ko, 1992; Han, 1991; Lee & Lee, 1994). The industries selected for study were textiles, machinery, automotive parts, and electronics. These domains were chosen because of the large number of Korean companies operating in each, because they represented both thriving and faltering sectors of the economy, and because their firms demonstrate large variations in process and performance. To ensure comparability among our firms we studied only manufacturers. We avoided foreign companies and government-run organizations, and selected only single-business enterprises or single-business profit centers of multibusiness companies—all from different parents. Our target population within the four industries consisted of 350 randomly chosen firms that met the above criteria and were listed in the 1994 Report of the Korean Productivity Center.

We first approached firms by writing a letter to the chief executives, asking if they and their firm would participate in our study of strategic management practices. Of those approached, 158 agreed to cooperate in the study. Only these firms were sent questionnaires, and 129 of them responded with the requisite two questionnaires each (see below). The top managers of all firms that agreed to participate were contacted by telephone after they had received the questionnaires. This was done to further gain their commitment to the study, to ensure that the right executives would be responding to the questions, and to go over the instrument to explain any items that might be unclear. This task was performed by four research assistants finishing their Masters' theses in strategic management. The assistants were all trained by the principal investigator to define and explain all of the scale items. In all cases, the respondents themselves rated each question and then returned the questionnaires to us.

The topmost executives (directors general or general managers) completed the scales on decision making, environmental uncertainty and one of our OCE measures, while the most senior vice presidents provided information on our other OCE measure and financial performance. These individuals were chosen because they were the most knowledgeable about the dimensions we were examining. Our use of different respondents within each firm also guarded against common method variance in the testing of our hypotheses. In order to minimize chances of raters distorting their answers, we assured all respondents that their responses would be kept completely confidential. We promised that we would never reveal to anyone the names of the managers or the names of their organizations.

Our final sample consisted of 38 textile firms, 31 machinery firms, 30 automotive parts producers, and 30 electronics firms. Of the respondents, 108 companies were independent firms, while 21 firms were subsidiaries of larger enterprises. To guard against nonresponse bias we compared the revenues and return on assets figures of our sample with those of the four industries for the same year (1994). Industry averages were obtained from the Korean Productivity Center (Hanguk Giup Chongram, 1990–1995). For the textile and electronics industries there were no statistically significant differences between our respondents and the

industry averages for revenues and ROA. But for the machinery and auto parts industry, our sample firms did show somewhat higher ROAs. Thus our findings may not apply with equal precision to poorly performing machinery and auto parts companies.

3.2. *The instruments and variables*

All questionnaire items were translated from English into Korean by one of the authors, a Korean native educated in the US who has taught in several top American business schools. Each translated item was discussed with four Korean graduate students of organizational behavior and strategy who were fluent in the English language.

Organizational commitment to employees (OCE) was measured in two ways, with each measure being completed by a different respondent in the organization. The two measures and two respondents were used to enhance the validity of the results. The first measure, OCE1, was assessed using four anchored five-point Likert-Scale items suggested by Eisenberger et al. (1986) (see Appendix 1): These assessed how much the organization cares about employee well-being, about ample and fair pay, about satisfaction at work, and about sharing profits. Choi (1990) and Lee and Lee (1994, 1995) argue how important these factors are to Korean workers' dedication to an organization and its objectives. The Cronbach alpha for the OCE1 measure was 0.82. The most senior vice president of each organization completed this scale.

The second measure of OCE, OCE2, employed two 5-point Likert scales asking the CEO of the firm to rate his organization relative to its principal competitors on 1.) how much the company invested in education and competence development for its employees, and 2.) how much the company invested in total compensation, including benefits, for its employees. The Cronbach alpha for this OCE2 measure was 0.71. The topmost executive of each organization completed these scales. Although OCE1 and OCE2 correlated significantly ($r = 0.26$, $p < 0.003$), the two scales clearly measured different aspects of the commitment to employees construct, and afforded some opportunity for testing the robustness of our findings. This was confirmed by the exploratory factor analysis of Table 2A.

The three dimensions of *decision making* were assessed using the anchored Likert scales of Miller (1987) translated into Korean. Information processing was measured using Miller's (1987) scales for scanning and analysis (8 items); these items gauge how much information is gathered about the market environment and how much thought and analysis go into making decisions. Collaboration was measured using Miller's scales for interaction (5 items); these items measure how much people and groups interact, communicate and consult in making decisions. Finally, Initiative was measured using Miller's scales for proactiveness and risk taking (4 items); these assess how willing managers are to take some competitive initiative and the accompanying risks in order to grow, innovate or beat rivals to the punch. Appendix 1 presents the items used in our survey.

The Cronbach alphas for the three decision making dimensions of information processing, collaboration, and initiative, were 0.81, 0.79 and 0.77, respectively. An exploratory factor analysis (orthogonal, varimax) was run to determine whether the items loaded on the three process dimensions as expected. The results are given on Table 2B, and show the sharp pattern of loadings for the items used. The items all loaded highly only on their own process

dimension and not on either of the others. Thus we averaged the items to produce a composite score for each of the three dimensions.

Financial Performance was measured using return on assets. This measure has been the most widely used to date in business research (Hambrick, 1983; Rumelt, 1984) and applies with equal relevance to each of the industries we studied. We asked the top executives to supply from their financial statements figures on sales, total assets, and before-tax earnings. For the 30 public companies, we obtained published financial reports to confirm the figures provided by the top managers. ROA as computed from published figures correlated at 0.98 with ROA computed from data supplied by the managers.

Because the level of *uncertainty*, that is, change and unpredictability, in a firm's market can itself influence financial performance, we controlled for this in all of our analyses. Uncertainty was measured using the 5 anchored 5-point Likert scales of Khandwalla (1977) and Miller (1987) (see Appendix). The scales assessed the rate of product obsolescence, the frequency of changes in industry marketing practices and technologies, and the predictability of competitors' activities and customers' demands. The Cronbach alpha for uncertainty was 0.63, a modest value no doubt due to the very diverse indicators composing the variable. We also employed industry dummies as control variables in all of our hypothesis tests.

3.3. *Inter-rater reliability*

We wished to ensure that respondents from within the same company agreed in their responses to the questionnaire. So we had two respondents in 25 companies reply to the same questions. Responses were given independently and without consultation among the participants. The Pearson correlations among the two respondents averaged as follows for our variables: OCE1, 0.67, OCE2, 0.68, information processing, 0.70, collaboration, 0.64, and initiative, 0.60. All of these relationships were significant at beyond the 0.005 level, and were acceptable according to the criteria established by Khandwalla (1977: 658) and Van de Ven & Ferry (1981).

3.4. *Analyses*

The means and standard deviations for the total sample are given on Table 1A, as are the breakdowns by industry. The correlation matrix is given in Table 1B. Hypotheses 1 to 3 were tested using the moderated OLS regression analyses of Tables 3 and 4. In these analyses, return on assets is regressed against OCE, uncertainty, industry dummies, and the three process dimensions, respectively. In order to establish the robustness of our findings, separate analyses were conducted for OCE1 and OCE2. The hypotheses were tested using interaction variables between either OCE1 (Table 3) or OCE2 (Table 4) and each of the process dimensions. The statistical significance of the *additional variance explained* over and above the otherwise full model was then computed. In order to reduce potential problems of multicollinearity, the components of the interaction term were standardized before multiplication (Smith and Sasaki, 1979).

Hypothesis 4 maintained that the interaction between our process variables and OCE would contribute more to performance in uncertain than in stable, predictable environments.

Table 1A
Descriptive statistics by industry

	Textile M(SD)	Machinery M(SD)	Auto M(SD)	Electronic M(SD)	Total M(SD)
Uncertainty	3.31(.55)	2.98 (.68)	2.71 (.61)	3.35 (.71)	3.10 (.68)**
OCE1	2.84 (.55)	2.86 (.68)	3.29 (.61)	3.31 (.71)	3.06 (.68)**
OCE2	3.01 (.59)	3.29 (.82)	3.47 (.70)	3.42 (.71)	3.28 (.72)*
Info. Processing	2.88 (.57)	2.90 (.70)	3.22 (.49)	3.30 (.59)	3.08 (.60)**
Collaboration	3.26 (.87)	3.24 (.67)	3.46 (.68)	3.40 (.46)	3.33 (.69)
Initiative	2.49 (.76)	2.79 (.77)	3.16 (.71)	3.01 (.50)	2.84 (.74)**
ROA	2.33 (2.26)	4.13 (5.83)	3.88 (5.43)	8.92 (20.71)	4.56 (10.48)
N	38	31	30	30	129

* $P < .05$, ** $P < .01$

We employed three-way interaction terms to test this hypothesis. Specifically, to the full models of Tables 3 and 4 (i.e., with an OCE-uncertainty interaction term added), we added another interaction term which is a product of the process dimension, OCE, and uncertainty. We examined the sign of the three-way term and computed whether the amount of additional variance it explained over and above that of the otherwise full models, was statistically significant. These results are presented in Tables 5 and 6.

4. Findings

Table 3 indicates that the interaction term for OCE1 and information processing is indeed positive and significant at the 0.01 level. Thus Hypothesis 1 is supported. This is confirmed by the analyses of Table 4, in which the same interaction term, this time for information processing and OCE2, is again positive and significant at beyond the 0.01 level. Thus, even when using different measures and different respondents, OCE appears to enhance the value of information processing.

Table 1B
Pearson correlation matrix

	1	2	3	4	5	6	Cronbach Alpha
1. Uncertainty	—	—	—	—	—	—	.62
2. Info. Processing	.10	—	—	—	—	—	.81
3. Collaboration	-.04	.51	—	—	—	—	.79
4. Initiative	.01	.39	.41	—	—	—	.77
5. OCE1	.06	.47	.51	.33	—	—	.82
6. OCE2	-.12	.23	.23	.19	.26	—	.71
7. ROA	.07	.21	.15	.13	.24	.24	

Correlations of 0.19 (0.28) or more are significant at beyond the 0.05 (0.01) level under a two-tailed test.

Table 2A
Varimax rotated factor matrix of OCE items

Items	F1	F2
<u>OCE1—Attention to:</u>		
Employees' well being	.83	.21
Fairness in compensation	.86	.05
Worker satisfaction	.78	.03
Profit sharing	.72	.15
<u>OCE2—Investment in:</u>		
Training and Education	.09	.88
Total Compensation	.13	.87
Eigenvalue	2.83	1.35
% of variance	47	23

The interaction terms of Tables 3 and 4 show the results of testing our second hypothesis: namely that collaboration will be rendered more effective by OCE. Here the results are mixed. Both tables show positive coefficients, but only Table 4 shows a significant interaction term ($p < 0.01$). In other words, this result is sensitive to the way in which OCE is measured.

Table 2B
Varimax rotated factor matrix of decision making items

Items	F1	F2	F3
<u>Information Processing: Analysis</u>			
Thought and analysis enter into decisions	-.11	.65	-.03
Management science techniques	.28	.60	.11
Formalized, systematic search	.14	.76	.10
Use of staff specialists	.13	.77	.03
<u>Information Processing: Scanning</u>			
Routine gathering of opinion from clients	.21	.40	.15
Explicit tracking of the policies of rivals	.28	.34	.12
Special market research studies	.33	.56	.19
Forecasting sales, customer preferences...	.36	.59	.23
<u>Collaboration</u>			
Decisions are team/consensus oriented	.57	.27	.17
Interdepartmental interaction	.75	.18	.09
Consultation among managers	.69	.16	.02
Participation of managers	.84	.21	.14
Communication and interaction	.65	.07	.16
<u>Initiative: Proactiveness and Risk Taking</u>			
Try to be ahead of competitors	.27	.29	.63
Growth, innovation oriented	-.19	.11	.65
Proclivity for risk	.28	.03	.86
Bold, wide-ranging acts	.33	.10	.79
Eigenvalue	5.55	1.79	1.51
% of Variance	32.7	10.5	8.9

Table 3

Moderated regression analysis for return on assets: OCE1 and 2-way interactions

Uncertainty	.652(.040)	.279(.017)	.872(.054)	.920(.057)	.707(.043)	.480(.029)
Dummy 1	1.738(.067)	-.173(-.007)	2.073(.080)	2.292(.089)	1.636(.063)	.444(.017)
Dummy 2	-.833(-.034)	-.453(-.018)	.788(.032)	1.717(.070)	-.052(.002)	-.717(-.029)
Dummy 3	4.571(.177)	5.433(.210) ⁺	5.344(.204) ⁺	6.319(.241)*	4.918(.187)	4.540(.173)
Information Processing Collaboration Initiative	1.937(.109)	2.243(.127)				
			.841(.055)	1.834(.119)		
					.982(.066)	.562(.038)
OCE1	2.721(.179)	2.250(.148)	2.554(.173)	1.948(.132)	2.758(.186) ⁺	2.962(.200) ⁺
Information Processing × OCE1		3.558(.334)**				
Collaboration × OCE1				1.697(.154)		
Initiative × OCE1						1.805(.200)*
R ² (Adjusted R ²)	.113(.055)		.094(.039)		.095(.040)	
F	1.957 ⁺		1.696		1.720	
R ² (Adjusted R ²)		.216(.155)		.113(.050)		.133(.070)
F		3.572**		1.774		2.120**
R ² Change from interaction		.102		.019		.037
F Change in R ²		11.877**		2.124		4.188*

⁺P<.10, *P<.05, **P<.01, beta coefficient (Standardized beta). N for all models = 129

Collaboration seems to benefit most from OCE in the form of investments in training and development, and investments in compensation (OCE2). These are very concrete organizational responses that create and attract a more talented workforce; one that may be especially suited to complex collaborative efforts. By contrast, employees who are merely “satisfied and motivated” (the province of OCE1) may not be talented enough to overcome the organizational boundaries that lie in the path of effective collaboration. It may also be that OCE1, which taps “concern” for employee well-being and satisfaction, may have less impact on the quality of collaboration because some executives reporting a high level of “concern” do not always follow it up with concrete actions.

Tables 3 and 4 support Hypothesis 3: the interaction terms between the initiative dimension and both OCE1 and OCE2 are positive and significant at beyond the 0.05 and 0.01 levels, respectively. Clearly, OCE enhances the value of initiative. To further establish the robustness of these findings, we decomposed the information processing and initiative dimensions into their subcomponents of analysis and scanning, and proactiveness and risk taking, respectively (see Appendix 1 for the breakdowns). These were the same subcomponents identified by Miller (1987) in developing his process scales, which were used in this study. We then repeated the analyses of Tables 3 and 4. In all cases, the scanning, analysis, proactiveness and risk taking interactions with both OCE1 and OCE2 were positive and

Table 4

Moderated regression analysis for return on assets: OCE2 and 2-way interactions

Uncertainty	1.096(.067)	1.027(.063)	1.487(.092)	1.119(.069)	1.422(.086)	1.052(.063)
Dummy 1	.652(.025)	-.159(-.006)	1.024(.040)	1.581(.061)	.239(.009)	-.337(.013)
Dummy 2	-1.647(-.067)	-.814(-.033)	.287(.012)	1.187(.048)	-.991(-.040)	-.516(-.021)
Dummy 3	3.691(.143)	3.239(.126)	4.815(.184)	6.168(.235)*	4.117(.157)	3.461(.132)
Information Processing Collaboration Initiative	2.760(.156)	2.347(.133)	1.536(.100)	1.579(.103)	1.534(.105)	2.334(.159)
OCE2	3.548(.228)*	3.016(.193) ⁺	3.431(.219)*	3.334(.212)*	3.840(.244)*	4.001(.255)**
Information Processing × OCE2		3.109(.299)**				
Collaboration × OCE2				2.820(.243)**		
Initiative × OCE2						3.582(.342)**
R ² (Adjusted R ²)	.134(.078)		.115(.062)		.117(.064)	
F	2.400*		2.149 ⁺		2.194*	
R ² (Adjusted R ²)		.219(.159)		.171(.112)		.228(.173)
F		3.675**		2.894**		4.137**
R ² Change from interaction		.084		.056		.111
F Change in R ²		9.945**		6.628**		14.055**

⁺P<.10, *P<.05, **P<.01, beta coefficient (Standardized beta). N for all models = 129

significant. In other words, all eight of the eight predicted interaction terms were positive and significant at beyond the 0.05 level (these findings are available from the first author).

Hypothesis 4 suggested that the positive interaction between process and OCE would be more useful in uncertain than in stable environments. This hypothesis was tested by the three-way interaction terms added to the full models of Tables 3 and 4, and shown in Tables 5 and 6. All six analyses showed positive interactions, and five of the six terms were statistically significant (three at beyond the 0.05 level; two at beyond the 0.10 level). As discussed above, it appears that OCE2—the investment in training and education and in total compensation—may do slightly more to enhance the quality of collaboration in uncertain environments than more abstract and symbolic considerations such as fairness, and concern for employee satisfaction and wellbeing (OCE1).

5. Discussion

Overall, the results are strong. Five of the 6 two-way interaction coefficients based on the three process dimensions are positive and significant in the predicted direction (as well as 8 of 8 interaction terms based on the dimension subcomponents of scanning, analysis, proac-

Table 5
Moderated regression analysis for return on assets: OCE1 and 3-way Interactions

Uncertainty	.652(.040)	.344(.021)	-.879(-.054)	.872(.054)	1.213(.075)	.536(.033)	.707(.043)	.835(.050)	.287(.017)
Dummy 1	1.738(.067)	-.473(-.018)	-.119(-.005)	2.073(.080)	1.536(.059)	1.930(.075)	1.636(.063)	-.641(-.025)	-.598(-.023)
Dummy 2	-.833(-.034)	-.530(-.022)	.431(.018)	.788(.032)	1.565(.064)	1.963(.080)	-.052(-.002)	-1.028(-.042)	-.589(-.024)
Dummy 3	4.571(.177)	4.463(.173)	5.036(.195)	5.344(.204) ⁺	4.915(.187)	5.045(.192)	4.918(.187)	2.928(.112)	2.663(.102)
Information Processing	1.937(.109)	2.103(.119)	.790(.045)						
Collaboration				.841(.055)	1.555(.101)	1.755(.114)			
Initiative							.982(.066)	.639(.043)	.926(.062)
OCE1	2.721(.179)	2.579(.170)	2.452(.161)	2.554(.173)	2.622(.177)	2.616(.177)	2.758(.186) ⁺	3.354(.226)*	3.476(.234)*
OCE1 × Uncertainty		1.379(.110)	.762(.061)		2.455(.206) [†]	2.186(.184)		2.109(.173)	2.517(.206) ⁺
Information Pro ×		-.184(-.017)	.679(.063)						
Uncertainty									
Collaboration ×					-1.104(-.098)	-.522(-.046)			
Uncertainty									
Initiative × Uncertainty								.271(.023)	.662(.057)
Information Pro × OCE1		3.449(.324)**	3.783(.335)**		1.712(.155)	1.748(.159)		1.958(.217)*	2.109(.234)*
Collaboration × OCE1									
Initiative × OCE1									
Information × Uncertainty			2.948(.269)*						
× OCE1									
Collabor × Uncertainty ×						1.212(.105)			
OCE1									
Initiative × Uncertainty ×									2.067(.183) ⁺
OCE1									
R ² (Adjusted R ²)	.113(.055)			.094(.039)			.095(.040)		
F	1.957 [†]			1.696			1.720		
R ² (Adjusted R ²)		.225(.147)			.143(.062)			.161(.082)	
F		2.873**			1.766 ⁺			2.026*	
R ² Change from		.112			.049			.066	
interaction									
F Change in R ²		4.286**			1.821			2.481 ⁺	
R ² (Adjusted R ²)			.275(.193)			.150(.059)			.189(.103)
F			3.337**			1.657			2.191*
R ² Change from			.050			.006			.028
interaction									
F Change in R ²			6.045*			.718			3.249 ⁺

[†] P < .10, * P < .05, ** P < .01, beta coefficient (Standardized beta). N for all models = 129

Table 6
Moderated regression analysis for return on assets: OCE2 and 3-way Interactions

Uncertainty	1.096(0.67)	.837(.051)	–.667(–.041)	1.487(.092)	1.034(.064)	–.094(–.006)	1.422(.086)	.978(.059)	–.904(–.055)
Dummy 1	.652(.025)	–.858(–.033)	–1.664(–.064)	1.024(.040)	.875(.034)	.667(.026)	.239(.009)	–.645(–.025)	.022(.001)
Dummy 2	–1.647(–.067)	–1.092(–.045)	–.533(.022)	.287(.012)	.682(.028)	1.294(.053)	–.991(–.040)	–.703(–.029)	.339(–.014)
Dummy 3	3.691(.143)	3.194(.124)	4.342(.168)	4.815(.184)	5.964(.228)*	.667(.236)*	4.117(.157)	3.334(.127)	4.142(.158)
Information Processing	2.760(.156)	2.447(.138)	2.121(.120)						
Collaboration				1.536(.100)	1.307(.085)	1.700(.111)			
Initiative							1.534(.105)	2.131(.145)	1.863(.127)
OCE2	3.548(.228)*	3.187(.205)*	2.421(.155)	3.431(.219)*	3.962(.252)*	4.059(.259)*	3.840(.244)*	4.303(.274)**	3.493(.222)*
OCE1 × Uncertainty									
Information Pro ×		.692(.064)	.638(.059)		1.865(.172) ⁺	2.063(.190) ⁺		1.056(.097)	1.751(.061)
Uncertainty		.688(.064)	.994(.092)						
Collaboration ×					–.753(–.067)	–.566(–0.50)			
Uncertainty									
Initiative × Uncertainty								–.350(–.030)	.596(.051)
Information Pro × OCE2		2.975(.286)**	3.493(.336)**		2.842(.244)*	3.040(.262)**		3.492(.333)**	4.501(.430)**
Collaboration × OCE2									
Initiative × OCE2									
Information × Uncertainty									
× OCE2			2.197(.234)*						
Collabor × Uncertainty ×						2.174(.196) ⁺			
OCE2									3.490(.327)**
Initiative × Uncertainty ×									
OCE2									
R ² (Adjusted R ²)	.134(0.78)			.115(.062)			.117(.064)		
F	2.400*			2.149 ⁺			2.194*		
R ² (Adjusted R ²)		.229(.152)			.195(.120)			.236(.164)	
F		2.971**			2.585**			3.291**	
R ² Change from		.095			.080			.118	
interaction									
F Change in R ²		3.696*			3.173*			4.959**	
R ² (Adjusted R ²)			.270(.188)			.225(.144)			.302(.229)
F			3.290*			2.760**			4.110**
R ² Change from			.041			.030			.066
interaction									
F Change in R ²			4.979*			3.685 ⁺			9.008**

⁺P<.10. *P<.05. **P<.01. beta coefficient (Standardized beta). N for all models = 129

tiveness and risk taking). Five of the 6 three-way interaction terms—which were added to the full models already containing the two-way interactions—were significant as well (3 at beyond the 0.05 level). All in all, there is little doubt that, at least in Korean enterprises, a company's commitment to its employees can pay off financially. However, this is true mainly if the firm employs an effective decision making process: OCE1 did not show any significant direct relationship to return on assets, and OCE2 did exhibit such a relationship, but with modest levels of statistical significance. Thus by itself OCE does not appear to have a very strong direct relationship with performance.

We do not deny that OCE, and some of the progressive HRM practices contained therein, may indeed have some impact on different aspects of performance. This, in fact, is the claim of scholars such as Arthur (1994), Delaney and Huselid (1996), Huselid (1995) and Snell and Youndt (1995). But in our study the direct impact was modest. A key contribution of this research has been to *look inside the "black box"*—to make a far stronger connection between OCE and performance via the mediating construct of decision making. We suspect that it was largely through its impact on the quality of decision making that OCE drove performance. There appears then to be a powerful connection between the devotion to the human capital of an organization and the competence and motivation that enrich decision making processes such as information processing, collaboration and initiative.

In this study, the dimensions of decision making process did not demonstrate any direct relationship with performance. As expected, and as suggested by the myriad conflicting findings in the literature, not one of our process dimensions showed any significant effect on ROA in any of the models. This is very much in line with our contention that it is not the quantity or extent of information processing, collaboration, or initiative that matters most. Rather it is the ability and motivation of decision makers to engage in *useful* information processing, collaboration and initiatives, that enhances the quality of decisions and helps performance. This usefulness will be a product of the training and ability of employees, their motivation to be resourceful, and their willingness to work together and use their talents for the good of the organization. As previous research has shown, OCE helps to elicit all of these behaviors.

This finding is interesting in the light of the debates about whether information processing, collaboration and initiative are useful qualities of a decision making process (Miller & Cardinal, 1994; Mintzberg, 1994; Noda & Bower, 1996). The ambiguous findings in the decision making literature to date suggest that these characteristics may not be very important. Some authors have advocated that it is the *flexibility* of the decision making process that is critical (Mintzberg, 1994; Brown & Eisenhardt, 1998). Certainly flexibility can have real advantages in bringing about speedy and creative decisions, but it can also lead to impulsive acts and chaotic behavior. And while structured and formal approaches to decision making may foster rigidity, they can also target people towards key priorities, ensure that they "cover the bases," and encourage thorough but efficient decision making that is a source of real competitive advantage. In other words, we believe that it is not so much the formality or flexibility of decision making as the talents, training and motivations of those making the decisions that are most critical for performance. But this clearly is an issue for further research.

We believe too that OCE-induced improvements in information processing, collaboration and initiative not only have a direct effect on the quality of decisions and performance, they

also lead in the long run to far more potent and sensitive organizational learning processes. Effective learning relies on appropriate scanning and analysis of information, collaboration to exchange and validate information and construct different conceptual models, and experimental initiatives to learn about the environment and test new courses of action (Fiol, 1994; Nonaka, 1996; Senge, 1990). We have found that every one of these activities benefits from the investment in human capital represented by OCE. And that, perhaps, is why OCE seems to be making an especially important contribution to the efficacy of the decision making process in uncertain environments (Fiol, 1994). It is there that organizational learning is of paramount concern, and also rather urgent (Brown & Eisenhardt, 1998).

We would like to see more research into such connections. Specifically, given the divergent findings for OCE1 and OCE2, it would be useful to know just which aspects of OCE—training, compensation, human consideration, reward sharing—have the greatest impact on decision making and organizational learning. Also it is important to determine which characteristics of decision makers and decision making are most affected by these influences—and how. For example, what are the impacts of the different components of OCE on social skills, motivation, self-confidence, team learning, creative options generation, and so forth? And at what levels of the organization—and in which competitive contexts—are these influences most crucial to performance? It is such finer grained research that may tell us why OCE1 was an inferior facilitator of collaboration than OCE2.

More broadly, we would like to see more work that bridges the schism between macro and micro approaches to decision making (e.g., Ostroff, 1993; Ryan, Smith & Johnson, 1996). Many micro studies have failed to interest managers because their results have not been shown to have an impact on organizational performance. At the same time macro level analyses, by failing to focus on the human element, have been plagued by misspecified models and noncumulative results. By combining macro and micro perspectives we hope researchers will be able to derive results that not only help corporate performance, but also make for a more humane, dignified, and gratifying work environment.

Further research also needs to be undertaken to determine whether our own findings will generalize to other nations and cultures. It is important to bear in mind that this is a study of Korean companies. In Korea, the Confucian ethic makes it especially important for firms to display care for their employees; indeed such care is widely held to be an important responsibility of employers. It may also be true that Korean workers respond especially well to commitment from their companies—that the Confucian ethic demands reciprocation from employees in the form of greater effort and dedication to the group. These conditions render Korean firms ideal venues for supporting our hypotheses. It will therefore be important to test the notions of this paper on American and European organizations to establish the generality of our findings.

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Information Processing: Scanning

Rate the extent to which the following scanning devices are used by the unit to gather information about its environment:

	Very rarely			Very frequently	
Routine gathering of opinion from clients	1	2	3	4	5
Explicit tracking of the policies and tactics of competitors	1	2	3	4	5
Special market research studies.	1	2	3	4	5
Forecasting sales, customer preferences, technology, etc.	1	2	3	4	5

Collaboration

To what degree do the following statements apply to the unit?:

1	2	3	4	5	
					Decisions are made by managers individually without much interaction
					Managers employ consensus-oriented team decision making
1	2	3	4	5	
					Each department makes decisions more or less on its own, without regard to other departments
					There is a great deal of interdepartmental interaction on most decisions.

How true are the following statements?:

	Not true at all			Very true	
Consultation and discussion among middle and upper managers are used often and effectively in resolving a problem or making a decision.	1	2	3	4	5
Decisions are formulated with the active participation of managers from many departments.	1	2	3	4	5
There is a great deal of open communication and interaction among managers at many levels.	1	2	3	4	5

Initiative: Proactiveness

To what degree do the following statements apply to the unit?:

1	2	3	4	5	
					There is a strong tendency to follow competitors in introducing new things or ideas.
					The unit tries to be ahead of competitors in product novelty or speed of innovation and usually succeeds.
1	2	3	4	5	
					The unit favors the tried and true
					Managers are growth, innovation and development oriented

Initiative: Risk taking**To what degree do the following statements apply to the unit?:**

1	2	3	4	5
There is a strong proclivity for low risk projects (with normal and certain rates return).				There is a strong proclivity for high risk projects (with chances of very high return).
1	2	3	4	5
Managers think it best to explore the environment via timid, incremental behavior.				Bold, wide-ranging acts are viewed as useful and are common practice.

UNCERTAINTY OF THE ENVIRONMENT (completed by topmost executive)

Please circle 1 if the statement on the left applies very strongly, circle 5 if the statement on the right applies very strongly, circle 3 if neither statement applies or if both statements apply equally, and circle 2 or 4 to indicate some tendency towards the statements on the left or right, respectively.

1	2	3	4	5
The unit must rarely change its marketing practices to keep up with the market and competitors				The unit must change its marketing practices extremely frequently (e.g. semi-annually).
1	2	3	4	5
The rate which products/ services are becoming obsolete in the industry is very slow (e.g. basic metal like copper).				The rate of obsolescence is very high (as with some fashion goods).
1	2	3	4	5
Actions of competitors are quite easy to predict (as in some primary goods)				Actions of competitors are unpredictable (e.g. the software business).
1	2	3	4	5
Demand and consumer tastes are fairly easy to forecast (e.g. milk companies).				Demand and tastes are almost unpredictable (e.g. in high fashion).
1	2	3	4	5
The production/service technology is not subject to much change and is well established (e.g. steel production).				The production/service technology often changes in a major way (e.g. advanced electronics)

Appendix 2: Firm Demographics by Industry

Industry	Number of employees	Firm age	Sales volume (100 million won)	ROA(%)
Textiles M	369	19	247	2.3%
SD	(596)	(9)	(438)	(2.3)
Machinery M	424	19	308	4.1%
SD	(280)	(9)	(264)	(5.8)
Auto-parts M	219	16	180	3.9%
SD	(302)	(11)	(333)	(5.4)
Electric & M	682	17	940	8.9%
Electronics SD	(1124)	(7)	(1572)	(20.7)
Average	420	18	388	4.6%
	(677)	(9)	(818)	(10.5)

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