

The Impact Analysis of SCM Adoption in Corporate on Trust, Competence and Performance

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Abstract: Background/Objectives: The purpose of this study is to analyze the effects of SCM on trust, competence and performance of corporate. The impact of SCM adoption on corporate trust and competence, and the impact of trust and competence, are analyzed. **Methods/Statistical Analysis:** For this purpose, we conducted surveys of SCM-inspired corporate staff for about 2 weeks from October 30, 2017 to November 10, 2017. In this study, we surveyed the employees who applied SCM. In the questionnaire, the research hypotheses were divided into five categories: "First Strategic SCM, Second Operational SCM, Third Trust, Fourth Competency and Fifth Company Performance". **Findings:** The questionnaire survey was conducted on a 5-point Likert scale for each item, and we looked at the importance, reliability, validity and relevance analysis. As a result of the study, Strategic SCM and Operational SCM were adopted to influence the Trust in independent variables. In the parameters, Trust was investigated to affect Corporate Performance. However, Operational SCM did not affect Competency and Corporate Performance. To improve Corporate Performance, you need to consider the following. First, trading companies are improving profitability. Second, sales are increasing due to trading companies. Third, customer complaints are decreasing due to trading companies. **Improvements/Applications:** In conclusion, if companies that have introduced SCM are interested in and improve Strategic SCM and Operational SCM, Trust will be higher and positively affect Corporate performance.

Keywords: Strategic SCM, Operational SCM, Trust, Competency, Corporate Performance

I. INTRODUCTION

As domestic and international competition has increased recently, companies are increasingly interested in reducing production costs and logistics costs. In the process from product planning and production to the final consumer, companies are trying to reduce costs by operating efficiently. Each company adopts SCM to increase competitiveness by raising the trust and competence and improve the company performance. In order to improve corporate performance through the introduction of SCM, it is necessary to maintain win-win relationships based on cooperation and trust with trading companies. In order to enhance efficiency and competitiveness, it is necessary to construct a low-cost, high-efficiency production structure and construct an efficient SCM. There is a need to study the effects of SCM operation, competence, and trust of trading companies on corporate performance. The purpose of this study is to analyze the

impact of the introduction of SCM on trust, competence, and firm performance. SCM is divided into strategic SCM and operational SCM, and this study examines the effect of SCM on trust, competence and firm performance. For this study, a research model and a research hypothesis were set up, and a questionnaire survey was conducted for the employees of the companies who introduced SCM.

II. PRECEDENT RESEARCH

We have searched for a precedent study about strategic SCM, operational SCM, trust, competence and corporate performance.

2.1. Strategic SCM

Cho & Ryoo (2016) analyzed that corporate performance is influenced by logistics delivery for strategic SCM participating firms. In order to improve the performance of SCM participating companies, logistics and inventory management are required based on the reliability of trading companies[1]. Joo & An (2012) analyzed that strategic SCM, competency and corporate performance are important in order, but SCM indirectly influences firm performance[2]. Song & Song (2016) suggested that Introduction of fairness indicators and balance and planning effects should be achieved, to keep Strategic SCM including sales, manufacturing and transportation operating in the enterprise[3]. Cho (2015) analyzed that SCO (Supply Chain Orientation) positively influenced the relational capital of SCM and partner collaboration in the impact of strategic SCM among logistics companies, As globalization has made SCM operations more dangerous[4]. Yoon (2017) argued that it is important for SCM managers to manage operating risks effectively in advance[5].

2.2. Operational SCM

Chun & Won (2007) studied the impact of SCM success factors on SCM performance. Research results first, SCM success factors have a positive (+) effect on SCM performance. Second, SCM performance has a positive (+) effect on export performance. SCM factors that have a positive (+) impact on export performance include increased customer satisfaction, cost savings and sales efficiency. As a conclusion, exporters should strive to cooperate with suppliers and customers in order to improve export performance and

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SCM performance as SCM success factors[6]. In order to share the successful case of Samsung Electronics SCM operation, Kim (2013) presented six success factors as vision, strategy, execution, leadership, organizational structure, human resource development[7]. Choi et al. (2012) analyzed the effect of information technology utilization level of exporting companies on SCM collaboration and performance. First, the level of IT utilization is important when considering operational collaboration and strategic collaboration. Second, operational collaboration and strategic collaboration are important when considering SCM performance[8]. Cho (2012) analyzed the effects of communication and trust with trading companies on firm performance. First, communication did not have a significant effect on firm performance. Second, trust has a positive effect on corporate performance[9]. Hong (2012) argued that ERP is necessary for the successful operation of SCM in studying the impact of enterprise resource planning (ERP) maturity on SCM operations[10]. Ban and Kim (2011) analyzed that the SCM strategy that pursues efficiency, agility and alignment has a positive (+) effect on firm performance[11].

2.3. Trust

Jung and Park (2016) studied how to improve SCM by linking power type and partnership. First, constraint power (behavioral constraint, constraint reward, relationship legitimacy) did not have a significant effect on trust. Second, unconstrained power (task expertise, information superiority, and value - based) has a significant effect on trust. Third, trust was found to have a significant effect on collaboration. In a study on the effect of corporate SCM integration and trust on firm performance[12], Kim and Lee (2016) analyzed that supplier management has a positive effect on trust and trust has a positive effect on supplier sustainability[13]. Park and Park (2012) studied the relationship management efficiency between the purchaser and the supplier. As a result, the relationship between dependency and trust, trust and performance were found to be high for buyers and suppliers. The relationship between conflict and trust is high for buyers[14]. Lee et al. (2011) analyzed the interrelationship between corporate win-win cooperation, cooperation drivers, and business performance. As a analysis result, trust and win-win infrastructures, which are the leading variables of cooperation, had a positive (+) effect. Cooperation has positive (+) effects on business performance[15]. Kim et al. (2004) analyzed that operational information sharing had a significant effect on trust, dependency, cultural similarity, goal sharing and technology change rate. Strategic information sharing has a significant effect on trust, commitment, dependence, top management support, goal sharing, quality of information and speed of technology change[16].

2.4. Competence

Nam (2015) studied the procedural fairness of SCM with respect to the relationship with respectability, competence, cooperation and achievement. Research results first, we presented a new conceptual framework for SCM fairness. Second, to improve SCM, directions for the management of hospitality and competency were suggested. Third, the effect

of SCM on logistics performance emphasized the necessity of fair trade to management and SCM representatives[17]. Cho (2015) analyzed the adjustment effect of export performance and SCM as follows. First, global orientation has a positive (+) effect on technology competence and marketing competence. Second, technical competence and marketing competence were significant for export performance. Third, the global orientation and the moderating effect of strategic SCM have a positive (+) effect on technical competence and marketing competence. In the influence of information characteristics on information competence[18]. Park (2013) analyzed the relationship between information quality and operational information sharing, strategic information sharing and information competence[19]. Oh et al. (2001) analyzed that the most effective setting of the relationship between IT capability and buyer-supplier could improve corporate performance[20]. Park (2012) analyzed the effects of SCM characteristics on agility competence as follows: First, information sharing has a significant impact on partnership quality and agility competence. Second, long-term transactions have a significant impact on partnership quality and agility competence. Third, partnership quality has a significant effect on agility competence[21]. Jung (2012) analyzed that customer competence and supplier competence affect the offline and online relationship

2.5. Corporate Performance

Kim et al. (2008) suggested that the impact of SCM integration on firm performance depends on the size of the firm. So SCM strategy should be established considering company size[23]. Lee (2006) confirmed that SCM success factors have a significant effect on supply chain characteristics and firm performance. In addition, they argue that there are differences in the types of e-business utilization depending on the characteristics of demand and supply chain[24]. Park et al. (2011) suggested that supply chain integration and supply-chain capacity play a mediating role between IT infrastructure and firm performance. Therefore, companies that promote SCM should invest enough in IT infrastructure, and argue that the level of SCM should be raised by utilizing active IT[25]. Seo et al. (2004) analyzed that the level of information quality has a significant effect on SCM and firm performance, and that collaboration has a significant effect on information quality level on SCM performance. Therefore, it has been argued that companies should improve the efficiency of information through information quality and collaboration in order to improve SCM and corporate performance[26].

III. DATA COLLECTION AND RESEARCH HYPOTHESIS

3.1. Data Collection

The purpose of this study is to analyze the effects of SCM on trust, competence and firm performance of corporate. For this purpose, we conducted surveys of SCM-inspired corporate staff for about 2



weeks from October 30, 2017 to November 10, 2017. In the questionnaire, the research hypotheses were divided into five categories: "First Strategic SCM, Second Operational SCM, Third Trust, Fourth Competency and Fifth Company Performance". The questionnaire survey was conducted on a 5-point Likert scale for each item, and we looked at the importance, reliability, validity and relevance analysis. SPSS WIN 18.0 was used to investigate the reliability analysis and exploratory factor using the questionnaire.

3.2. Research Model

The research model in this study is [Figure 1].

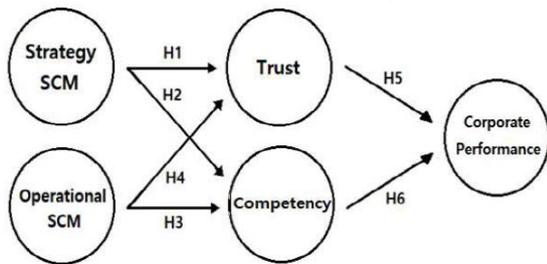


Figure 1. Research Model

3.3. Research Hypothesis

3.3.1. Strategic SCM and Trust

In a study on the effect of the introduction and trust of an exporting firm on the company performance, Kim and Lee (2016) analyzed that the introduction of SCM had a positive (+) effect on trust and trust had a positive (+) effect on the sustainability of trading companies[27]. Son (2017) analyzed the effect of the satisfaction level of SCM use on the competence and export performance of small and medium export companies. As a result of research on SCM cooperation and logistics efficiency of SMEs[28]. Ha & Lee (2016) derives the concept of SCM orientation structurally and strategically. Also the effect of SCM orientation on SCM management activities is demonstrated[29].

Hypothesis 1 : The more you adopt a strategic SCM, the better your confidence.

3.3.2. Operational SCM and Competency

Park (2016) analyzed that the introduction of SCM secured the validity and reliability of competency and performance, and had a positive (+) effect on performance. In addition, he argues that the introduction of SCM and the effect of quality are positive (+) effect on performance[30]. Kim (2017) analyzed that the improvement of SCM had a positive (+) effect on the profitability, growth and corporate value of the company. There is a significant positive (+) relationship between SCM and key financial indicators such as safety, growth, activity, profitability and enterprise value[31]. Choi et al. (2016) studied the effect of export firm's SCM on supplier network response, product innovation and market access time[32]. Ahn and Kim (2015) argued that companies adopting SCM recognize the importance of social responsibility and positive (+) influence on corporate performance[33].

Hypothesis 2 : The more you adopt a Operational SCM, the better your confidence.

3.3.3. Operational SCM and Trust

Cho and Ryoo (2016) argued that in order to improve management performance through introduction of SCM, logistics and inventory management are necessary and that win-win relationships should be established based on trust[1]. Park etc. 2 (2015) identified dependency, relationship norms, relationship commitment, trust, power and stratification effects of contracts for relationship management in SCM. In the impact of SCM component factors on performance[34], Kim and Choi (2014) analyzed that mutual correspondence among SCM members has the greatest influence on performance, efficiency and reliability have a positive(+) effect on performance, and network has positive(+) effect on performance[35]. Lee (2016) analyzed that the three basic components of SCM integration(cases, patterns, attitudes) have a direct impact on SCM trust and performance[36].

Hypothesis 3 : The more an operational SCM, the better your confidence.

3.3.4. Operational SCM and Competency

Park and Chae (2016) investigated that information sharing had a significant effect on quality and competitiveness competency, and interdependence had a significant effect on quality and competitiveness competency in a multifaceted study on SCM[37]. Choi and Shim (2015) proved statistically that the introduction of SCM had a significant impact on firm agility and visibility, and agility and visibility had a significant effect on SCM partnership and firm performance. In the impacts of small and medium-sized firms' e-trade utilization on firm performance[38], Han and Choi (2013) analyzed a positive (+) effect that the intensity of market competition on the degree of utilization, the employee IT capacity on the scope of utilization and information system infrastructure on the scope of utilization[39]. Kim and Seo (2016) analyzed that technology, organization and environment had a significant impact on performance and competency of SCM[40].

Hypothesis 4 : The more an operational SCM, the better your competency.

3.3.5. Trust and Corporate Performance

Jung (2011) analyzed that the introduction of SCM improved logistics performance, and that logistics performance improved as trust and ability to accommodate change increased[41]. Chun et al. (2011) attempted to study the effects of company internal and external trust factors on SCM performance. As a result of the study, it was analyzed that asset specificity or external factors have a significant effect on SCM sales performance. In the impact of SCM management on export performance[42]. Lee (2012) suggested that the directional differences of SCM among large and small enterprises should be narrowed in order to improve export performance through SCM. In terms of the effect of SCM fairness on logistics performance[43]. Nam and Ha (2015) analyzed that the fairness of contract execution had a positive (+) relationship with SCM and that SCM had a positive (+) effect on logistics performance[44]. Lee and Jun (2012) presented the main determinants factors and the importance of service quality,

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because employees' service has a great effect on corporate performance and customer satisfaction[45].

Hypothesis 5 : The more trust you have, the better your performance will be.

3.3.6. Competency and Corporate Performance

Kim et al. (2015) analyzed the relationship between directionality, agility and performance of SCM. The directionality of strategic SCM has a significant effect on promptness, flexibility and responsiveness, and the directionality of structural SCM has a significant positive (+) effect on promptness and responsiveness. In agility of SCM, agility and responsiveness have a significant positive (+) effect on firm performance, and flexibility has a positive (+) effect on firm performance[46]. Kwon etc. 2 (2015) analyzed the relationship between integration, competency and performance of SCM as follows : First, in structural SCM integration, internal integration has a significant effect on supplier integration and customer integration. Second, SCM integration has a positive (+) effect on purchase performance and market performance. Third, the relationship between

SCM integration and competence has a statistically significant positive effect. Fourth, the relationship between competency and performance of SCM has a statistically significant positive (+) effect[47]. Jang et al. (2015) analyzed the impact of SCM success on innovation and business performance as follows : First, there is a positive relationship between success and innovation in SCM (information management, organizational support, partnership). Second, there is a positive (+) relationship between innovation and business performance. Third, there is a positive (+) relationship between SCM success and business performance. Finally, innovation has mediated between SCM success and business performance[48].

Hypothesis 6 : The better the competency, the better the performance of the company.

3.4. Operational Definition of Variables

Operational definition of variables (Independent variables) is shown in <Table 1>. Operational definitions of variables (Mediated & dependent variables) are listed in <Table 2>.

Table 1 : Operational definition of variables (Independent variables)

| Variables | Measurement Item | References |
|--------------------|--|--|
| Strategic SCM | The selection of trading companies is fair. | Cho,Y.G & Rhoo,S.R (2016) Joo,G.J & Ahn,B.G (2012) Song,J.G & Song,S.H (2016) Yoon,S.J. et al. (2017) Cho,Y.S (2015) |
| | Communication with trading companies is diversified. | |
| | It provides mutual growth opportunities with trading companies. | |
| Operational SCM | They share necessary facilities and equipment with trading companies. | Kim,J.B (2013) Choi,S.G. et al. (2012) Cho,Y.S. (2012), Hong,H.G. (2012) Ban,J.I. & Kim,S.H. (2011) |
| | It is jointly managing the trading company and the distribution network. | |
| | It can promote domestic and overseas advancement jointly with trading companies. | |
| | We are striving to maintain mutual trading with trading companies. | |

Table 2 : Operational definition of variables (Mediated & dependent variables)

| Variables | Measurement Item | References |
|------------|---|--|
| Trust | It is in compliance with the contract with the trading company. | Jung,D.H. & Park,G.O. (2016) Kim,C.B. & Lee,D.J. (2016) Park,G.W. & Park.G.T. (2012) Lee,M.S. et al. (2011) Kim,P.S. et al. (2004) |
| | We are mutually trusting cost and quality with trading companies. | |
| | We are in compliance with the delivery date with the trading company. | |
| | It reflects the needs of trading companies. | |
| Competency | There is sufficient investment in service development and education. | Nam,H.J. (2015), Cho,Y.S. (2015) Park,G.O. (2013), Jung,J.S. (2012) Dh,S.J. et al. (2013) |
| | Compared to competing companies, they have superior technology and negotiation ability. | |



| | | |
|------------------------------|--|--|
| | It has enough skilled workers compared to competitors. | Park,G.O. (2012) |
| Corporate Performance | Trading companies are improving profitability. | Kim,H.G. et al. (2008) |
| | Sales are increasing due to trading companies. | Lee,N.J. (2006) Park,B.S. et al. (2011) |
| | Customer complaints are decreasing due to trading companies. | Seo,C.S. et al. (2004) |

IV. EMPIRICAL ANALYSIS

This study examines the main hypotheses about the impact of SCM strategy and operation on trust, competence and performance. To do this, operational definitions and measurement items were derived through previous studies and the reliability and validity of the measurement items were analyzed. Reliability analysis is the process of determining how well the characteristics of the sample are being made. This is an internal consistency check process that verifies whether the respondents clearly understand the questionnaire content and responds consistently[49].

In this study, Chronbach's Alpha coefficient, which is a reliability test method used in social science research, is used as a method to confirm the internal consistency. In the preliminary study of Nunnally (1978), it is believed that a coefficient of 0.6 or more is reliable, and a reliability of 0.7 or more is assured in actual research[50]. In <Table 3>, Chronbach's Alpha coefficient is 0.7 or more, which means that the measurement items used in this study have achieved internal consistency. In order to verify the validity of the measured variables, exploratory variables analysis was performed using Varimax rotation for principal component analysis. As shown in <Table 4>, the items loadings of the study are all over 0.4, which is the standard value.

In <Table 5>, the AVE (Average Variance Extracted) and CR (Construct Reliability) of the items were more than 0.5 and 0.7 respectively, indicating that the intensified validity of the variables used in this study was largely secured. However, the AVE value was 0.429 in the SCM strategy variable, which was relatively lower than 0.5. It is a valid variable in previous studies. In this study, we decided to use it as a variable. The correlation between variables was analyzed for discriminant validity analysis. And we compared the correlation coefficient with the AVE square root of each variable. As shown in <Table 5>, the AVE square root of the variables is larger than the other correlation coefficients. Therefore, it is

Table 5 : Discriminant Validity Analysis

| Factor | AVE | CR | Strategic SCM | Operational SCM | Trust | Competency | Performance |
|------------------------|-------|------|---------------|-----------------|--------------|--------------|-------------|
| Strategic SCM | 0.429 | 0.79 | 0.654 | | | | |
| Operational SCM | 0.477 | 0.69 | 0.452 | 0.690 | | | |
| Trust | 0.538 | 0.75 | 0.640 | 0.576 | 0.733 | | |
| Competency | 0.554 | 0.71 | 0.543 | 0.383 | 0.504 | 0.744 | |

judged that the validity of discrimination between variables is secured.

Table 3 : Reliability Analysis and Exploratory Factor Analysis Result (Independent variable)

| Factor | Strategic SCM | Operational SCM | Cronbach's α |
|------------------------|---------------|-----------------|---------------------|
| Strategic SCM | .792 | -.029 | 0.732 |
| | .713 | .008 | |
| | .681 | .225 | |
| Operational SCM | .485 | .605 | 0.777 |
| | -.151 | .798 | |
| | .180 | .644 | |
| | .151 | .582 | |

Note : KMO=0.670 , Bartlett's $\chi^2=111.553$ ($p<0.001$)

Table 4 : Reliability Analysis and Exploratory Factor Analysis Result (Mediated variable)

| Factor | Trust | Competency | Cronbach's α |
|-------------------|-------|------------|---------------------|
| Trust | .809 | .184 | 0.740 |
| | .728 | .249 | |
| | .706 | -.118 | |
| | .687 | .296 | |
| Competency | -.055 | .859 | 0.714 |
| | .261 | .734 | |
| | .212 | .734 | |

Note : KMO=0.739 , Bartlett's $\chi^2=177.040$ ($p<0.001$)

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| | | | | | | | |
|--------------------|-------|------|-------|-------|------|-------|--------------|
| Performance | 0.493 | 0.69 | 0.380 | 0.572 | 0.56 | 0.435 | 0.702 |
|--------------------|-------|------|-------|-------|------|-------|--------------|

Note : Bold number of diagonal is AVE square root of variables. Any other value is a correlation coefficient between the variable

This study confirms the impact of SCM strategy and operation on trust, competence and performance through empirical analysis. In order to verify the proposed research model, this study use the structural equation model using AMOS 18.0. Prior to the hypothesis testing, the appropriateness of the research model was verified through MAXimum likelihood estimation. The results are as follows : Analysis result $\chi^2 = 132.154$ (df = 97, p = 0.01), CMIN/DF = 1.315, CFI = 0.921, TLI = 0.904, RMR = 0.048, RMSEA =

0.056 (Accept up to 0.7) and GFI = 0.891 (Acceptable level). Since this is above the recommended standard of fitness, this research model was deemed appropriate and hypothesis testing was conducted. <Table 6> shows the results of analysis of the causal relationship for the analysis of NCS education and its necessity and its performance through structural equation. The results of this hypothesis model are shown in [Figure 2].

Table 6 : Hypothesis Testing through Structural Equation

| Hypothesis | Route | Standardized Coefficients | P | Verification |
|------------|--|---------------------------|--------|--------------|
| Hypo, 1-1 | Strategic SCM \Rightarrow Trust | 0.277 | 0.014* | Selection |
| Hypo, 1-2 | Strategic SCM \Rightarrow Competency | 0.284 | 0.01** | Selection |
| Hypo, 2-1 | Operational SCM \Rightarrow Trust | 0.662 | *** | Selection |
| Hypo, 2-2 | Operational SCM \Rightarrow Competency | 0.172 | 0.164 | Dismissal |
| Hypo, 3-1 | Trust \Rightarrow Performance | 0.582 | *** | Selection |
| Hypo, 3-2 | Competency \Rightarrow Performance | 0.101 | 0.476 | Dismissal |

Note) *, **, ***: Correlation coefficient is significant at 0.1, 0.05, 0.01 level

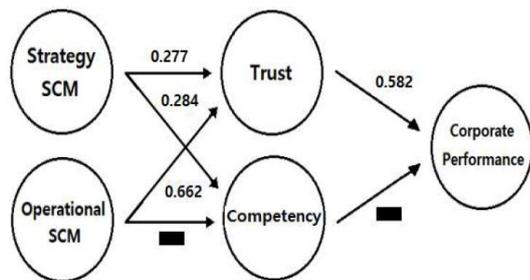


Figure 2. Research Model Analysis Result

V. CONCLUSION

Prior to this study, I reviewed Strategic SCM, Operational SCM, Trust, Competency, and Corporate Performance. As a result of the study, Strategic SCM and Operational SCM were adopted to influence the Trust in independent variables. In the parameters, Trust was investigated to affect Corporate Performance. However, Operational SCM did not affect Competency and Corporate Performance. In summary, the following items should be considered to improve Strategic SCM. First, the selection of trading companies is fair. Second, communication with trading companies is diversified. Third, it provides mutual growth opportunities with trading companies.

In order to improve the operational SCM, the following items should be considered. First, they share necessary facilities and equipment with trading companies. Second, it is jointly managing the trading company and the distribution network. Third, it can promote domestic and overseas advancement jointly with trading companies. Fourth, this study is striving to maintain mutual trading with trading companies.

To improve the Trust, the following items should be considered. First, it is in compliance with the contract with the

trading company. Second, this study is mutually trusting cost and quality with trading companies. Third, this study is in compliance with the delivery date with the trading company. Fourth, it reflects the needs of trading companies.

To improve competency, you should consider the following items. First, there is sufficient investment in service development and education. Second, compared to competing companies, this study has superior technology and negotiation ability. Third, this study has enough skilled workers compared to competitors.

To improve Corporate Performance, we need to consider the following. First, trading companies are improving profitability. Second, sales are increasing due to trading companies. Third, customer complaints are decreasing due to trading companies. In conclusion, if companies that have introduced SCM are interested in and improve Strategic SCM and Operational SCM, Trust will be higher and positively affect Corporate Performance.

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