

# 지식경영 자원, 전략, 그리고 성과: 상황모형의 검증

## Knowledge Management Resource, Strategy, and Performance: A Test of Contingency Model

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### ABSTRACT

Increasing competitive pressure, the constantly accelerating transformation of the economy, and a stronger focus on value creation have initiated the search for sustainable sources of competitive advantage in organizations. In this context, the concept of treating organizational knowledge as a valuable strategic resource has become quite popular recently. Knowledge has become the most critical component in the struggle for sustained competitive advantage and knowledge management (KM) has also been described for its possible role in creating sustainable competitive advantage. In order to examine the contingency between KM resources, KM strategies, and KM performance of organizations, a contingency model of KM, which is based on resource-based theory as well as knowledge-based theory, is developed from the information systems and strategic management literature in order to assess the following questions: (i) What KM resources affect the organization's KM strategies? (ii) Is there a relationship between KM strategies and organizational performance enhanced by KM? A detailed exploratory analysis of survey responses from 79 Korean companies provides the following significant findings: (i) This study found support for the proposed contingency model of KM; (ii) The organization's KM strategies are determined by social resources and its capabilities; (iii) An organization with a culture-based KM strategy is more likely to enhance organizational KM performance than an organization with a technology-based KM strategy.

*Keywords* : Knowledge; Knowledge Management; Information Technology; Competitive Advantage; Resource-Based Theory; Knowledge-Based Theory

### INTRODUCTION

Increasing competitive pressure, the constantly accelerating transformation of the economy, and a stronger focus on value creation have initiated the search for sustainable sources of competitive advantage. To compete effectively, an organization must adapt to the changing rules of the corporate arena for long-term success (Porter, 1990). In this context, the

concept of treating organizational knowledge as a valuable strategic resource has become quite popular recently. Knowledge has become the most critical component in the struggle for sustained competitive advantage (Richer & Vettel, 1995) and knowledge management (KM) has also been described for its possible role in creating sustainable competitive advantage (Grant, 1996; Holsapple & Singh, 2001). Effective utilization of knowledge can contribute to the development of an organization's new capabilities, such as an improvement of business processes and

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the design of new products and services.

The resource-based theory of an organization argues that differential organization performance is fundamentally due to an organization's heterogeneity (i.e. organization's knowledge) rather than industry structure (Barney, 1991; Grant, 1991). Organizations that are able to accumulate resources and capabilities that are rare, valuable, not substitutable, and difficult to imitate will achieve sustained competitive advantage over competing organizations. The resource-based theory generally addresses performance differences among organizations using asymmetries in knowledge, associated with competencies or capabilities (Peteraf, 1993; Prahalad & Hamel, 1990). Knowledge has been viewed as the single most important source of sustainable competitive advantage, and thus also as a source for generating value added in the modern organization (Conner & Prahalad, 1996; Grant, 1996).

This research seeks to answer the following questions: (1) What KM resources affect the organization's KM strategies? This question assumes that the KM strategies cannot be pursued for all circumstances. The KM strategies are the different perspectives which organization may pursue under certain KM resources. This research seeks to understand the KM resources, which lead organizations to pursue different KM strategies; (2) Is there a relationship between KM strategies and organizational performance enhanced by KM? This question assumes that the organizational performance can be enhanced by KM strategies of organization. Answers to these questions would not only provide knowledge managers and researchers with understanding and guidance concerning if and when KM strategies should be utilized, but also provide them with implications for applying KM strategies to organizations.

## THEORETICAL BACKGROUND AND LITERATURE REVIEW

### Resource-Based Theory and Knowledge Management

Resource-based theory views a firm as a collection of productive resources. The growth of the firm depends upon a desire to utilize slack resources (Penrose, 1959). Rubin (1973, p.937) further defines a resource as a fixed input which enables a firm to perform a particular task. A variety of authors have generated a list of firm resources that may enable a firm to conceive of and implement strategies that improve its efficiency and effectiveness (Barney, 1991; Hitt and Ireland, 1986; Thompson and Strickland, 1983). These potential firm resources can be conveniently classified into three categories: physical capital resources, human capital resources, and organizational capital resources (Barney, 1991).

Grant (1991) provides in his five-stage procedure a practical framework for a resource-based approach to strategy formulation: (a) analyzing the firm's resource base; (b) appraising the firm's capabilities; (c) analyzing the profit-earning potential of the firm's resources and capabilities; (d) selecting a strategy; and (e) extending and upgrading the firm's pool of resources and capabilities. Further, Grant (1991) argues that a resource-based approach to strategy is concerned not only with the deployment of existing resources and capabilities, but also with the development of the firm's resources and capabilities.

Resource-based has emerged as a key competitive weapon in many organization activities including strategy formulation (Bowman et al., 2002; Humbert et al., 1997), information technology capability (Mata

et al., 1995), and knowledge management (Blood-good & Salisbury, 2001; Chung, 2004). Resource-based is defined as the resources and capabilities possessed by competing organizations that may differ, and may be sustainable over time (Barney, 1991; Rumelt, 1984; Wernerfelt, 1984). Therefore, extending the traditional notion of organizational resource-based capability to a firm's knowledge management (KM) function, a firm's KM capability is defined as its ability to mobilize and deploy KM-based resources in combination with other resources and capabilities (Chung, 2004). In addition, a resource-based view is different in the firm's capability, which will lead to a sustainable competitive advantage (Black & Boal, 1994). Further, Johannessen and Olsen (2003) describe that KM resources offer the type of capabilities that are difficult to imitate.

### Knowledge-Based Theory and Competitive Advantage

The knowledge-based theory of the firm has been described as an emerging strand of the resource-based theory of the firm (Grant, 1996; Grant, 1997), the latter having found its most popular expression in the concepts of epistemology (Polanyi, 1962), organizational learning (Argyris, 1977), and organizational capabilities and core competences (Prahalad and Hamel, 1990). While the resource-based theory focuses not only on unique capabilities that may allow a firm to outperform rivals, but also on strategic assets which are rare, inimitable, and unavailable to rival firms, the knowledge-based theory focuses not only on efficiencies in knowledge creation as a determinant of the firm's scope, but also on impediments to transferring knowledge and capabilities (Coff, 2003).

Therefore, a knowledge-based theory can be seen as the essence of the resource-based theory.

The key features of the knowledge-based theory can be summarized as follows (Argote & Ingram, 2000; Blackler, 1995; Grant, 1996; Grant, 1997; Kogut & Zander, 1992; Richter & Vettel, 1995; Scarbrough, 1998; Spender, 1993):

- (1) Knowledge is seen as the overwhelmingly important productive resource in terms of its contribution to value added and its strategic significance.
- (2) Knowledge comprises information, technology, know-how, and skills. The critical distinction is between explicit knowledge that is capable of articulation and hence transferable at low cost, and tacit knowledge that is more difficult to communicate. Transfer of distributed and tacit knowledge is problematic and requires mechanisms of integration.
- (3) Tacit knowledge is particularly important in achieving competitive advantage and is distributed or specialized and highly context-dependent.
- (4) The organization is viewed as a site for the creation, transformation and application of knowledge. Individuals are the primary agents of knowledge creation and, in case of tacit knowledge, are the principal repositories of knowledge.
- (5) Because of the cognitive and time limitations of human beings, individuals must specialize in their acquisition of knowledge: increased depth of knowledge can normally only be attained through sacrificing breadth of knowledge. At the same time, production (the creation of value through the transformation of inputs into



Figure 1. Strategy Research Paradigm

outputs) typically requires the application of many different types of specialized knowledge.

### Contingency Perspectives of Strategic Management

Structural contingency perspectives have dominated the study of organizational design and performance during the past three decades (Carroll, 1993; Drazin and Van de Ven, 1985; Ginsberg and Venkatraman, 1985; Gresov and Drazin, 1997; Hofer, 1975; Miller and Friesen, 1978; Miles and Snow, 1978; Xiaohua and Germain, 2003). It is the perspective underlying the prescribed dual approach to strategic analysis (Grant and King, 1982): environmental threats and opportunities analysis and organizational strengths and weaknesses analysis.

Contingency perspectives of business strategy indicate that the appropriateness of different strategies depends on the competitive setting of business (Hambrick and Lei, 1985). Further, the perspectives rest on the belief that no universal set of strategic choices exists that is optimal for all businesses, irrespective of their resource positions and environmental context (Ginsberg and Venkatraman, 1985, p.421). Thus, effective strategies are those that achieve a contingency or fit between environmental conditions and organizational factors (Drazin and Van de Ven, 1985; Venkatraman and Camillus, 1984).

Fahey and Cristensen (1986) present a strategy research paradigm (Figure 1) that indicates that the central research question of strategy content is typi-

cally some variant of the following: What performance results arise from following specific strategies under different conditions or resources? Figure 1 provides a useful model for considering the KM strategies. If an organization uses the KM as its strategy, it is reasonable to expect similar contingency influences. Therefore, Figure 1 serves as the basic framework around which a contingency model of KM can be developed.

### RESEARCH MODEL AND HYPOTHESES

A contingency model of KM, which is based on a contingency perspective of the organizational strategy research paradigm as depicted in Figure 1 and the resource-based theory as well as knowledge-based theory discussed above, is shown in Figure 2. The application of contingency perspective, resource-based theory, and knowledge-based theory to KM provides a useful and operational framework for the organization. The basic premise of the resource-based theory as applied in Figure 2 is that the organizational KM strategies are dependent upon KM resources (and its capabilities). Therefore, there are resources under which KM strategies may or may not be pursued. In the organizational perspective on KM, these resources broadly include both technical and social resources. Furthermore, the essential premise of the knowledge-based theory as applied in Figure 2 is that organizational KM performance can be enhanced by KM strategies of organizations.

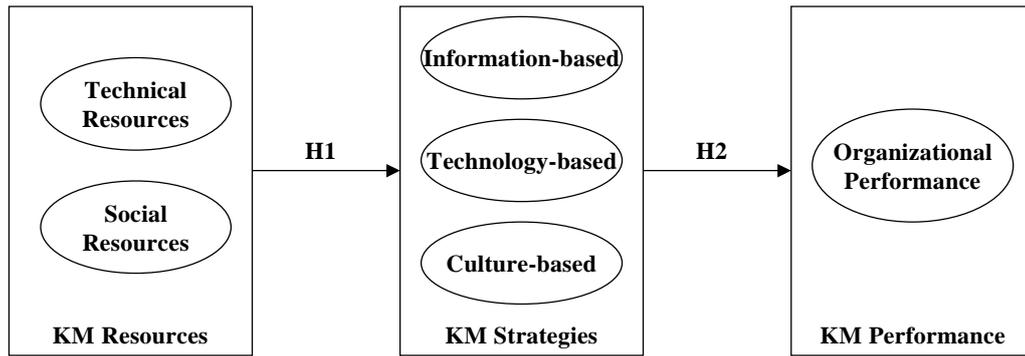


Figure 2. Contingency Model of KM

Based on the resource-based theory, KM researchers have identified various KM related resources and its capabilities that enable a firm to sustain its competitive advantage. For example, Lubit (2001) argues that tacit knowledge and superior KM capabilities are the keys to sustainable competitive advantage in many industries and that superior KM capabilities, by enhancing a firm's abilities to innovate and to rapidly develop the skills needed to meet new market demands, foster continual innovation and continuous improvement. Gold et al. (2001) describes that KM resources consisting of technology, structure, and culture along with a KM process architecture are essential organizational capabilities or preconditions for effective KM. Bennet and Gabriel (1999) note that organizational factors (teamwork, level of bureaucracy, centralization of decision making, innovativeness, and ability to cope with change) are critical KM enablers. Likewise, Lee and Choi (2003) indicate that KM enablers (collaboration, trust, learning, centralization, formalization, T-shaped skills, and IT support) are important factors for the KM creation process, which leads to organizational creativity as well as organizational performance. Adopting the Pan & Scarbrough (1998) classification scheme for resources, key KM resources are classified as follows (Chung, 2004): (1)

the technical KM resources comprising the physical IT infrastructure components, and its KM capability, (2) the social KM resources, comprising the human, structural, and cultural resources, and its KM capability.

The resource-based theory for KM provides a framework for examining the pool of KM resources and its capabilities (i.e. technical and social) that may or may not suggest implementing a given strategy during the formulation phase. Thus, the resource-based theory may demonstrate the fact that strategies are not universally implementable, but are contingent on having the necessary KM resources and its capabilities base. Therefore, based on the resource-based theory, KM is a strategic decision that can be used to sustain a competitive advantage from the firm's KM resources and capabilities.

Based on the knowledge-based theory, KM researchers have identified various KM resources and KM strategies that enable a firm to achieve the goals of organizational performance, which leads to sustaining its competitive advantage.

Regarding KM resources, for example, Pan and Scarbrough (1998) suggest the socio-technical resources, which emphasize the interrelatedness of the functioning of the social and technical subsystems of the organization. The socio-technical resources of KM can

be summarized in terms of three major aspects of KM as follows: (1) infrastructure refers to the hardware and software which enables the physical and communicational contact between network members, (2) infostructure refers to the formal rules which govern the exchange between the actors on the network, and (3) infoculture refers to the stock of background knowledge which actors take for granted and which is embedded in the social relations surrounding work group processes.

Alavi and Leidner (1999) classify KM strategies into an information-based, a technology-based, and a culture-based strategy. In terms of the information-based strategy, KM is concerned with reducing the overload of information and obtaining a competitive advantage from information itself. In other words, KM is viewed as a means of keeping track not so much of knowledge itself, but of who held the knowledge and how to locate them. The technology-based strategy of KM is concerned with various IT systems as well as various tools. That is, KM is associated with information infrastructure and more specifically, with the integration of cross-functional systems worldwide. Finally, the culture-based strategy of KM is concerned with learning, communication, and intellectual property cultivation. Based on these findings, research hypothesis H1 is as follows:

H1: Technical and social dimensions of KM resources are expected to influence the organization's KM strategies.

With respect to organizational KM performance, for example, Alavi and Leidner (1999) also classify organizational performance into financial (i.e., increased sales, higher profitability), marketing (i.e., better service, customer focus), and general outcomes. Likewise,

Gold et al. (2001) describes KM performance as organizational effectiveness, which is defined as organizational improvements in its abilities such as innovating new product and services, identifying new business opportunities, and coordinating the development efforts of different units. In the context of the nature of organizational knowledge, organizational culture, and industry structure within which the firm operates, Soo et al. (2002) introduces the process model of knowledge creation and innovation, in which they describe KM performance as innovation and financial/market performance. Based on these findings, research hypothesis H2 is as follows:

H2: KM strategies are expected to enhance organizational KM performance.

## METHODOLOGY

### Operationalization of Variables

All items were developed based on items from the KM literature and input from KM experts. Items were measured based on a seven point Likert scale ranging from (1) 'strongly disagree' to (7) 'strongly agree', except for the KM strategies variable, which is measured based on a categorical scale.

Technical dimension of KM resources here focuses on an organization's present level of technical KM resources and operationalization of this variable is developed from Nissen et al. (2000) in order to assess the present capability of technical KM contributions to abilities to create, organize, formalize, distribute, and apply knowledge.

Social dimension of KM resources describes the

Table 1. Measurement of KM Strategies

Information-Based Strategy	KM is viewed as achieving competitive advantage through characteristics of information, such as readily-accessible information, real-time information, and actionable information rather than information technology
Technology-Based Strategy	KM is viewed as utilizing various systems (data warehousing, enterprise wide systems, executive information systems, Intranet etc.) and various tools (search engine, multi-media, decision making tools etc.)
Culture-Based Strategy	KM is viewed as collective learning, continuous learning, communication, intellectual property cultivation, and learning organization

critical aspects of social KM resources including structure, culture, and human resources. The operationalization of this variable is developed from Beckman (1999), Davenport & Prusak (1998), and Liebowitz (1999). This study uses seven measures of social KM resources in terms of: (1) employee's abilities to create, transfer, share, and use knowledge, (2) recognition of the importance of KM, (3) culture for innovation, learning, and knowledge sharing, (4) organizational structure suitable for capturing, storing, and delivering knowledge, (5) top management vision and support, (6) strategy development to systematically pursue KM, and (7) evaluation and reward systems for knowledge creation and sharing.

Organizational perspectives on KM strategies refer to the meaning organizations ascribe to the concept of KM. The operationalization of KM strategies is developed from Alavi and Leidner (1999) to figure out three different strategies such as information-based, technology-based, and culture-based strategies as shown in Table 1.

An organization's KM performance can be manifested in many dimensions, such as competitiveness, customer service, innovation, and productivity. The measures of this variable are developed from Housel & Bell (2001). This study uses eight measures of organizational performance enhanced by KM in terms of:

(1) enhancement in competitiveness, (2) enhancement in prediction and decision making ability, (3) enhancement in customer service, (4) enhancement in customer satisfaction, (5) achievement in business innovation, (6) enhancement in product and service quality, (7) business process improvement, and (8) productivity enhancement.

#### Data Collection

The data for the study were gathered via a mail survey questionnaire. The survey method provides probability sampling, standardized measurement, and information available from no other sources (Fowler, 1988) and is an appropriate form for this stage of research in KM. The survey questionnaire was mailed to the 500 largest Korean companies (based on total sales). A follow-up questionnaire was mailed to those who had not responded about three weeks later. The questionnaire was addressed to the top manager such as CKO or equivalent in charge of KM. 79 usable responses were received representing a response rate of 16%.

Non-response bias was checked by comparing the answers provided by the first respondents with those provided by respondents following the second mailing (Armstrong & Overton, 1977; Compeau &

Higgins, 1995; Fowler, 1988). Analysis indicated no statistically significant differences at the level of 0.05 among these two groups with respect to their total sales and number of employees, thus indicating non-response bias was not a problem in this research. This lack of non-response bias implies that the results from the study sample can be generalized to the larger population.

### Responding Sample Characteristics

Although a variety of industries were represented in the responses (manufacturing, finance/insurance, retail/wholesale, construction, transportation/ warehousing, service, and other), a large proportion of these companies were manufacturers (66%) or involved in construction (11%) and banking and insurance (10%). Further, the responding companies represent a wide variance in size, with 15 of 79 companies (19%) having annual sales of \$1 billion or above, and 13 (16%) having sales below \$100 million. Also, 36 of 79 companies (46%) have 1,000 or above employees, and 15 (19%) have fewer than 300.

## RELIABILITY AND VALIDITY ANALYSES

### Reliability

Reliability is the degree to which an instrument measures the same way each time it is used under the same conditions with the same subjects. That is, reliability refers to the accuracy (consistency and stability) of measurement by the instrument (Isaac and Michael, 1981) or repeatability of an assessment over a variety of conditions (Nunnally and Bernstein,

1994).

Variables with composite measures were evaluated for their internal consistency through the Cronbach's Alpha measure. The higher the Cronbach's Alpha value, the greater is the internal consistency of the items making up a composite measure. Nunnally and Bernstein (1994) suggest that a value of 0.7 or higher is acceptable. The Alpha's for the variables with composite measures ranged from 0.84 to 0.90. These scores are shown in Table 2.

### Validity

Validity refers to the scientific utility of a measuring instrument, broadly stable in terms of how well it measures what it purports to measure (Nunnally and Bernstein, 1994). Validity has been given two major meanings: content validity and construct validity.

Content validity is the degree to which items in an instrument reflect the content universe to which the instrument will be generalized (Churchill, 1979; Kerlinger, 1986). Content validity of the survey instrument is satisfied by conducting it with operationalizations that have been utilized by other researchers, adopting suggestions in the literature, and pre-testing with experts in the KM field (Kerlinger, 1986). All measurements of the questionnaire are designed according to relevant literature and verified by a panel

Table 2. Reliability Analysis for Composite Measures

Construct measured	Number of Items	Cronbach's Alpha
Technical Resources	5	0.8969
Social Resources	7	0.8388
Organizational Performance	8	0.8948

discussion of a group of three IS professors and three KM experts. In this research one variable, KM strategies, is categorical. For the measurement of KM strategies, only content validity is satisfied by adopting suggestions in the literature and pretesting with experts in the IS field (Kerlinger, 1986).

A construct is a mental or conceptual variable. Because a construct is conceptual, it is necessary to create an empirical definition of that construct; one that can be measured and recorded, before conducting research. Construct validity is the degree to which the empirical definition of a construct corresponds with a conceptual definition of the construct (Churchill,

1979; Kerlinger, 1986). It consists of two major validity concepts: convergent validity and discriminant validity.

Convergent validity is the degree to which multiple attempts to measure the same concept are in agreement (Campbell and Fiske, 1959). In this research, convergent validity is evaluated by measuring the correlation of each item representing the construct with the aggregate measure for that construct less the focal item (Ives et al., 1983; Kerlinger, 1986). This approach assumes the total score to be valid; thus the extent to which an item correlates with the total score is indicative of construct validity for the item (Churchill, 1979). Torkzadeh and Dhillon (2002)

Table 3. Item-Total Correlation of Research Variables

Items	Item Total Correlation
Technical Resources (TR)	
TR1: Use IT to create knowledge	0.7525
TR2: Use IT to organize knowledge	0.6799
TR3: Use IT to formalize knowledge	0.7613
TR4: Use IT to distribute knowledge	0.7595
TR5: Use IT to apply knowledge	0.7782
Social Resources (SR)	
SR1: Employee's abilities to create, transfer, share, and use knowledge	0.5682
SR2: Recognition of the importance of KM	0.6439
SR3: Culture for innovation, learning, and knowledge sharing	0.6730
SR4: Structure for capturing, storing, and transferring knowledge	0.4564
SR5: Top management vision and support	0.5659
SR6: Strategy development to systematically pursue KM	0.7237
SR7: Evaluation and reward systems for knowledge creation and sharing	0.5149
Organizational Performance (OP)	
OP1: Enhancement in competitiveness	0.5755
OP2: Enhancement in prediction and decision making ability	0.4766
OP3: Enhancement in customer service	0.7384
OP4: Enhancement in customer satisfaction	0.7845
OP5: Achievement in business innovation	0.6960
OP6: Enhancement in product and service quality	0.7736
OP7: Improvement in business process	0.6624
OP8: Enhancement in productivity	0.6966

Table 4. Factor Analysis of KM Resources and Organizational Performance

Items	Factor 1	Factor 2	Factor 3	Eigenvalue	Variance explained (%)
OP3	0.8475			4.2775	23.8
OP4	0.8316				
OP5	0.7876				
OP6	0.7339				
OP8	0.6728				
OP1	0.6076				
OP7	0.6070				
TR3		0.8521		3.8266	21.3
TR5		0.8460			
TR1		0.8455			
TR2		0.8118			
TR4		0.8021			
SR5			0.8097	3.5635	19.8
SR6			0.7805		
SR3			0.7250		
SR7			0.6862		
SR2			0.6601		
SR1			0.5445		

suggest that a value of 0.5 or higher is acceptable. Based on this criterion, two items (SR4 and OP2) in Table 3 were excluded from further analysis. As shown in Table 3, the corrected item-total correlations ranged from 0.51 to 0.78.

Discriminant validity is the degree to which a construct differs from other constructs. This is usually verified through factor analysis (Kerlinger, 1986). Factor analyses for discriminant validity were performed with respect to each construct of this research. The cut-off for the number of factors is the widely accepted criterion of an eigenvalue of one. In each case, discriminant validity is confirmed if items for each variable load onto a single factor. The significance of item loadings is chosen as at least 0.50 (Hair et al., 1998). Items with loadings of less than 0.50

on any factor or loadings of more than 0.50 on more than one factor are dropped from subsequent measures of the construct. Eleven items are used to measure technical and social resources of KM resources. Seven items are used to measure organizational performance enhanced by KM. Factor analysis with varimax rotation reveals three factors, technical resources (TR), social resources (SR), and organizational performance (OP), as shown in Table 4.

## RESULTS AND DISCUSSION

Since a dependent variable, KM strategies, is categorical, analysis of a probit model is performed to examine the relationship between KM resources and

KM strategies. The results in Table 5 show that technical and social KM resources are found to have associations with the organization's KM strategies.

Analysis of variance (ANOVA) is performed to investigate the effect different KM strategies have on the organizational performance enhanced by KM. Table 6 summarizes the results of tests for the effect of different KM strategies on the organizational performance. The result indicates that the organizational performance is associated with the different KM strategies at significant level at the 0.05. Therefore, hypothesis 2 is supported. In addition, to find out the differences in the organizational performance with respect to the different KM strategies, multiple comparison analysis is performed using Tukey's test. As shown in Table 6, an organization with a culture-based KM strategy is more likely to enhance organizational performance than an organization with a technology-based KM strategy.

The results of the test for hypotheses relating to technical and social resources of KM resources

empirically confirmed earlier descriptive and empirical arguments that technical and social resources are important facilitators of an organization's KM strategies (Chung, 2004; Davenport et al., 1998; Eppler & Sukowski, 2000; Gold et al., 2001; Gupta & Govindarajan, 2000; Lee & Choi, 2003; Liebowitz, 1999). Specifically, the social resources including structure (i.e., evaluation and reward systems for KM activities), culture (i.e., culture for innovation and learning), and human resources (i.e., employee's abilities to perform KM activities) may also play critical roles to decide the different KM strategies. The results also serves to inform the discussion about the business value of technical KM resources. It suggests that the insignificant statistical findings about the relationship between technical KM resources and KM strategies (see Table 5) may be attributed to our incomplete understanding of the nature of technical KM resources and its capabilities. This results may be due to the fact that despite high IT assets, not all firms are successful in creating technical KM resources and its

Table 5. Analysis of Probit Model of KM Resources on KM Strategies

Overall Model	Statistic	Value	p-value	Results
Goodness-of-Fit Tests	Pearson Chi-Square	143.5439	0.4951	H1 Supported
	L.R. Chi-Square	148.7925	0.3750	
Partial Effects of Independent Variables	Technical Resources	0.9383	0.3327	Not Significant
	Social Resources	9.3393	0.0022	Significant

Table 6. Analysis of Variance of KM Strategies on Organizational Performance and Multiple Comparison Analysis Using Tukey's Test

Overall Model	R Square	F Value	p value	Results
	0.10	3.89	0.0249	H2 Supported
Comparisons (Organizational Performance)	Information-based vs. Technology-based			Not significant
	Information-based vs. Culture-based			Not Significant
	Technology-based vs. Culture-based			Significant

capabilities.

Furthermore, study results also show highly significant associations between different KM strategies and organizational performance (i.e., enhanced in competitiveness, enhanced productivity) enhanced by KM. Among three different KM strategies, an organization with a culture-based strategy is more likely to enhance operational performance than an organization with a technology-based strategy. Thus, an organization's culture may play an important role in successful KM. De Long & Fahey (2000) identify four ways in which culture influences the behaviors central to KM as follows:

- (1) Culture shapes assumptions about what knowledge is and which knowledge is worth managing;
- (2) Culture defines the relationships between individual and organizational knowledge determining who is expected to control specific knowledge, as well as who must share it and who can hoard it;
- (3) Culture creates the context for social interaction that determines how knowledge will be used in particular situations;
- (4) Culture shapes the processes by which new knowledge is created, legitimated, and distributed in organizations.

By establishing the link between KM resources, KM strategies and organizational performance, the study serves to inform KM managers that organizations need to be effectively managed for overall KM resources and its capabilities.

First, organizational performance is self-assessment, which requires firms to assess their own strengths and weaknesses. To conceive of and implement firm's KM

strategies, managers must look their KM resources and its capabilities broadly and deeply. Second, effective KM strategies involves a variety of different aspects, ranging from providing organizational structure and culture that encourage and support employees to create continuous learning cultures in organization to establishing mechanisms that enable effective knowledge sharing and dissemination. Finally, KM resources and its capabilities are socially complex organizational resources and its capabilities that can only be imperfectly imitated by rivals. The technical KM resources provide the platform to launch innovative KM strategies (i.e., a culture-based KM strategy) faster than competitors; the social KM resources enable firms to conceive of and implement such innovative KM strategies faster than competitors; and a focus on KM strategies enables firms to leverage or exploit organizational competitive advantage. Tougher competition and profit pressures will force more KM managers to take a hard look at KM resources and KM strategies that traditionally have been done in the past.

## LIMITATIONS

This research deals with a relatively new phenomenon—the application of KM in organizations. While we feel that the study contributes to academic and practical areas, it also has some limitations that need to be mentioned. First, the study uses a questionnaire method for data collection that relies on a single respondent for each company. As a result, it does not capture the KM strategic orientation of each company to the extent that a case study or a field study involving multiple respondents (i.e., CEO and CIO) from each company would. Second, even though we made

every effort to design a questionnaire that would reduce response bias, such a bias cannot be avoided entirely due to the post hoc nature of research. Finally, the instrument used in this research was not designed to determine the knowledge manager's understanding of the broad principles, practices, and techniques of KM. These limitations provide a foundation for future discussion and research.

## CONCLUSIONS

Drawing on the resource-based theory, knowledge-based theory, and contingency theory of the firm, the research has examined not only the organization's KM strategies and factors influencing the organization's KM strategies, but also a relationship between the organization's KM strategies and organizational performance enhanced by KM. Significant findings in this research are summarized as follows: (1) This study found support for the proposed contingency model of KM; (2) The organization's KM strategies are relatively determined by social resources and its capabilities; (3) There is a significant relationship between different KM strategies and organizational performance enhanced by KM. These findings reflect current developments in the real world where organizations are beginning to pay close attention to how their KM resources and its capabilities are efficiently and effectively aligned with their KM strategies to outperform their competitors. Therefore, it is important for firms to be cognizant of the contingency or fit between KM resources, KM strategies, and organizational performance. This research contributes to the growing body of literature linking KM and the dominant theoretical streams in the KM research and provides and tests a contingency

model for understanding the fit between KM resources, KM strategies, and organizational performance.

## REFERENCES

- [1] Alavi, M. & Leidner, D.E., Knowledge Management Systems: Issues, Challenges, and Benefits, *Communications of the Association for Information Systems*, 1(7), February 1999, 1-36.
- [2] Argote, L. & Ingram, P., Knowledge Transfer: A Basis for Competitive Advantage in Firms, *Organizational Behavior and Human Decision Process*, 82(1), May 2000, 150-169.
- [3] Argyris, C., Double Loop Learning in Organizations, *Harvard Business Review*, 55(5), September-October 1977, 115-124.
- [4] Armstrong, J.C. & Overton, T.S., Estimating Nonresponse Bias in Mail Surveys, *Journal of Marketing Research*, 14(3), August 1997, 396-402.
- [5] Barney, J., Firm Resources and Sustained Competitive Advantage, *Journal of Management*, 17(1), March 1991, 99-120.
- [6] Beckman, T.J., The Current State of Knowledge Management, In J. Liebowitz (Ed.), *Knowledge Management Handbook*, CRC Press, 1999.
- [7] Bennett, R. & Gabriel, H., Organizational Factors and Knowledge Management with Large Marketing Departments: An Empirical Study, *Journal of Knowledge Management*, 3(3), 1999, 212-225.
- [8] Bergeron, B., *Essentials of Knowledge Management*, John Wiley & Sons, Inc., 2003.
- [9] Black, J. & Boal, K., Strategic Resources: Traits, Configurations and Paths to Sustainable Competitive Advantage, *Strategic Management Journal*,

- 15(5), Summer 1994, 131–148.
- [10] Blacker, F., Knowledge, Knowledge Work and Organizations: An Overview and Interpretation, *Organization Studies*, 16(6), 1995, 1021–1046.
- [11] Bloodgood, J.M. & Salisbury, W.D., Understanding the Influence of Organizational Change Strategies on Information Technology and Knowledge Management Strategies, *Decision Support Systems*, 31(1), May 2001, 55–69.
- [12] Bowman, C., Ward, K., & Kakabadse, A., Congruent, Divergent and Incoherent Corporate Level Strategies, *European Management Journal*, 20(6), December 2002, 671–679.
- [13] Campbell, D.T. & Fiske, D.F., Convergent and Discriminant Validation by the Multitrait Multi-method Matrix, *Psychological Bulletin*, 56, 1959, 81–105.
- [14] Carroll, G.R., A Sociological View on Why Firms Differ, *Strategic Management Journal*, 14(4), May 1993, 237–249.
- [15] Churchill, G.A., A Paradigm for Developing Better Measures of Marketing Constructs, *Journal of Marketing*, 16(1), 1979, 64–73.
- [16] Chung, S.H., A Resourced-Based Perspective on Knowledge Management Capability and Competitive Advantage: An Empirical Investigation, *Expert Systems with Applications*, 27(3), October 2004, 459–465.
- [17] Coff, R.W., The Emergent Knowledge-Based Theory of Competitive Advantage: An Evolutionary Approach to Integrating Economics and Management, *Managerial and Decision Economics*, 24(4), June/July 2003, 245–251.
- [18] Compeau, D.R. & Higgins, C.A., Computer Self-Efficacy: Development of a Measure and Initial Test, *MIS Quarterly*, 19(2), June 1995, 189–211.
- [19] Conner, K.R. & Prahalad, C.K., A Resource-Based Theory of the Firm: Knowledge Versus Opportunism, *Organization Science*, 7(5), September/October 1996, 477–501.
- [20] Davenport, T.H., De Long, D.W., & Beers, M.C., Successful Knowledge Management Projects, *Sloan Management Review*, 39(2), Winter 1998, 43–57.
- [21] Davenport, T.H. & Prusak, S., *Working Knowledge: How Organizations Manage What They Know*, Harvard Business School Press, 1998.
- [22] De Long, D.W. & Fahey, L., Diagnosing Cultural Barriers to Knowledge Management, *Academy of Management Executive*, 14(4), November 2000, 113–127.
- [23] Dowdy, S. & Wearden, S., *Statistics for research* (2nd ed.), New York: John Wiley & Sons, 1991.
- [24] Drazin, R. & Van de Ven, A.H., Alternative Forms of Fit in Contingency Theory, *Administrative Science Quarterly*, 30(4), December 1985, 514–539.
- [25] Eppler, M.J. & Sukowski, O., Managing Team Knowledge: Core Processes, Tools, and Enabling Factors, *European Management Journal*, 18(3), June 2000, 334–341.
- [26] Fahey, L. & Christensen, H.K., Evaluating the Research on Strategy Content, *Journal of Management*, 12(2), Summer 1986, 167–183.
- [27] Fowler, F.J., *Survey Research Methods*, Beverly Hills: Sage Publications, 1988.
- [28] Ginsberg, A. & Venkatraman, N., Contingency Perspectives of organizational Strategy: A Critical Review of Empirical Research, *Academy of Management Review*, 10(3), July 1985, 421–434.
- [29] Gold, A.W., Malhotra, A., & Segars, A.H., Knowledge Management: An Organizational Ca-

- pabilities Perspective, *Journal of Management Information Systems*, 18(1), Summer 2001, 185-214.
- [30] Grant, J. & King, W.R., *The Logic of Strategic Planning*, Boston: Little, Brown and Company, 1982.
- [31] Grant, R.M., The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation, *California Management Review*, 33(3), Spring 1991, 114-135.
- [32] Grant, R.M., Toward a Knowledge-Based Theory of the Firm, *Strategic Management Journal*, 17 (Special Issue), Winter 1996, 109-122.
- [33] Grant, R.M., The Knowledge-Based View of the Firm: Implications for Management Practice, *Long Range Planning*, 30(3), June 1997, 450-454.
- [34] Gresov, C. & Drazin, R., Equifinality: Functional Equivalence in Organization Design, *Academy of Management Review*, 22(2), April 1997, 403-428.
- [35] Gupta, A.K. & Govindarajan, V., Knowledge Management's Social Dimension: Lesson from Nucor Steel, *Sloan Management Review*, 42(1), Fall 2000, 71-80.
- [36] Hambrick, D.C. & Lei, D., Toward an Empirical Prioritization of Contingency Variables for Business Strategy, *Academy of Management Journal*, 28(4), December 1985, 763-788.
- [37] Hedlund, G., A Model of Knowledge Management and the N-Form Corporation, *Strategic Management Journal*, 15(Special Issue), Summer 1994, 73-90.
- [38] Hair, J.F., Anderson, R.E., Tatham, R.L., & Black, W.C., *Multivariate Data Analysis* (5<sup>th</sup> ed.), Upper Saddle River, NJ: Prentice-Hall, 1998.
- [39] Hitt, M. & Ireland, D., Relationships among Corporate Level Distinctive Competencies, Diversification Strategy, Corporate Strategy and Performance, *Journal of Management Studies*, 23(4), July 1986, 401-416.
- [40] Hofer, C.W., Toward a Contingency Theory of Business Strategy, *Academy of Management Journal*, 18(4), December 1975, 784-810.
- [41] Holsapple, C.W. & Singh, M., The Knowledge Chain Model: Activities for Competitiveness, *Expert Systems with Applications*, 20(1), January 2001, 77-98.
- [42] Housel, T. & Bell, A.H., *Measuring and Managing Knowledge*, New York: NY, McGraw-Hill/Irwin, 2001.
- [43] Humbert, M., Jolly, D., & Therin, F., Building Strategy on Technological Resources and Commercial Proactiveness: The Gemplus Case, *European Management Journal*, 15(6), December 1997, 658-666.
- [44] Isaac, S. & Michael, W., *Handbook in Research and Evaluation* (2nd ed.), San Diego, CA: EdITS Publishers, 1981.
- [45] Ives, B., Olson, M., & Baroudi, J., The Measurement of User Information Satisfaction, *Communication of the ACM*, 26(10), October 1981, 785-793.
- [46] Johannessen, J.A. & Olsen, B., Knowledge Management and Sustainable Competitive Advantages: The Impact of Dynamic Contextual Training, *International Journal of Information Management*, 23(4), August 2003, 277-289.
- [47] Kerlinger, F.N., *Foundations of Behavioral Research*, Fort Worth: Holt, Rinehart and Winston, Inc., 1986.
- [48] Kogut, B. & Zander, U., Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology, *Organization Science*, 3(3), August 1992, 383-397.

- [49] Lee, H. Choi, B., Knowledge Management Enablers, Processes, and Organizational Performance, *Journal of Management Information Systems*, 29(1), Summer 2003, 179–228.
- [50] Liebowitz, J., "Key Ingredients to the Success of an Organization's Knowledge Management Strategy," *Knowledge and Process Management*, 6(1), March 1999, 37–40.
- [51] Lubit, R., Tacit Knowledge and Knowledge Management: The Keys to Sustainable Competitive Advantage, *Organizational Dynamics*, 29(3), Winter 2001, 164–178.
- [52] Mata, F.J., Fuerest, W.L., & Barney, J.B., Information Technology and Sustained Competitive Advantage: A Resource-Based Analysis, *MIS Quarterly*, 19(4), December 1995, 487–505.
- [53] Miles, R. and Snow, C., *Organizational Strategy, Structure, and Process*, New York: McGraw-Hill, 1978.
- [54] Miller, D. and Freisen, P.H., Archetypes of Strategy Formulation, *Management Science*, 24(9), May 1978, 921–933.
- [55] Nissen, M., Kamel, M., & Sengupta, K., Integrated Analysis and Design of Knowledge Systems and Processes, In Y. Malhotra (Ed.), *Knowledge Management and Virtual Organizations* (pp. 214–244), Harrisburg, PA: Idea Group Publishing, 2000.
- [56] Nunnally, J.C. & Bernstein, I.H., *Psychometric Theory* (3<sup>rd</sup> ed.), New York, NY: McGraw-Hill, 1994.
- [57] Pan, S. & Scarbrough, H., A Socio-Technical View of Knowledge-Sharing at Buckland Laboratories, *Journal of Knowledge Management*, 2(1), 1998, 55–66.
- [58] Penrose, E. T., *Theory of the Growth of the Firm*, Oxford: Blackwell, 1959.
- [59] Peteraf, M.A., The Cornerstones of Competitive Advantage: A Resource-Based View, *Strategic Management Journal*, 14(3), March 1993, 179–191.
- [60] Polanyi, M., *Personal Knowledge*, Chicago, IL: University of Chicago Press, 1962.
- [61] Porter, M., The Competitive Advantage of Nations, *Harvard Business Review*, 68(2), March–April 1990, 73–93.
- [62] Prahalad, C.K. & Hamel, G., The Core Competence of the Corporation, *Harvard Business Review*, 68(3), May/June 1990, 79–92.
- [63] Richter, F.J. & Vettel, K., Successful Joint Ventures in Japan: Transferring Knowledge Through Organizational Learning, *Long Range Planning*, 28(3), June 1995, 37–45.
- [64] Rubin, P.H., The Expansion of Firms, *Journal of Political Economy*, 81(4), July/August 1973, 936–949.
- [65] Rumelt, R.P., Toward a strategic theory of the firm, In R.B. Lamb (Ed.), *Competitive Strategic Management* (pp. 566–570), Englewood Cliffs, NJ: Prentice-Hall, 1984.
- [66] Scarbrough, H., BPR and the Knowledge-Based View of the Firm, *Knowledge and Process Management*, 5(3), September 1998, 192–200.
- [67] Soo, C., Devinney, T., Midgley, D., & Deering, A., Knowledge Management: Philosophy, Processes, and Pitfalls, *California Management Review*, 44(4), Summer 2002, 129–150.
- [68] Spender, J.C., Competitive Advantage from Tacit Knowledge? Unpacking the Concept and its Strategic Implications, *Academy of Management Proceedings*, 1993, 37–41.
- [69] Thompson, A.A. & Strickland, A.J., *Strategy formulation and implementation*, Dallas: Business

- Publications, 1983.
- [70] Venkatraman, N. & Camillus, J.C., Exploring the Concept of 'Fit' in Strategic Management, *Academy of Management Review*, 9(3), July 1984, 513-525.
- [71] Wernerfelt, B., A Resource-Based View of the Firm, *Strategic Management Journal*, 5(2), April-June 1984, 171-180.
- [72] Xiaohua, L. & Germain, R., Organizational Structure, Context, Customer Orientation, and Performance: Lessons from Chinese State-Owned Enterprises, *Strategic Management Journal*, 24(11), November 2003, 1131-1151.

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천 면 중 (Myun Joong Cheon)

계명대학교 경영학과를 졸업하고 Indiana State University에서 경영학석사, University of South Carolina에서 MIS 전공으로 경영학박사를 취득하고, 현재 울산대학교 경영학부(경영정보) 교수로 재직하고 있다. Behaviour & Information Technology, DATA BASE, Decision Sciences, European Journal of Information Systems, Information and Management, Journal of Information Technology, Journal of Management Information Systems 등에 논문을 발표하였다. 주요 연구 관심분야는 지식경영, BPO 등이다.



허 명 숙 (Myung Sook Heo)

울산대학교 경영학과를 졸업하고 동대학원에서 경영학석사를 취득하고, 현재 MIS 전공으로 경영학 박사과정에 재학하고 있다. 경영정보학연구, 대한경영학회지, 정보시스템연구 등에 논문을 발표하였다. 주요 연구 관심분야는 지식경영, e-Shopping 등이다.