지식경영효과에 관한 탐색적 연구: 상황관점*

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An Exploratory Study on the Effects of Knowledge Management: A Contingency Perspective

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In order to explore a relationship among KM context, KM effects, and sustainability of competitive advantage of organizations, a contingency model of KM, which is based on resource-based as well as knowledge-based theory, is developed from the information systems and strategic management literature. To put it concretely, our motivation for this paper was to answer the following questions: (1) What factors affect the degree to which an organization achieves KM effects? (2) Is there a positive relationship between KM effects and organizational performance achieved by linking KM to competitive advantage? A detailed exploratory analysis of survey responses from 79 Korean companies provides the following significant findings: (1) This study found support for the proposed research model. (2) The organization's degree of process and organizational outcomes of KM effects is determined by technical and social resources and its capabilities. Furthermore, the influence of technical and social resources of KM context on process and organizational outcomes of KM effects is controlled by different types of organizational perspectives on KM. (3) There is a relationship between process and organizational outcomes of KM effects and organizational performance enhanced by linking KM to competitive advantage.

Keywords : Knowledge Management, Information Technology, Competitive Advantage, Resourced-Based View, Knowledge-Based View

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I. Introduction

Increasing competitive pressure, the constantly accelerating transformation of the economy, and a stronger focus on customer 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, knowledge has become the most critical component in the struggle for sustained competitive advantage [Richer and Vettel, 1995] and knowledge management [KM] has also been described for its possible role in creating sustainable competitive advantage [Grant, 1996; Holsapple and Singh, 2001]. Effective utilization of knowledge can contribute to the development of an organization's new capabilities, such as improvement of business process and design of new products and services.

The resource-based view of the organization argues that differential organization performance is fundamentally due to the organization's heterogeneity (i.e. organization's knowledge) rather than industry structure [Barney, 1991; Grant, 1991]. Organizations that are able to accumulate resources and its capabilities that are rare, valuable, not substitutable, and difficult to imitate will achieve sustained competitive advantage over competing organizations. The resource-based view generally addresses performance differences among organizations using asymmetries in knowledge, associated with competencies or capabilities [Peteraf, 1993; Prahalad and 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 and Prahald, 1996; Grant, 1996].

This research seeks to answer the following questions: (1) What factors affect the degree to which an organization achieves KM effects? This question assumes that the KM effects cannot be achieved for all circumstances. The KM effects are process and organizational outcomes which organization may achieve under certain conditions. This research seeks to understand the context, which leads organizations to achieve successful process and organizational outcomes of KM effects. (2) Is there a positive relationship between KM effects and organizational performance achieved by linking KM to competitive advantage? This question assumes that the organizational performance cannot be enhanced without linking KM to competitive advantage.

II. Theoretical Background and Literature Review

2.1 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 which 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 [Bloodgood and Salisbury, 2001; Chung, 2004]. Resource-based is defined as the resources and capabilities possessed by competing organizations that may differ, and these differences 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 sustainable competitive advantage [Black and Boal, 1994]. Further, Johannessen and Olsen [2003] describe that KM resources offer the type of capabilities which are difficult to imitate.

2.2 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 view can be seen as the essence of the resource-based view

The key features of the knowledge-based theory can be summarized as follows [Argote and Ingram, 2000; Blackler, 1995; Grant, 1996; Grant, 1997; Kogut and Zander, 1992; Richter and 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" which is capable of articulation and hence transferable at low cost, and "tacit knowledge" which 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 outputs) typically requires the application of many different types of specialized knowledge.

Ⅲ. Research Model and Hypotheses

A research model of KM, which is based on the resource-based theory as well as knowledge-based theory discussed above, is shown in <Figure 1>. The application of 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 1> is that the organizational KM effects are not only dependent upon KM resources and its capabilities, but also the influence of KM context on KM effects is controlled by various types of organizational perspectives on KM. Therefore, there are contexts under which KM effects may or may not be obtained. In the organizational perspective on KM, these contexts include both technical resources and social resources. Furthermore, the essential premise of the knowledge-based theory as applied in <Figure 1> is that organizational performance can be enhanced by linking KM to competitive advantage.
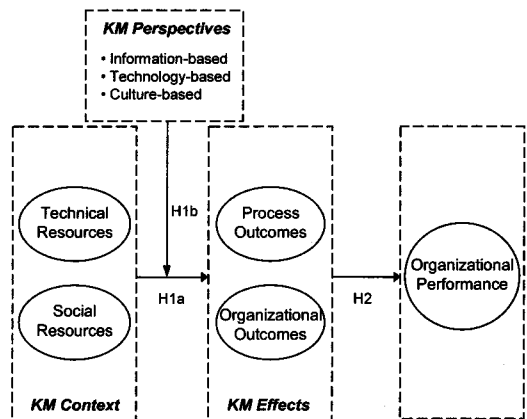
<Figure 1> Research Model

Based on the resource-based theory, KM researchers have identified various KM related resources 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 improvements KM capability.

The resource-based theory for KM provides a framework for examining the pool of KM resources and 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 capabilities base. Therefore, based on the resource-based theory, KM is a strategic decision which can be used to sustain competitive advantage from the firm's KM resources and capabilities. Based on these findings, the hypothesis H1a is as follows:

H1a: Technical and social resources of KM context are expected to influence process and organizational outcomes of KM effects.

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

Regarding KM perspectives, for example, Pan and Scarbrough [1998] suggest the socio-technical perspective, which emphasizes the interrelatedness of functioning of the social and technical subsystems of the organization. The socio-technical perspective 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 member, (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 perspectives on KM into an information-based, a technology-based, and a culture-based perspective. In terms of the information-based perspective, KM is concerned with reducing the overload of information and obtaining 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 perspective 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 perspective of KM is concerned with learning, communication, and intellectual property cultivation. Based on these findings, the hypothesis H1b is as follows:

H1b: The influence of technical and social resources of KM context on process and organizational outcomes of KM effects is controlled by various types of organizational perspectives on KM.

With respect of KM effects, for example, Alavi and Leidner [1999] also classify perceived benefits of KM into both process outcomes and organizational outcomes. The process outcomes are either relating to communication (i.e., enhanced communication, faster communication, more visible opinions of staff) or efficiency gains (i.e.. reduced problem solving time, shortening proposal times, faster delivery to market). The organizational outcomes are divided 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 effects 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 outcomes as innovation and financial/market performance. Based on these findings, the hypothesis H2 is as follows:

H2: Process and organizational outcomes of KM Effects are expected to enhance organizational performance by linking KM to competitive advantage.

IV. Methodology

4.1 Operationalization of Variables

All items were developed basing 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 KM perspectives variable, which is measured based on a categorical scale.

Technical dimension of KM context here focuses on an organization's present level of technical KM resources. The operationalization of this variable is developed from Nissen et al. [2000] and assesses the present capability of technical KM contributions to abilities to create, organize, formalize, distribute, and apply knowledge.

Social dimension of KM context describes the critical aspects of social KM resources including structure, culture, and human resources. The operationalization of this variable is developed form Beckman [1999], Davenport and 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 refer to the meaning organizations ascribe to the concept of KM. The operationalization of KM perspective is developed from Alavi and Leidner [1999] to figure out three different perspectives such as information-based, technology-based, and culture-based perspective. The operation-

alization of process and organizational outcomes of KM effects is also developed from Alavi and Leidner [1999] to assess communication improvements and efficiency gains as well as marketing and financial performance.

An organization's performance can be manifested in many dimensions, such as competitiveness, customer service, innovation, and productivity. The measures of this variable are developed from Housel and Bell [2001]. This study uses eight measures of organizational performance through linking KM to competitive advantage 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.

4.2 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 and Overton, 1977; Compeau and 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.

4.3 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.

V. Reliability And Validity Analyses

5.1 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 1>.

<Table 1> Reliability Analysis for Composite Measures

Construct measured	Number of Items	Cronbach Alpha
Technical Resources	5	0.8969
Social Resources	7	0.8388
Process Outcomes	5	0.8631
Organizational Outcomes	5	0.8558
Organizational Performance	8	0.8948

5.2 Validity

Validity refers to the scientific utility of a measuring instrument, broadly stable in term 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 discussion of a group of three IS professors and three KM experts.

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 which 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] suggest that a value of 0.5 or higher is acceptable. Based on this criterion, two items [SR4 and CA2] in <Table 2> were excluded from further analysis. As shown

in <Table 2>, 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

<Table 2> Corrected Item-Total Correlation of Research Variables

Deleted Items	Corrected 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
Process Outcomes (PO)	
PO1: Supporting business operations	0.6833
PO2: Enhanced operation capability	0.6935
PO3: Shortening business operation times	0.6840
PO4: Enhanced communication	0.6550
PO5: Greater overall efficiency	0.7008
Organizational Outcomes (OO)	
OO1: Increased sales	0.5789
OO2: Higher profitability	0.7770
OO3: Decreased cost	0.6718
OO4: Better service and customer focus	0.6595
OO5: Targeted and proactive marketing	0.6687
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

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 context. Factor analysis

with varimax rotation reveals two factors, technical resources and social resources, as shown in <Table 3>.

Ten items are used to measure KM Effects. And seven items are used to measure organizational performance through linking KM to competitive advantage. Factor analysis with varimax rotation provides three factors, organizational performance, organizational outcomes, and process outcomes, as shown in <Table 4>.

<Table 3> Factor Analysis of KM Context

Items	Factor 1	Factor 2	Eigenvalue	Variance explained(%)
TR5	0.8722			
TR3	0.8591			
TR4	0.8492		3.6545	33.2
TR2	0.8391			
TR1	0.7823			
SR5		0.8086		
SR6		0.7875		
SR3		0.7425		
SR2		0.7418	3.3275	30.3
SR7		0.6979		
SR1		0.6630		

<Table 4> Factor Analysis of KM Effects & Organizational Performance

Items	Factor 1	Factor 2	Factor 3	Eigenvalue	Variance explained(%)
OP4	0.8367				
OP6	0.7689				
OP3	0.7247				
OP5	0.7172			4.8085	28.2
OP8	0.6784				
OP7	0.6307				
OP1	0.5927				
OO2		0.8717			
OO1		0.8291			
OO4		0.7069		3.4718	20.4
OO5		0.6177			
OO3		0.5161			
PO1			0.8361		
PO2			0.8312		
PO4			0.6478	3.2703	19.2
PO3			0.5572		
PO5			0.5241		

VI. Results And Discussion

Analysis of covariance is performed to examine the relationship between resource-based KM context and KM effects as well as interaction with organizational perspectives on KM. The general linear equation tested is KM effects = f (technical resources, social resources, technical resources*KM perspectives, social resources*KM perspectives). The results in <Table 5> show that technical and social KM resources are found to have associations with process outcomes of KM effects and that the influence of technical and social resources of KM context on process outcomes of KM effects is controlled by various types of organizational perspectives on KM.

The results in <Table 6> show that technical and social KM resources are found to have associations with organizational outcomes of KM effects and that the influence of technical and social resources of KM context on organizational outcomes of KM effects is controlled by various types of organizational perspectives on KM.

Analysis of variance (ANOVA) and multiple comparisons analyses are performed to investigate the effect different types of KM perspectives have on the technical and social resources of KM context. <Table 7> summarizes the results of tests for the effect of different types of KM perspectives on KM context. While KM perspectives have no effect on the technical resources of KM context, the perspectives have an effect on the social resources of KM context. Furthermore, an organization with a culture-based KM perspective is more likely to have social resources than an organization with an information-based or a technology-based KM perspective.

<Table 5> Analysis of Covariance of KM Context on Process Outcomes

Overall Model	R-Square	F Value	p-value	Results
	0.5492	13.61	0.0001	
Partial Effects of Independent Variables	Technical Resources	6.42	0.0136	H1a Supported
	Social Resources	54.75	0.0001	
	Technical Resources*KM Perspectives	3.51	0.0355	H1b Supported
	Social Resources*KM Perspectives	3.58	0.0333	

<Table 6> Analysis of Covariance of KM Context on Organizational Outcomes

Overall Model	R-Square	F Value	p-value	Results
	0.3272	5.43	0.0001	
Partial Effects of KM Context and Perspectives	Technical Resources	5.01	0.0285	H1a Supported
	Social Resources	16.97	0.0001	
	Technical Resources*KM Perspectives	4.39	0.0162	H1b Supported
	Social Resources*KM Perspectives	4.45	0.0154	

<Table 7> Analysis of Covariance of KM Perspectives on KM Context and Multiple Comparison Analysis Using Tukey's Test

Overall Model	R-Square	F Value	p-value	Results
	Technical: 0.003	0.11	0.8956	Not significant
	Social: 0.1522	6.37	0.0028	Significant
Comparisons (Social Resources)	Information and technology-based perspectives			Not significant
	Information and culture-based perspectives			Significant
	Technology and culture-based perspectives			Significant

<Table 8> Regression Analysis of KM Effects on Organizational Performance

Overall Model	R-Square	Test Statistics	p-value	Results
	0.6474	F = 68.85	0.0001	
Partial Effects of KM Effects	Process Outcomes	T = 7.10	0.0001	H2 Supported
	Organizational Outcomes	T = 2.91	0.0048	

A multiple regression analysis is used to examine the relationship between KM effects and organizational performance through linking KM to competitive advantage. The results shown in <Table 8> indicate that KM effects are significantly related with organizational performance resulting from linking KM to competitive advantage.

The results of the test for hypotheses relating to technical and social resources of KM context empirically confirmed earlier descriptive and empirical arguments that technical and social resources [Chung, 2004; Davenport et al., 1998; Eppler and Sukowski, 2000; Gold et al., 2001; Gupta and Govindarajan, 2000; Lee and Choi, 2003; Liebowitz, 1999] are important facilitators of an organization's degree of process and organizational outcomes of KM effects. For example, the technical resources used for knowledge creation (i.e., Dataminig, Intelligent Agents), knowledge organization (i.e., Knowledge map, GrapeVine), knowledge formalization (i.e., Data Warehousing, EDMS), knowledge dis-

tribution (i.e., Groupware, Intranet), and knowledge application (Data Visualization, GDSS) may play important roles to achieve process (i.e., enhanced communication) and organizational (i.e., efficiency gains) outcomes of KM effects. Likewise, 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 achieve process as well as organizational outcomes of KM effects.

Furthermore, the organization's degree of process and organizational outcomes of KM effects is controlled by its perspectives on KM. Among three types of KM perspectives, a culture-based perspective has an effect on the social resources of KM context. Thus, an organization's culture may play an important role in successful KM. De Long and Fahey [2000] identify four ways in which culture influence 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 create 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.

Study results also show positive and highly significant associations between process and organizational outcomes of KM effects and organizational performance (i.e., enhanced in competitiveness, enhanced productivity) enhanced by linking KM to competitive advantage. By establishing the link between KM effects and organizational performance, the study serves to inform knowledge managers that organizations need to be effectively managed for overall KM resources and its capabilities. Tougher competition and profit pressures will force more knowledge managers to take a hard look at KM resources and its capabilities that traditionally have been done in the past.

Ⅶ. 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 the foundation for future discussion and research. Additional useful lessons will be learned by replication of the study in organizations in other parts of the world and comparison with the Korean data.

Ⅷ. Conclusions

The research has examined not only the degree of KM effects by organizations and factors influencing the degree of KM effects, but also a relationship between the degree of KM effects and organizational performance enhanced by linking KM to competitive advantage. Significant findings in this research are summarized as follows: (1) This study found support for research model in <Figure 1>. (2) The organization's degree of process and organizational outcomes of KM effects is determined by technical and social resources and its capabilities. Furthermore, the influence of technical and social resources of KM context on

process and organizational outcomes of KM effects is controlled by different types - information-based, technology-based, and culture - based - of organizational perspectives on KM. (3) There is a relationship between process and organizational outcomes of KM effects and organizational performance enhanced by linking KM to competitive advantage. These findings reflect current developments in the real world where organizations are beginning to pay close attention to how their KM resources and capabilities are efficiently and effectively managed.

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◆ 저자소개 ◆

천면중 (Cheon, Myun-Joong)
계명대학교 경영학과를 졸업하고 Indiana State University에서 경영학석사, University of South Carolina에서 MIS 전공으로 경영학박사를 취득하고, 현재 울산대학교 경영학부(경영정보) 교수로 재직하고 있다. *Journal of Management Information Systems, Information and Management, Decision Sciences, Journal of Information Technology, European Journal of Information Systems, Data Base, Journal of Database Administration, Journal of Global Information Technology Management, Behaviour & Information Technology, International Journal of Information Technology and Management,* 경영정보학연구, 정보시스템연구, 대한경영학회지, 경영연구 등 국내외 학술지 및 학회에 논문을 발표하였다. 주요 연구 관심분야는 지식경영, 업무프로세스리엔지니어링, IT/IS 아웃소싱 등이다. 주요 저서로는 '경영정보시스템', '지식경영시스템'이 있다.

허명숙 (Heo, Myung-Sook)
울산대학교 경영학과를 졸업하고 동대학원에서 경영학석사를 취득하고, 현재 MIS 전공으로 경영학 박사과정에 재학하고 있다. 정보시스템연구 등 국내 학술지 및 학회에 논문을 발표하였다. 주요 연구 관심분야는 지식경영, E-Business, 업무프로세스리엔지니어링, 기술수용이론 등이다. 주요 저서로는 '지식경영시스템'이 있다.