

A Study on Factors Affecting Innovation Capability and Innovation Performance: Focused on SMEs Entering Overseas Market*

by Youngdeuk Lee **, Myungsoo Kang ***, and Byoungjai Kim ****

The purpose of this study is to investigate the factors affecting innovation capability and innovation performance of midsize company entering overseas market. More specifically, in terms of managerial, organizational, and employee - level factors, we set leadership, operating system, and taking charge at work as variables influencing innovation capability and tried to understand the effect of innovation capability on innovation performance through empirical studies. In addition, we examined the differences in the influence factors on innovation capability and the effect on innovation performance in the home country and overseas countries.

As a result of the empirical analysis, all of the influence factors had a positive effect on the innovation capability and the innovation capability had a positive effect on the innovation performance. The degree of influence was in the order of operating system, leadership and taking charge at work. In China, there is no significant difference in the order of operating system, leadership and taking charge at work. In the case of Korea, operating system and leadership have a positive effect, but the employee's taking charge at work does not affect innovation capability. The results of this study are as follows. First, it is necessary to enhance innovation capability in accordance with local characteristics. In Korea, there are additional activities to induce employee's taking charge at work is required for improved innovation capability and innovation performance.

Keywords : *Innovation, Leadership, Operating System, Taking Charge at Work, Innovation Capability, Innovation Performance, SMEs*

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** First Author, Doctoral Course, Seoul School of Integrated Sciences & Technologies
(e-mail: dukelee@newoptics.net)

*** Co Author, Professor, Hansung University Department of International Trade (e-mail: mskang@hansung.ac.kr)

**** Corresponding Author, Associate Professor, Sangmyung University Department of Global Business Administration
(e-mail: bjkim@smu.ac.kr)

I. Introduction

Unlike in the past, the more difficult task in operating a company is how to adapt to the changing environment and continue its long-term survival and growth.

Especially, the change of the business environment increases the width and depth of change day by day and the business that has grown is suddenly in a difficult position due to the sudden change of environment.

One of the most important factors of this rapid environmental change is the change in the political, social and economic environment that surrounds companies, but today's rapid changes are likely to be the result of innovations driven by competitors.

All companies are strengthening their innovation activities for survival and prosperity and the results of their innovation activities will affect the entire industry, which will further encourage the innovation activities of the other companies resulting in a rapid change in the environment.

Therefore, it is no exaggeration to say that every company's survival today depends on the result of innovation. As long as competition continues, innovation will accelerate and companies that are insensitive to innovation will face the threat of survival without knowing it.

In the past, it was understood that innovation activities are better promoted in large corporations than SMEs. This is because the resources of large corporations facilitate the promotion of innovation activities. In fact, this idea has been persuasively accepted because a significant amount of infra and resources have to be put in place to drive innovation activities in the corporations. However, the recent situation emphasizes that innovation activities can be promoted well in SMEs. In order to carry out innovation activities, it is necessary for large corporation to take a considerable communication cost due to the nature of the organization. On the other hand, SMEs can minimize communication cost due to their quick deci-

sion making and simple and integrated organization.

As a result, it is important for innovation to be pursued regardless of whether it is a large corporation or SMEs. It can be said that it is important for SMEs to push forward with the situation of SMEs.

In the manufacturing industry, not only large corporations but also SMEs, there are many cases where the production facility is transferred overseas. There is a positive and negative aspect to the overseas expansion itself, but overseas expansion is an inevitable choice for survival and sustained growth and development. There are many factors such as the realization of low cost, securing accessibility of customers, securing of raw materials or various regulations including taxation.

Innovations in overseas markets are subject to considerations other than domestic ones. Local culture and customs should be different and institutional aspects should be considered. Things that are not serious in local market are also very serious problems overseas.

Therefore, it is necessary to understand and approach these differences in the process of innovation activities. It is important to identify the factors that affect innovation in overseas market and how there is a difference between innovation capability and innovation performance.

The purpose of this study is to identify the factors affecting innovation capability and the relationship between innovation capability and innovation performance. In addition, this study would like to analyze the differences between the influential factors in the home market and overseas market.

In this way, we will provide suggestions for SMEs who are worried about creating innovation through the cultivation of innovation capability in the fierce competition and suggest ways to make the right innovation activities according to the characteristics of each country when they enter into various countries.

II. Theoretical Background

2.1 Innovation

The origin of the word innovation comes from the Latin word “Innovato,” which means that completely renewing the old customs and customary methods.

Schumpeter (1934), known as an early researcher on innovation, has comprehensively defined innovation as a creative destruction. According to him, innovation is defined as the process of procuring new raw materials, discovery of new markets, development of new products, adoption of new production methods or acceptance of new ones.

Many researchers describe innovation as an indispensable factor in the development of new products, services and processes.

Thompson (1965) argues that innovation is a process in which new products, services and new processes are first developed and implemented in an organization. Zaltman, Duncan and Holbek (1973) argues that innovation is a process in which a company develops its own knowledge and apply the know-how to the development of products or services by making it an inherent competency of the enterprise. That is, acquiring or adopting new products, services, technologies and processes at the organization level. Simmonds (1986) described innovation as a creative process that exploits new ideas about new ideas about new products and services, new uses of existing products, new markets or new marketing methods.

Scott and Bruce (1994) defined innovation as a process of acquiring new ideas and applying them to products, services and processes to make them useful.

However, many researchers have broadly defined innovation as a concept that applies not only to product or service processes, but also to the organization’s overall breakthrough improvement activities. Tidd, Bessant, and Pavitt (1997) suggested that innovation is all process that all new ideas are created, disseminated and used effectively. In recent

years, Van der Meer (2007) has defined innovation as a collection of all new activities aimed at competitive advantage.

In the early research on innovation, there were many studies focusing on CEOs. It is because the role of top management in promoting innovation activities is enormous and it is emphasized that innovation activities can not be promoted firmly without being supported by top management. The awareness and enthusiasm of top management is the driving force and the most important factor driving innovation in the organization.

However, in recent years, there have been a growing number of researchers who are interested in organizational members’ perception of innovation and innovation capabilities. If the organization is relatively small and the leadership is well communicated from top to bottom, the will and enthusiasm of the top management can spread quickly throughout the organization and its value is easy to share, but in most organizations it is not so easy. As the organization grew and the complexity of the organizational structure or the complexity of the internal and external environment, CEOs were not able to grasp or manage all of the organization. It has become important that not only top management but also the members of the organization are aware of innovation and participate in innovation.

Now it is time for the members of the organization to understand the direction and the idea of the top management and to promote innovation activities in each field. In the past, we thought that innovation could only be done in a top-down direction, but now it is possible to innovate in a bottom-up.

Innovation can be categorized into several areas. Marr (1980) categorizes innovation as subject-related innovation and process-related innovation, while subject-related innovation includes newly introduced products, processes, raw materials and systems in managing a company and process-related innovation is related to the process by which new ideas are transformed into new goods and this is brought to market. Knight (1967)

categorized innovation into four categories: product or service innovation, production process innovation, organizational structure innovation and human innovation. Draft (1978) described product innovation and process innovation as technological innovation, organizational structure innovation and human innovation as management innovation among the above four categories.

Utterback and Abertnathy (1975) distinguishes innovation as process innovation and product innovation, while refers to technology innovation as the most important innovation activity.

2.2 Innovation Capability

Metcalfe (1995) defines innovation capability as the relationship between input and output of resources for innovation. The high level of innovation capability means that the efficiency of innovation activities is high and the difference in innovation performance is determined by the difference of these ratios. Therefore, innovation capability is a key factor in determining innovation performance.

Innovation capability is the ability of companies to successfully introduce and adapt new ideas to products, services, processes and the ability of companies to explore new opportunities and create new solutions to the challenges presented (Burns and Stalker, 1961; Dess and Lumpkin, 2005; Akman and Yilmaz, 2008; Jeong, Jin, and Chung, 2015). Especially Technological Innovation Capability is assumed to be the most important element for enabling SMEs to achieve a satisfactory level of comparative advantage in the home country, as well as in the foreign country (Lim and Yoon, 2013).

Yeung, Ulrich, Nason, and Von Glinow (1999) classify innovation capability into R&D, production, marketing, organizational capability and resource allocation competencies. And they suggested learning ability as the basic competence of innovation capability. Guan and Ma (2003) defined innovation capability as a comprehensive characteristic that support and promote technological innovation strategy, and classified it into seven

categories: R&D, production, marketing, resource development, organizational, strategic capability and learning capability. Burgelman (2004) defined innovation capability as a characteristic of a series of companies that promote and support innovation activities and suggested R&D, production and learning capability.

Adler and Shenhar (1990) defined four innovation capability: first, ability to satisfy customers through the development of new products or technologies; second, ability to produce products; third, the ability to develop and apply new products or processes to meet the needs of future markets; fourth, ability to respond to unexpected changes in the business environment including competitors.

Innovation capability is defined by focusing on technological innovation, which is defined as the ability to absorb and utilize existing technologies as well as the ability to create new technologies based on them. Many researchers argue that technological innovation capability consists of product innovation capability, process innovation capability and external innovation capability (Kim, 1997; Yam, Guan, Pun, and Tang 2004). Here, product innovation is to develop new products that are differentiated from existing products through the development or introduction of new technologies, thereby opening new markets or expanding new business areas. Process innovation means the ability to produce existing products more efficiently through new production methods or processes, which can improve the quality, delivery and cost. External innovation aims to create differentiated performance through cooperation with outside organizations. One example of this is the Open Lab which has attracted many companies in recent years.

Yam et al. (2004) conducted an empirical study of 213 innovative manufacturing companies in Beijing, China for the relationship between technological innovation capability and firm performance. He conducted his research on technology innovation capability in learning, R&D, manufacturing, marketing, organizational, strategic and resource ex-

plotting capability and divided innovation performance into three categories: sales growth rate, innovation rate, product competitiveness and resource allocation function. He suggested that resource allocation function is the most correlated with innovation performance.

In the previous studies, innovation capability is a key factor in making a company differentiated from other companies in generating performance. Therefore, in order for a company to generate innovation performance, innovation capability must be secured in advance and innovation capability is a resource that enables a company to achieve superior performance over a long period of time with a competitive advantage.

This innovation capability is linked to the innovation success factors. Identifying the correlation between the innovation success factors and the innovation capacity may ultimately lead to the creation of innovation performance.

2.3 Success Factor of Innovation

Many companies are aggressively pursuing innovation activities with a lot of resources, but they are often less than satisfactory.

In the previous research on success factors of innovation activities, many studies have shown the interest and support of top management in innovation (Steward, 1994; Champy and Amoudse, 1992). Leadership of the top management can induce the will and motivation about innovation, and can solve the problem better.

But the most important challenge in driving innovation is resistance to changes in organizational members. Innovation is accompanied by change. Because change is a burden to the members, it is easy for members to develop into an attitude of rejecting innovation. Resistance within the organization is not easy to detect because it appears in a passive form rather than in an active form. In the process of promoting innovation activities, members are not willing to take the fear and discomfort of change unless

consensus on change is formed. Today's innovation activities are not driven by top management or the few, but rather are innovation activities that involve all members in the company-wide perspective. In the 2000s, the importance of all aspects of innovation, such as production, marketing, strategy, organizational culture as well as CEO leadership, was emphasized. In particular, organizational factors have been considered important.

Pierce and Delbecq (1977) argue that there are three characteristics that influence the innovation performance: organizational, environmental and personal characteristics.

The characteristics have different levels of influence depending on the three stages of proposal, acceptance and practice.

Steward (1994) presented the success factors of innovation as managerial factors such as leadership, support and vision, as well as measures of innovation performance, innovation activities related with organization and cooperative atmosphere.

There have been some attempts to find the success factors of innovation from individual characteristics. Studies explaining that personality type is related to the success factors of innovation are representative and it suggest that it is necessary to consider individual characteristics related to innovation capability (Per and John, 1966; Pierce and Delbecq, 1977).

Kanter (1988) considered success factors of innovation as top management, organizations and employees including the interests of CEOs, participation in decision-making processes of members, communication, organizational climate in which ideas can be implemented, information and idea sharing culture and appropriate compensation for performance. Prajogo and Sohal (2003) presented the leadership, organizational culture, organizational atmosphere, communication, cooperation and compensation for innovation as success factors of innovation.

Harry and Schroeder (2000) studied the success factors of innovation by focusing on innovations such as quality innovation and 6 sigma. Success factors of innovations

in performing innovation activities are leadership of CEO, training and education for employee, evaluation of financial performance and compensation for performance.

There are also comparative studies of the success factors of innovation. Park, Hwang, and Kim (1998) presented the change of CEO's will and management system as the key success factors of Korea. The key success factor of the United States is the change of autonomous corporate culture and management system. In the existing research, researchers perceive the will of CEO as a very important factor, but in the United States, the importance of autonomous culture is emphasized rather than CEO's will.

In summing up these precedent studies, we can find commonalities such as leadership of top management, education and training on innovation within the organization, fostering innovation experts, evaluation rewards for innovation, employee's interest and active participation. This can be divided into the factors of managerial dimension (leadership), organizational dimension (operating system) and dimension of employees (taking charge at work). In addition, the degree of influence of each factor may be expected to vary between countries.

Based on the previous study, the following hypotheses were set in this study.

- H1: Managerial leadership will have a positive impact on the innovation capabilities.
- H2: Organizational operating system will have a positive impact on the innovation capabilities.
- H3: Employee's taking charge at work will have a positive impact on the innovation capabilities.

2.4 Innovation Performance

In addition to financial performance, corporate performance has various effects such as strategic performance and effectiveness of organization operation.

Harrinton (1991) classified innovation performance into three categories: effective-

ness, efficiency and flexibility.

Effectiveness refers to the degree of achievement of goals in terms of process and outcome in relation to customer needs and expectations, efficiency is the degree of minimizing input resources or eliminating waste and flexibility is the degree of adaptability to customer needs or expectations.

Damanpour (1991) tried to measure innovation performance by dividing into organizational goals such as sales, market share, profitability and achievement of overall corporate strategic goals.

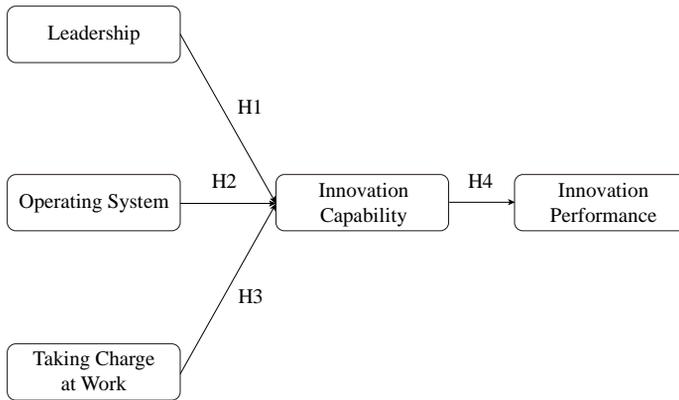
Fishammar and Horte (2005) argues that innovation performance means providing benefits to consumers outside of the enterprise by developing and launching new products and services that are differentiated in the enterprise, market or industry.

In many research, innovation performance is considered as part of management performance (Schroeder, Scudder, and Elm, 1989; Brentani, 1989). As the goal of innovation activities is to create differentiated management performance, there are many opinions that perceive the management performance of the company as innovation performance.

However, it is more reasonable to see innovation performance as an intermediary to show management performance. Even if the innovation performance is viewed as the same as the management performance, it is difficult or comprehensive to measure the innovation performance and the innovation performance itself can not be equal to the management performance.

In defining innovation performance, the rationale is connected to the question of how to define innovation or innovation capability. Broad innovation includes all areas including marketing and strategy, but innovation in consultation only means product innovation and process innovation-technological innovation. In evolutionary economics, innovation capability is limited to technological innovation. The success of a technological innovation activity is so important that it determines the success and failure of the enter-

Figure 1
Research Model



prise, and technological innovation activity is the most important driver to create a competitive advantage in the market. Since the company that is the subject of this study is a manufacturing company that manufactures products based on technology, it is appropriate to grasp the innovation performance from the viewpoint of technological innovation.

Based on the previous study, the following hypotheses were set in this study.

H4: Innovation capabilities have a positive impact on the innovation performance.

Based on the hypotheses set out above and the theoretical model of the study, the empirical model of this study is shown in Figure 1.

III. Method

3.1 Research Design and Samples

Data collection for this study was conducted through a face - to - face interview based on a structured questionnaire. A survey was conducted for Korean employees in domestic headquarters and Chinese employees working in Chinese manufacturing plants. The survey was conducted from December 15, 2016 to January 1, 2017 and a total

of 768 questionnaires were collected, and 747 items were used in the analysis, except for those whose responses were inadequate or inaccurate.

3.2 Measures

The concept of this paper consists of manager level's leadership, organization level's operation system, employee level's taking charge at work, innovation capability and innovation performance.

Leadership was defined as three items-manager's interest and support for innovative activities, initiative and responsibility-based on Powell (1995), Leem and Lim (2013).

Operating system was defined as three items-time and money support for innovation activities, support for innovation proposals, and evaluation and compensation systems to motivate innovation activities-based on Harry and Schroeder (2000), Jang, Kim, and Koo (2010) and Leem and Lim (2013).

Taking charge at work was defined as three items-effort to introduce better work practices, effort to change the way work to make work more efficient and effort to provide better ways of working to other departments or companies-based on Morrison and Phelps (1999), Bindhl and Parker (2010).

Innovation capabilities was defined as four items-effort to diversify products, the effort

to develop new markets, the conduct of market research and the ability of information utilization about competitors and other companies-based on Leem and Lim (2013), Zahra and Nielson (2002) and Chen (2009).

Innovation performance was defined as four items-process innovation performance such as reduction of production time, improvement of process capability and product innovation performance such as reduction of delivery defect, shipment quality improvement - based on Jang et al. (2010), Wilson and Collier (2000).

IV. Empirical Study

4.1 Reliability and Validity

In order to measure the constructs used in this study, several measurement items were used. In order to select and elaborate the measurement items, factor analysis was performed through principal component analysis and varimax rotation method.

The reliability of the items was evaluated by Cronbach Alpha coefficient. In addition, confirmatory factor analysis was conducted to verify convergent validity and discriminant validity (Anderson and Gerbing 1988; Fornell and Larcker 1981).

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As shown in Table 1, the reliability, discriminant validity and convergent validity were confirmed to some degree, and to verify the statistical results, confirmatory factor analysis was performed on all factors included in the empirical model. The results are shown in Table 2.

The fit of the measurement model to the whole model is shown to be satisfactory because CFI = 0.929, NNFI = 0.900 and RMSEA = 0.080. Convergent validity was confirmed because CR and AVE of almost all individual variables met the criteria of Bagozzi and Yi (1988), CR 0.6 and above and AVE 0.5 and above.

Table 3 shows the correlation coefficients among the 5 constructs. Since 1.0 is not included in the confidence interval of all Φ coefficients, discriminant validity exists between the constructs.

In addition, the AVE of Table 3 is larger than the correlation coefficient of all the constructs of Table 4. It can be said that it satisfies the discriminant validity condition proposed by Fornell and Larcker (1981).

Table 1
Results of Reliability Test and Factor Analysis

Construct	Items	factor					Cronbach Alpha	Variance Explained
		1	2	3	4	5		
innovation performance	ip1	.836	.155	.174	.096	.123	0.869	74.267%
	ip2	.818	.172	.175	.095	.169		
	ip3	.742	.150	.169	.218	.097		
	ip4	.740	.221	.192	.169	.136		
innovation capability	ic2	.155	.838	.088	.142	.194	0.831	
	ic1	.146	.823	.130	.212	.155		
	ic3	.276	.627	.324	.147	.140		
	ic4	.326	.564	.353	.145	.118		
operating system	os1	.207	.195	.808	.192	.217	0.890	
	os2	.233	.226	.796	.200	.220		
	os3	.257	.178	.789	.193	.168		
leadership	lea2	.181	.161	.192	.832	.124	0.852	
	lea3	.184	.200	.144	.821	.086		
	lea1	.120	.136	.167	.808	.147		
taking charge at work	tc2	.156	.170	.124	.108	.844	0.811	
	tc1	.157	.209	.143	.060	.828		
	tc3	.120	.090	.252	.192	.726		

Table 2
Confirmatory Factor Analysis of Overall Constructs

Construct	Items	λ loadings	CR	AVE
leadership	have a sense of responsibility for innovation	0.824	0.854	0.662
	take the initiative in innovation	0.862		
	provide interest and support for innovation	0.750		
operating system	have and evaluation and compensation system to motivate innovation activities	0.811	0.892	0.734
	support innovation proposal activities	0.895		
	support time and money for innovation activities	0.862		
taking charge at work	try to provide a better way of doing work	0.687	0.818	0.602
	try to change the way i work for efficiency	0.818		
	try to introduce better ways of doing work to my department or company	0.815		
innovation capability	strives for product diversification	0.784	0.752	0.602
	strives to pioneer new markets	0.768		
	conduct market research	0.733		
	make good use of information from competitors and other companies	0.705		
innovation performance	delivery defects is reduced	0.884	0.857	0.669
	shipment quality is improved	0.881		
	production time is shortened	0.671		
	process capability is improved	0.702		

$\chi^2 = 628.253$ (p = 0.000, df = 109)
CFI = 0.929, NNFI = 0.900, RMSEA = 0.080

Table 3
 Φ Matrix between Each Constructs

	lea	sys	tc	ic	ip
lea		0.158	0.041	0.105	0.096
sys	0.398 (0.036)		0.097	0.178	0.192
tc	0.203 (0.024)	0.312 (0.030)		0.061	0.056
ic	0.324 (0.030)	0.422 (0.035)	0.247 (0.025)		0.128
ip	0.310 (0.032)	0.438 (0.037)	0.236 (0.026)	0.358 (0.031)	

※ Belows in the diagonal line are Correlation (numbers in the parenthesis is standard errors).

※ Uppers in the diagonal line are Squared correlation.

※ lea = leadership, sys = operating system, tc = taking charge at work, ic = innovation capability, ip = innovation performance.

4.2 Hypothesis Testing

In this study, to increase the reliability of the research, the construct to be studied was measured as multiple items and the struc-

tural equation model was performed using AMOS 19.0 to verify the relationship between them.

The results of the structural equation model

are shown in Figure 2.

In this study, χ^2 , CFI, NNFI and RMSEA were used to evaluate the overall fit of the model. However χ^2 was statistically significant, it tend to be sensitive to sample size and model complexity. So CFI, NNFI and so on were used. It was considered appropriate to evaluate the model fit (Bagozzi and Yi, 1988). In the fitness index, CFI = 0.922, NNFI = 0.894 and RMSEA = 0.083 are satisfactory. Therefore, it can be concluded that the relationship model presented in the study is at a satisfactory level with the actual data obtained.

As shown in Figure 2, all four hypotheses were adopted.

The results of this study are as follows.

First, it is found that managerial leadership, organization's operating system and employees' taking charge at work have a positive effect on firm's innovation capability. And innovation capability has a positive effect on innovation performance.

As for the influence of three independent variables, it was found that the operating system had the greatest influence on the innovation capability and the leadership influenced the next and the taking charge at work had the similar effect.

One of the main objectives of this study

is to determine whether the factors influencing innovation capability and the effect of innovation capability on innovation performance differ among countries.

Therefore, hypothesis testing was conducted separately for China and Korea and the results are shown in Figure 3 and Figure 4.

The results of the survey in China are similar to overall results.

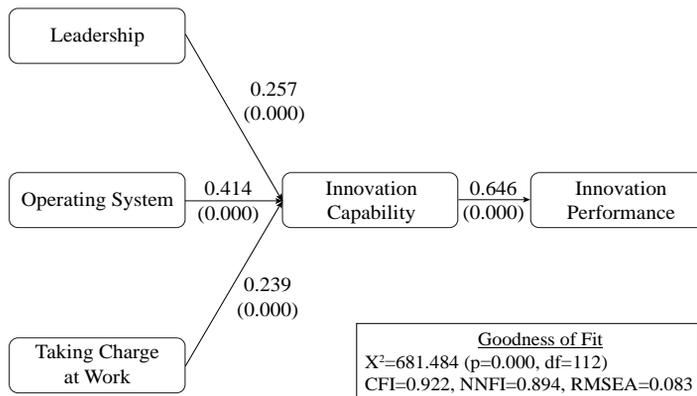
It is found that leadership, operating system and taking charge at work have a positive effect on innovation capability and innovation capability has a positive effect on innovation performance.

As for the influence of three independent variables, it was found that the operating system had the greatest influence on the innovation capability and the leadership influenced the next and the taking charge at work had the similar effect.

However, the survey results in Korea show different results compared with the overall results.

Leadership and operating systems have a positive impact on innovation capability, but employee's taking charge at work do not. In addition, innovation capability has a positive effect on innovation performance, but the degree of influence is not large.

Figure 2
Result of Analysis



※ Coefficients are standardized ones and the numbers in the parenthesis are p-value.

Figure 3
Result of Analysis-China

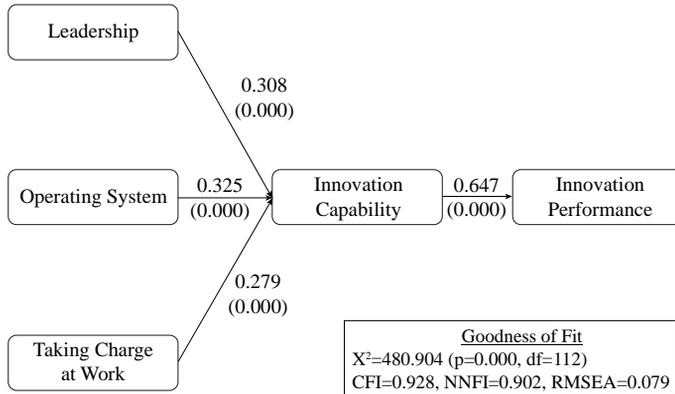
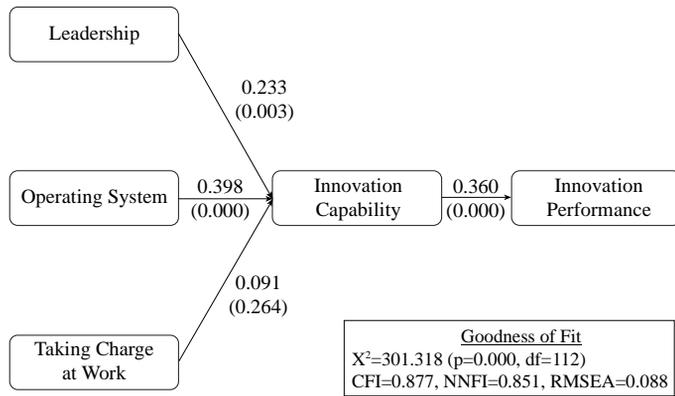


Figure 4
Result of Analysis - Korea



V. Conclusion

In a rapidly changing business environment, innovation is becoming a necessity, not an option in order for companies to grow beyond survival. In response, all companies actively carry out various execution strategies and programs for innovation activities, but the reality is that innovation performance is not as large as expected.

Innovation activities, which were considered only possible by large corporations in the past, are also being emphasized by SMEs. Rather, in the case of SMEs, a quick and simple decision-making structure and an in-

tegrated organizational structure can enable more efficient innovation activities.

In addition, all domestic corporations as well as large corporations are increasingly entering the overseas markets for a variety of reasons including low cost production structure, customer accessibility and raw material securing. In such case, it may be difficult to apply the innovation activities and innovation achievements in the home market directly to the overseas market due to the environment different from the home country.

In this study, we first try to understand

what factors influence the innovation capability as a prerequisite for innovation performance. Based on many previous studies, we hypothesized that the variables of managerial factor, organizational factor, and employee factor affect innovation capability and that innovation capability affects innovation performance. In particular, study was conducted on SMEs that are in different environments in many aspects such as organization, system, management resources and employees compared with large corporations. In addition, by examining the hypothesis of research on the home market and the overseas market, this study tried to understand the difference in the influence of innovation success factors on innovation capability and innovation performance.

For this purpose, questionnaires were constructed for Korean and Chinese employees of SMEs entered in China and conducted empirical studies.

The main results of the study are as follows.

First, we selected leadership as a managerial dimension, operating system as an organizational dimension and taking charge at work as an employee dimension.

Leadership, operating system and taking charge at work all have positive effects on innovation capability. The influence of the operating system is more significant than the emphasis on leadership in many existing innovation studies.

Second, innovation capability has a positive effect on innovation performance such as product and process innovation.

Third, as a result of examining the research model divided into China and Korea, China showed similar results. Similarly, in Korea, the operating system has the greatest influence on innovation capability and leadership influence is next. However, taking charge at work of employees did not affect innovation capability. The degree of influence of innovation capability on innovation performance was not greater than that of China.

The theoretical and practical implications of this study are as follows.

First, the factors affecting innovation capa-

bility are classified into managerial, organizational and employee dimensions. Although it is not possible to consider various sub-factors for each dimension, it would be meaningful to classify various factors mentioned in previous innovation research. We will proceed with further research to study the detailed factors of each dimension.

Second, The important finding is that it is important not only the interest and leadership of the CEO but also the system and support of the whole organization to increase the innovation capability. Also, these activities should also be linked to employees' individual innovation activities. This is what has been emphasized in previous studies and this paper confirms that this is applied to SMEs and overseas market.

Third, it is necessary to establish the innovation capability to create the innovation performance that is essential for the long term growth of the corporation.

Fourth, the necessity of efforts to cultivate innovation capability in accordance with the market environment of the company was suggested. In the case of overseas markets, the fact that systematic and transparent operating system is most effective for cultivating innovation capability is to provide the practical implications for companies that are struggling to achieve innovation performance in overseas markets.

Finally, in the case of the Korea, the implication is that the employee's taking charge at work does not positively affect innovation capability. In Korea, it is true that most innovation activities are led by CEO and that innovation activities are systematically implemented to a certain extent. These innovations have contributed to Korean companies' achievement in the global market to a certain extent. However, in order to enhance the innovation activities of Korean companies in the future, it is important to actively lead the challenges and changes of individual employees. This is even more essential when considering the convergence and complex market and competitive environment of the fourth industrial revolution era. In addition

to improving the professional competence of employees, it is necessary to encourage actively to do business in a new way and to respond creatively to market and competition. Also, efforts should be made to formulate a formal system in which these activities can be positively rewarded.

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References

- Adler, P. S. and A. Shenhar (1990). "Adapting Your Technological Base: The Organizational Challenge," *Sloan Management Review* 25, 25-37.
- Akman, G. and C. Yilmaz (2008). "Innovative Capability, Innovation Strategy and Market Orientation: An Empirical Analysis in Turkish Software Industry," *International Journal of Innovation Management* 12(1), 69-111.
- Anderson, J. C. and D. W. Gerbing (1988). "Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach," *Psychological Bulletin* 103 (3), 411-423.
- Bagozzi, R. and Y. J. Yi. (1988). "On the Evaluation of Structural Equation Models," *Journal of the Academy of Marketing Science* 16(1), 74-94.
- Bindhl, U. K. and S. K. Parkter (2010). "Proactive Work Behavior: Forward-Thinking and Change-Oriented Action in Organizations," *Institute of Work Psychology*, United Kingdom.
- Brentani, U. D. (1989). "Success and Failure in New Industrial Service," *Journal of Product Innovation Management* 6(4), 239-258.
- Burgelman, R. A., C. M. Christensen, and S. C. Wheelwright (2004). *Strategic Management of Technology and Innovation*, McGraw-Hill.
- Burns, T. E. and G. M. Stalker (1961). "The Management of Innovation," *University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship*.
- Champy, J. A. and D. Amoudse (1992). "The Leadership Challenge of Reengineering," *Insight Quarterly: The Executive Journal of Business Reengineering* 4(2), 17-25.
- Chen, C. J. (2009). "Technology Commercialization, Incubator and Venture Capital, and New Venture Performance," *Journal of Business Research* 23(1), 1-18.
- Damanpour, F. (1991). "Organizational Innovation: A Meta-Analysis of Effects of Determinants and Moderators," *Academy of Management Journal* 34, 555-590.
- Dess, G. G. and G. T. Lumpkin (2005). "The Role of Entrepreneurial Orientation in Stimulating Effective Corporate Entrepreneurship," *Academy of Management Executive* 19(1), 147-156 .
- Draft, R. L. (1978). "A Dual-Core Modes of Organizational Innovation," *Academy of Management Journal* 21, 193-200.
- Fishammar, J. and S. A. Horte (2005). "Managing External Information in Manufacturing Firms; The Impact on Innovation Performance," *Journal of Product Innovation Management* 22(3), 251-266.
- Fornell, C. and D. F. Larcker (1981). "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error," *Journal of Marketing Research*, 39-50.
- Guan, J. and N. Ma (2003). "Innovative Capability and Export Performance of Chinese Firms," *Technovation* 23, 737-747.
- Harrinton, H. J. (1991). *Business Process Improvement; The Breakthrough Strategy for Total Quality, Productivity and Competitiveness*, McGraw-Hill.
- Harry, M. J. and R. Schroeder (2000). *Six Sigma: The Breakthrough Management Strategy Revolutionizing the World's Top Corporations*, Double day, USA.
- Jang, K. S., Y. B. Kim, and I. S. Koo (2010). "A Study on the Relationship between Innovation Activity and Business Results: Focused on the Small and Medium Manu-

- facturing Enterprises," *Quality Policy* 38 (4), 512-520.
- Kanter, E. (1988). "When a Thousand Flowers Bloom: Structural, Collective, and Social Conditions for Innovation in Organization," *Research in Organizational Behavior* 10, 169-211.
- Kim, L. S. (1997). *Imitation to Innovation: The Dynamics of Korea's Technological Learning*, Boston: Harvard Business Press.
- Knight, K. (1967). "A Descriptive Model of the Intra-Firm Innovation Process," *Journal of Business* 40, 478-496.
- Leem, H. S. and H. J. Lim (2013). "The Relationship between Innovation Success Factors, Innovation Outcomes, and Firm Performance: The Case of POSCO Affiliates," *Productivity Review* 27(4), 233-258.
- Lim, J. H. and H. D. Yoon (2013). "The Impact of Technological Innovation Capability on Korean SMEs' Internalization," *The Journal of Small Business Innovation* 16(3), 1-19.
- Metcalfe, S. (1995). "The Economic Foundations of Technology Policy: Equilibrium and Evolutionary Perspectives," in P. Stoneman (ed.), *Handbook of Economics of Innovation and Technological Change*, Blackwell Publishers.
- Marr, R. (1980). *Innovation*, Stuttgart, Handwörterbuch der Organization, 2 Auflage, 947-959.
- Morrison, E. W. and C. C. Phelps (1999). "Taking Charge at Work: Extrarole Efforts to Initiate Workplace Change," *Academy of Management Journal* 42(4), 403-419.
- Park, M. G., H. S. Hwang, and G. S. Kim (1998). "A Comparative Study on the Key Success Factors and Perceptions of Success in Korean and US Corporate Management Innovation," *Korea Association of Information Systems Academic Presentation Publication*, 131-136.
- Per, L. A. and O. P. John (1966). *Personality: Theory & Research*, John Wiley & Sons, New York.
- Pierce, J. and A. L. Delbecq (1997). "Organization Structure, Individual Attitude and Innovation," *Academy of Management Review* 2(2), 27-37.
- Powell, C. T. (1995). "Total Quality Management as Competitive Advantage: A Review and Empirical Study," *Strategic Management Journal* 16(1), 15-37.
- Prajogo, D. I. and A. S. Sohal (2003). "The Relationship between TQM practice, Quality Performance, and Innovation Performance: An Empirical Examination," *International Journal of Quality & Reliability Management* 20(8), 901-918.
- Schroeder, R. G., G. D. Scudder, and D. R. Elm (1989). "Innovation in Manufacturing," *Journal of Operation Management* 8(1), 1-15.
- Schumpeter, A. J. (1934). *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest and Business Cycle*, Cambridge, Massachusetts: Harvard University Press.
- Scott, S. G. and R. A. Bruce (1994). "Determinants of Innovative Behavior: A Path Model of Individual Innovation in The Workplace," *Academy of Management Journal* 37(3), 580-607.
- Simmonds K. (1986). "Marketing as Innovation The Eighth Paradigm," *Journal of Management Studies* 23(5), 479-500.
- Jeong, S. W. B. H. Jin, and J. E. Chung (2015). "Antecedents and Outcomes of Exploitative and Explorative Capabilities in the Innovation Process of Korean Born Globals," *The Journal of Small Business Innovation* 18(1), 61-73.
- Steward, T. A. (1994). "How to Lead a Revolution," *Fortune New York* 130(11), 48-54.
- Thompson, V. A. (1965). "Bureaucracy and Innovation," *Administrative Science Quarterly* 10, 1-20.
- Tidd, J., J. Bessant, and K. Pavitt (1997). *Managing Innovation*, 2nd, John Wiley & Sons.
- Utterback, J. M. and W. J. Abernathy (1975). "A dynamic model of product and process innovation," *Omega* 3(6), 639-656.
- Van der Meer, H. (2007). "Open Innovation-The Dutch Treat: Challenges in Thinking

- in Business Models,” *Creativity and Innovation Management* 16(2), 192-202.
- Wilson, D. D. and D. A. Collier (2000). “An empirical investigation of the Malcolm Baldrige National Quality Award casual model”, *Decision Sciences* 31(2), 361-390.
- Yam, R. C. M., J. C. Guan, K. F. Pun, and E. P. Y. Tang (2004). “An Audit of Technological Innovation Capabilities in Chinese Firms: Some Empirical Finding in Beijing, China,” *Research Policy* 33(8), 1123-1140.
- Yeung, A. K., D. O. Ulrich, S. W. Nason, and M. Von Glinow (1999). *Organizational Learning Capability*, New York, NY: Oxford University Press.
- Zahra, S. A. and A. P. Nielsen (2002). “Sources of Capabilities, Integration and Technology Commercialization,” *Strategic Management Journal* 23, 377-398.
- Zaltman, G., R. Duncan, and J. Holbek (1973). *Innovation and Organization*, New York, Wiley.

혁신역량과 혁신성가에 영향을 주는 요인에 관한 연구: 해외시장진출 중소기업을 대상으로

이영득*, 강명수**, 김병재***

본 연구에서는 해외에 진출한 중견기업을 대상으로 혁신성공요인과 혁신성가를 알아보고자 하였다. 보다 구체적으로는 경영자, 조직, 종업원 차원의 요인과 관련하여 리더십, 운영시스템, 변화주도행위를 혁신역량에의 영향 변수로 설정하였으며 혁신역량이 혁신성가에 미치는 영향을 실증 연구를 통해 파악해 보고자 하였다. 더불어 혁신역량에의 영향요인과 혁신성가에 미치는 영향이 본국과 해외진출국가에서 어떠한 차이가 나는지를 알아보았다.

실증 분석 결과 혁신영향요인 모두 혁신역량에 긍정적 영향을 미치고 있었으며, 혁신역량은 혁신성가에 긍정적 영향을 미치고 있었다. 영향력의 정도에 있어서는 운영시스템, 리더십, 변화주도행위의 순으로 나타났다. 국가간 차이에 있어서는 중국의 경우 운영시스템, 리더십, 변화주도행위의 순이나 큰 차이는 없는 것으로 나타났다. 한국의 경우는 운영시스템과 리더십은 긍정적 영향을 미치나, 종업원의 개별적 변화주도행위는 혁신역량에 영향을 미치지 않는 것으로 나타났다. 본 연구 결과는 해외 진출 기업에게 있어서는 현지 특성에 맞는 혁신역량 강화 노력이 필요하다는 점과 한국의 경우 보다 고도화된 혁신역량 및 혁신성과의 창출을 위해서 종업원 개인의 변화주도행위를 이끌어 내도록 하는 추가적인 활동이 요구됨을 보여주고 있다.

주제어 : 혁신, 리더십, 운영시스템, 변화주도행위, 혁신역량, 혁신성가, 중소기업

* 주저자, 서울과대학종합대학원대학교 박사과정(e-mail: dukelee@newoptics.net)

** 공동저자, 한성대학교 무역학과 교수(e-mail: mskang@hansung.ac.kr)

*** 교신저자, 상명대학교 글로벌경영학과 부교수(e-mail: bjkim@smu.ac.kr)