The Impacts of Institutional Environment, Social Capital and Strategic Importance on Knowledge Sharing and Performance

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Abstract

Employing a sample of 126 suppliers in Korean electronic industry, this research examined the effects of institutional environment, social capital and strategic importance in manufacturer-supplier relationships on knowledge sharing. Building on the relational view and knowledge-based theories, this study proposed that these factors facilitate knowledge sharing in manufacturer-supplier relationships and that knowledge mediates satisfaction between manufacturer-supplier relationships for competitive advantage. Results indicate that institutional environment, social capital and strategic importance in manufacturer-supplier relationships are indeed associated with greater knowledge sharing. Inter-firm satisfaction is, in turn, positively associated with knowledge sharing for competitive advantage through technical support, financial support, competence increasing. Further, results provide evidence that knowledge sharing plays a mediating role between institutional environment, social capital, strategic importance and inter-firm satisfaction.

Keywords: Knowledge Sharing, Institutional Environment, Social Capital, Strategic Importance

Received: 2008. 09. 10. Revision: 2008. 09. 16. Final Acceptance: 2008. 09. 20.

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1. Introduction

Knowledge sharing has been increasingly recognized as a key managerial function necessary for achieving competitive advantage (Argote and Ingram, 2000; Tsang, 2002). Especially, more recent studies confirm that the competitive nature of knowledge sharing and performance between partners pose fundamental challenges for both academics and practitioners (Simonin, 1999).

Following North (1981, 1990), one can argue that the institutional structure of society can enhancing or reducing the transaction costs that must be borne to achieve a given level of cooperation and specialization. In Korea, government support policy helps explain the ability of suppliers' either success or failure in a competitive industry. Herein we argue that the competitive success of suppliers can in part be attributed to government support policy that makes a channel to share knowledge with manufacturers.

In inter-partner relationship, another stream of the knowledge management concerns social capital as a source of knowledge sharing. Because the acquisition of knowledge is predominantly the social process, social capital may be critical for the long-term success of inter-firm relationship (Yli-Renko, Autio and Sapienza, 2001). Nevertheless, there has been limited empirical work on the process of knowledge sharing and little research has been conducted for the relationship of social capital and knowledge sharing.

Also, if manufacturer-supplier relationship is viewed as an important element in the supplier's strategy or is a major profit contributor, suppliers are likely to get more involved in the relationship activities and to share more knowledge in order to ensure success.

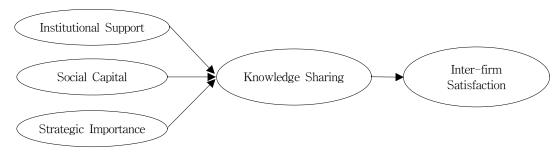
The primary objective of this research is to examine the nature of knowledge sharing between manufacturer and supplier in electronic industry. To address further understanding of knowledge sharing process in manufacturer-supplier networks, this study will introduce and empirically investigate the predictor variables: institutional environment, social capital, and strategic importance. Further, it will demonstrate the significant mediating effect of knowledge sharing on performance.

2. Theoretical Model

The proposed model of knowledge sharing in manufacturer-supplier relationship consists of five constructs. The constructs and their proposed relations are presented in <Figure 1>.

2.1 Knowledge Sharing and Performance

An important dimension in manufacturersupplier network is that knowledge sharing has the desirable side effects of proliferating innovation and knowledge in management process and performance. An important cause of inter-firm satisfaction among firms is knowledge sharing, which obliges partners to give competitive information and can play an important role in their decision making for performance. In other words, higher levels of knowledge sharing does not only reduce the cost of mon-



(Figure 1) Conceptual Model

itoring partners, but also eliminates the needs for installing control systems. Therefore, knowledge sharing fosters inter-firm satisfaction by enabling supplier to gain scarce resources and familiarity with partners. Thus, the first hypothesis is as follows:

H1: Knowledge sharing is positively related to inter-firm satisfaction.

2.2 Antecedents of Knowledge Sharing in the Process of Inter-firm Relationship

Three variables are hypothesized as important antecedents of knowledge sharing: institutional environment, social capital and strategic importance. They were selected based on the prior studies of knowledge sharing and performance.

(1) Institutional environment

Institutions regulate economic activities through formal and informal constraints and by setting the rules of the game as a basis for production, exchange, and distribution (North, 1990). Human and organizational interactions take place within the institutional framework. Accordingly, firms react differently in adapting to in-

stitutional environment. In Korean electronic industry, institutional impacts are manifested in government support policy.

Supplier association in Korea was established in 1975 to promote mutual friendship and exchange of technical information between manufacturer and its parts suppliers. Many suppliers had to compete with big firms for scarce resources and they were often left out of business opportunities due to a lack of materials and technology (Park and Luo, 2001). Given such environment, government support policy helped suppliers settle negotiation deals and developed ties between manufacturer and supplier for knowledge sharing. This leads to the second hypothesis:

H2: Government support policy is positively related to knowledge sharing.

(2) Social capital

As an important factor of the social capital, the role of trust in business has been recently drawing the increasing attention from management researchers and practitioners alike (Hosmer, 1995; Kramer and Tyler, 1996; Mayer, Davis, and Schoorman, 1995). There appears to be a

general consensus among researchers that trust is important and useful in a range of organizational activities such as team work, leadership, goal setting, performance appraisal, development of labor relations and negotiation (Maver et al., 1995; Morris and Moberg, 1994). Especially researchers noted that the role of trust in cooperative relationships is of fundamental importance. Relations based on trust reduce time spent on monitoring and bargaining over agreements (Dyer and Singh, 1998). In sum, trust between manufacturer-supplier relationship should be positively associated with knowledge sharing because it provides control, increases mutual understanding, quickens exchange processes, and encourages freedom in exchange(Yli-Renko, Autio and Sapienza, 2001). Thus, this study hypothesizes:

H3: Social Capital is positively related to knowledge sharing.

(3) Strategic importance

If manufacturer-supplier relationship is viewed as an important element in the suppliers' strategy or is a major profit contributor, suppliers are likely to get more involved in the relationship activities and to share more knowledge in order to ensure success. In particular, strategic importance of manufacturer naturally becomes a key determinant of managerial attention (Tsang, 2002). When decisions concerning knowledge sharing are made, suppliers that attract more attention are likely to obtain more knowledge. In other words, the greater the strategic importance of manufacturer, the more knowledge and attention the supplier will commit to it.

H4: Strategic importance is positively related to knowledge sharing.

3. Methods

3.1 Sample and Data

This study employed a questionnaire survey methodology and used the LISREL analysis to analyze data. The population of this study consists of firms in Korean electronic industry. The samples were compiled from *Korea Standard Industry Index and Supplier association List.* Data on the suppliers in Korean electronic industry were primarily collected through survey. This study also conducted personal interviews with the staffs in charge from the manufacturers.

Asset	L Electronics	D Electronics	S Electronics	
Below 10 bil.	41	22	17	
10~25 bil.	5	8	6	
25~40 bil.	4	1	2	
Above 40 bil.	5	2	5	
Total	55	33	30	

⟨Table 1⟩ Distribution of Samples with respect to the Asset

This Research restricted the samples to the electronic industry in order to minimize extraneous variation that might arise from the differences among many industry sectors. From 713 companies that participated in study, 126 completed, usable questionnaires were collected. The majority of the respondents were marketing department in direct contact with manufacturer. Over 60 percent of the companies included in the study had a sales volume smaller than \$100 million and an average year of the relationship as manufacturer-supplier more than 10 years.

3.2 Measures

This research measured inter-firm satisfaction with 5 items appraising the extent to which the suppliers had satisfied technological support and financial support from manufacturers. Also, this study measured knowledge sharing with two statements reflecting the production plans and technological knowledge that suppliers may share with the manufacturer.

The institutional environment construct was based on four items measuring the extent to

which government support policy help the suppliers in terms of investments in financial support, human support, technical support, and relationship support. Three items measured the degree of trust between the partners: contractual trust, competence trust, and goodwill trust.

This research operationalized the strategic importance construct with four items reflecting the degree to which the supplier had affected in equipment, technology, know-how, and human resource when the manufacturer make the strategic decision of breaking off.

4. Results

In order to test the reliability of the survey questions, the Cronbach alpha coefficient for each set of the questions were calculated, and results are presented in <Table 3>. With respect to the quality of the measurement model for the full sample, the constructs display satisfactory levels of reliability as indicated by composite reliabilities ranging from 0.76 to 0.89. <Table 4> summarizes the variables' means, standard de-

Relationship Period	L Electronics	D Electronics	S Electronics
Below 3 years	3		
3~6 years	6		
6~9 years	10	4	3
9∼12 years	8	8	2
12~15 years	10	11	13
15~18 years	7	9	5
18~21 years	5		6
Above 21 years	7	2	2
Total	56	34	31

(Table 2) Distribution of Samples with respect to the Relationship Period with the Supplier

viations and correlations

Turning to the structural model itself, <Table 5> reports the parameter estimates and goodness-of-fit indicators of the structural equation system. An iterative process was used to specify the measurement model on the basis of content and statistical considerations. Maximum

likelihood parameter estimation was used and a satisfactory fit was achieved($\chi 2 = 110.59$, d.f. = 6, p < 0.00, RMR = 0.070, CFI = 0.89). Therefore, the measurement model was considered acceptable, given the other supportive index.

Looking at the parameter estimates, a first, notable result consists of the significant positive

⟨Table 3⟩ Variable Measurement

Variables	Measures	Cronbach's Alpha
Institutional Support	A 4-item measure representing the fair trading policy for developing fair competitive environment with large enterprises: • Financial Support Policy • Human Resource Support Policy • R&D Support Policy • Fair Trading Establishing Policy	0.86
Social Capital	2-item measures for 3 sub-variables below: • Contractual Trust • Competence Trust • Goodwill Trust	0.85
Strategic Importance	A 4-item measure which representing the influence of the rejecting the relationship: • Equipment • Technology • Knowhow • Human Resource	0.89
Knowledge Sharing	 A 2-item measure for Supplier Side: Degrees of knowledge sharing with the manufacturer about the cost of the parts(products) Degrees of knowledge sharing about the long-term production plan, capital investment, and the rate of operation A 2-item measure for Manufacturer Side: Degrees of knowledge sharing about the long-term production plan of finished product, capital investment, and the rate of operation Technical support or production equipment support for reducing the cost and enhancing the suppliers' quality and credibility of the parts 	0.76
Inter-firm Satisfaction	A 5-item measure: • Degrees of financial enhancement • Technical support from the manufacturer • Degrees of technical and managerial enhancement • Financial support • Inter-firm satisfaction	0.79

Variables	Means	S.D.	1	2	3	4	5
Knowledge sharing	3.98	1.12	1.0				
Inter-firm satisfaction	4.01	0.98	0.52	1.0			
Institutional support	4.32	1.79	0.37	0.31	1.0		
Social capital	4.45	0.99	0.42	0.45	0.30	1.0	
Strategic importance	4.74	1.25	051	0.40	0.24	0.41	1.0

⟨Table 4⟩ Means, standard deviations, and cross-correlations

⟨Table 5⟩ Structural parameter estimates and goodness-of-fit indices

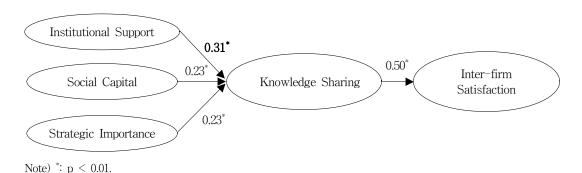
Hypotheses	Paths	Estimates	t-Value
H1 H2 H3 H4	Knowledge sharing → Satisfaction Institutional support → Knowledge sharing Social capital → Knowledge sharing Strategic importance → Knowledge sharing	0.50 0.31 0.23 0.23	6.52* 3.98* 3.06* 2.90*
	NFI = 0.88 Standardized RMR = NNFI = 0.64 x = 110.59 CFI = 0.89 p-value < 0.00	0.070	

effect of trust on knowledge acquisition in support of Hypotheses 1 (β_{21} = 0.50, t = 6.52). That is, fundamentally, greater levels of knowledge sharing associated with a inter-partner relationship lead to greater inter-firm satisfaction for performance.

Among the three variables that were hypothesized to be related to knowledge sharing, all of them were found to have significant relations with knowledge sharing; institutional sup-

port (r_{11} = 0.31, t = 3.98), social capital((r_{12} = 0.23, t = 3.06), strategic importance((r_{13} = 0.23, t = 2.90) in support of Hypotheses 2, 3, 4 respectively.

For further understanding of the role of knowledge sharing in the process of knowledge acquisition and examining the appropriateness of the hypothesized model, an important competing theoretical model must be tested, which allows all antecedents of knowledge sharing related with not only knowledge sharing, but also



(Figure 2) General LISREL Model(Structural Model)

inter-firm satisfaction directly. When comparing this unconstrained model with the hypothesized theoretical model, the difference in chisquare is non-significant. Importantly, this result supports a model with no direct relationship between the antecedents of knowledge sharing and inter-firm satisfaction. Altogether, these results underline the role and pertinence of knowledge sharing as a mediating variable between institutional support, social capital, strategic importance and inter-firm satisfaction.

5. Discussion and Future Research

The purpose of this article is to test empirically the impacts of institutional environment, social capital and strategic importance on knowledge sharing network. By use of the questionnaire obtained from 126 suppliers in Korean electronic industries, empirical analyses were conducted and four hypotheses were tested.

Through a structural equation modeling approach, this study has focused on the process of knowledge sharing between purchase-supply partners by proposing and testing a comprehensive model that explicitly articulates the role

of three variables that in past research received attention only partially and independently one another.

The overall results pointed out the critical role played by knowledge sharing as a full mediator of institutional support, social capital, and strategic importance and inter-firm satisfaction. In particular, the significant effect of knowledge sharing on inter-firm satisfaction is found across the main analysis. These findings coincide with past research that knowledge sharing acts as a powerful process on inter-firm relationship and performance. They also provide some new light on the multidimensional process of knowledge sharing across inter-firm networks.

Also, results shows that the institutional environment, social capital and strategic importance have a significant impact on inter-firm knowledge sharing, and a higher level of knowledge sharing positively influences inter-firm satisfaction.

The findings contribute to knowledge sharing and inter-firm network research in several ways. First, this study reconfirms the validity of emerging theories of knowledge sharing. Second, this study provides evidence of the val-

Variables		Source of Inter-firm Satisfaction			
		Institutional Support(ξ1)	Social Capital(§2)	Strategic Importance(ξ3)	
Knowledge Sharing(η1)	Direct Effect	0.23	0.31	0.23	
	Indirect Effect				
	Total Effect	0.23	0.31	0.23	
Inter-firm Satisfaction(η2)	Direct Effect	0.08	0.13	0.10	
	Indirect Effect	0.12	0.16	0.12	
	Total Effect	0.20	0.29	0.22	

⟨Table 6⟩ Direct Effect Analysis of Inter-firm Satisfaction

ue of integrating concepts from strategic management and inter-firm relationship.

From a practical point of view, this study indicates that manufacturer-supplier relationships offer significant knowledge sharing opportunities for small supplier firms. They may be able to actively manage their social capital and strategic importance to stimulate knowledge sharing and build competitive advantage. Furthermore, government support policy can form the basis for manufacturer-supplier networks that may lead to greater value-creation opportuniti.

There are several limitations of this study. First, the sample was particularly the Korean electronic industry; it is unclear how well these results would be generalized to a broader sample. At the same time, this research has focused on a single dimension of institutional support and social capital and measured it directly. To clarify these problems and broaden this study, much in-depth empirical work remains to be conducted before a general theory can emerge.

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