

The Impact of Preliminary Elements for Management Innovation Adoption on the Firm's Profitability¹

Shin-Won Seo¹, Chang-Hwa Baek² and Sung-Uk Lim³

¹Researcher, Korea Institute of Science and Technology Information,
245 Daehak-no, Yuseong-gu, Daejeon, 305-806, Korea.

^{2,3} Assistant Professor, Daejin University,

^{2,3} 1007 Hoguk-ro, Pocheon-si, Gyeonggi-do, 487-711, Korea

shinwonseo@kisti.re.kr, chbaek@daejin.ac.kr

sulim@daejin.ac.kr, Corresponding Author

Abstract

Many CEOs have often introduced various types of management innovation for the firm's profitability improvement. If the firm is, however, in a situation in which the firm is not ready to adopt those management innovations, it is not possible to achieve the goal of profit enhancement. In this study, we analyze the relationship between the preliminary elements of management innovation and profitability, and want to introduce the key success factors of management innovation. After investigating preliminary elements of the management innovation adoption through existing literature review, we conducted a questionnaire survey to Korean K-company. Then, by utilizing the structural equation modeling with AMOS, we analyzed the impact of preliminary elements of the management innovation adoption on the profitability. We found out that there are main preliminary elements of the management innovation adoption directed to profitability enhancement. From this finding, it would be possible to assist promoting successful management innovation of the company. By searching and enhancing the preliminary elements of management innovation affecting the profitability, it would be possible to reduce the innovation failure in the future business.

Keywords: Management innovation, Profitability, Subject measures, Structural equation modeling

1. Introduction

Many of today's businesses face diverse challenges to make profits and to survive in changing environments. Methods for businesses to maintain their competitiveness are considered determined by their organizations' innovational capability. Many theories and scholars' arguments regarding management innovation or innovation consider all actions or organizations that aim to achieve efficient operations and outcomes as management innovation. Therefore, management innovation can be defined as organizational changes intentionally implemented to enhance organizational outcomes in response to environmental changes.

To strengthen domestic and international competitiveness, businesses have been introducing many management and production innovation techniques. Although businesses have used innumerable management innovation techniques, such as Reengineering, Blue Ocean, Six Sigma, and Lean Six Sigma, such management innovation techniques cannot continuously create substantive financial outcomes but pass like fashions. The reasons why management innovation cannot succeed include

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organization members' resistance to businesses' implementations of innovation and the fact that managers make efforts to strengthen simple capabilities that are necessary to draw short-term outcomes rather than strengthening management innovation or organizational innovation that creates long-term outcomes[17].

Abrahamson [10] stated that the reasons for introducing management innovation are to maximize profits, increase market shares, and secure competitive advantages. Many businesses of today utilize management innovation as a measure to overcome management crises. Therefore, businesses are utilizing management innovation as the last measure for survival, not only as a measure to lead change. Accordingly, many researchers have conducted studies on success factors for management innovation. However, no study has been conducted on factors that directly affect businesses' profits. The present study drew core success factors for management innovation through the contemplation of existing management innovation success factors and investigated and analyzed the effects of success factors on businesses' profits in the cases of businesses that have been implementing innovation for three years thus far to analyze empirically what efforts should be made to improve businesses' profits.

2. Background

2.1. Management Innovation

The term innovation was first used by Shumpeter in reference to changes made by new products, technologies, markets, raw materials, organizations, *etc.* Thereafter, Van de Ven [27] defined innovation as a term in reference to new ideas. Robbins[25] defined innovation as processes to select creative ideas and make useful products or services. Kim Jong-Gwan[17] stated that innovation meant systems in which new frames were constructed or systems were changed, as well as that innovation should be divided according to the forms of operation. He divided innovation into structure innovation and human resource innovation according to the forms of operation. Structure innovation means changes in structures, such as businesses' business structures, product structures, and organizational structures, and it refers to maximizing the effectiveness of organizations by reorganizing or changing existing inefficient structures. Human resource innovation means changes in thoughts and businesses' cultural innovations. Human resource innovation involves introducing new ideas and putting them into practice so that changes can be pursued regarding organization members' attitudes, values, work abilities, *etc.* and it involves human resource-oriented innovations in organizations.

2.2. Management Innovation Success Factor

As management innovation is an element that plays an important role in businesses' survival and development, many studies on management innovation have been conducted. The term innovation was first used by Shumpeter as a term that means changes made by new products, technologies, markets, raw materials, organizations, *etc.* Thereafter, Van de Ven [27] defined innovation as a term in reference to new ideas, which are approaches that newly recombined existing ideas and that are recognized as new.

Harry suggested chief executive officers' (CEOs) leadership, education, innovative organization operation systems, evaluation, and compensation as success factors for management innovation. In a study of success factors centering on domestic manufacturing businesses, Shin Dong-Seol [10] suggested management leadership, the level of innovation activity promoters, and support systems as success factors. IBM Consulting emphasized devotional leadership, outcome measurement methods, compensation systems, strategy integration, process framework, and appropriate manpower operation as success factors. Hong, SungHun[11] suggested understanding management innovation programs, CEOs' leadership, data-based management, systematic

education and training, and operation systems as success factors. In a study of success factors centering on service businesses, Lee SunHee [22] selected leadership, the utilization of management innovation methodologies (DMAIC), education, and support systems as success factors. Chang, DaeSung [7] suggested the management's ability to support, communication, and the abilities of innovation activity promoters. Kim Yeong-Dae [19] suggested leadership, compensation and certification systems, implementers' abilities and levels, education and training, and work standardization as success factors. Kim Tae-Hee and Oh Ji-Eun [23] suggested leadership by example, the inputs of the most talented persons, and support infrastructure construction as success factors. Park Ju-Seok and Kim Dong-Su[24] suggested strong leadership, implementers' levels, support systems, the selection of proper projects, steady maintenance, and the construction of dedicated organizations as success factors. Lee JiYoung [21] suggested prior preparation for introduction, top management's leadership, data-based analysis, education, and support system as success factors. Kim, Suyeon and Lee SangBok [18] suggested top management's support and participation, the abilities and level of innovation activity promoters, the selection of proper projects, the steady education of employees, the utilization of appropriate analysis tools, and customer-oriented management as success factors. To identify success factors for innovation, Kim Jong-Gwan[17] divided basic management innovation into two types: organizational structure innovation and human resource innovation.

3. Research Framework

3.1. Concept

In the present study, to verify the effects of success factors for innovation divided into structure innovation and human resource innovation separately, success factors were organized as shown in Table 1.

Table 1. Definition of Factor

Classification of innovation	Success factor	Variable	Definition
Structure innovation	Data management	S1	Efficient data management is necessary
	Customer satisfaction measurement method	S2	Effective customer satisfaction measurement methods are necessary
	Project objective selection	S3	Proper innovation projects should be selected
	Quality cost utilization	S4	Quality costs should be calculated and applied to management outcomes
	Linkage with business goals	S5	The direction of innovation should be related with the company's business goals
Human resource innovation	Understanding of innovation activities	H1	Organization members' understanding of innovation activities should be clear
	Ability of inputted human resources	H2	The ability of innovation-related inputted human resources should be excellent

	Understanding of innovation methods	H3	The understanding of innovation methodologies should be clear
	Reinforcement of innovation education	H4	Education for innovation should be reinforced
	Leaders' understanding of innovation	H5	Leaders' understanding of innovation activities should be clear

Based on the Table, a study model, as shown in Figure 1, was set up.

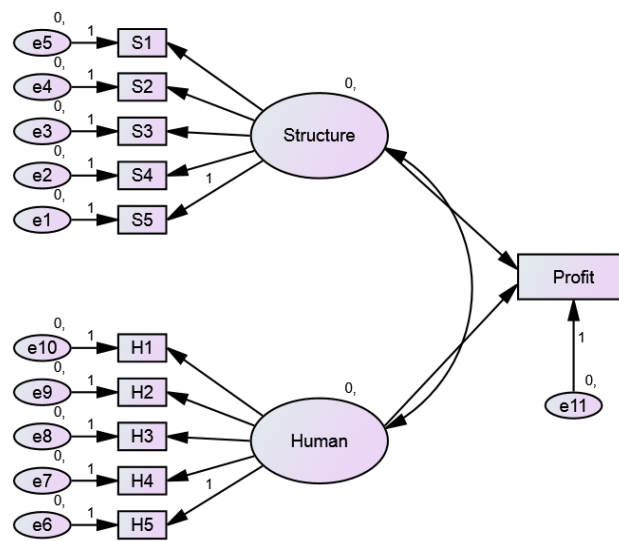


Figure 1. Model

3.2. Process

Core elements of structure innovation are data management, a customer satisfaction measurement method, the selection of innovation projects' objectives, the utilization of quality costs, and a linkage with business goals, and study hypotheses indicating that these core elements of innovation should have positive effects on businesses' profits were set up as follows.

S 1: Structure innovation should have positive (+) effects on business profits.

S 1-1: Data management should have positive (+) effects on business profits.

S 1-2: Customer satisfaction measurement methods should have positive (+) effects on business profits.

S 1-3: The selection of innovation projects' objectives should have positive (+) effects on business profits.

S 1-4: The utilization of quality costs should have positive (+) effects on business profits.

S 1-5: A linkage with business goals should have positive (+) effects on business profits.

The core elements of human resource innovation include the understanding of innovation activities, the abilities of inputted human resources, the understanding of innovation methods, the reinforcement of innovation education, and leaders'

understanding of innovation, and study hypotheses indicating that these core elements of innovation, as related to humans, should have positive effects on businesses' were set up as follows.

H 1: Human resource innovation should have positive (+) effects on business profits.

H 1-1: The understanding of innovation activities should have positive (+) effects on business profits.

H 1-2: The abilities of inputted human resources should have positive (+) effects on business profits.

H 1-3: The understanding of innovation methods should have positive (+) effects on business profits.

H 1-4: The reinforcement of innovation should have positive (+) effects on business profits.

H 1-5: Leaders' understanding of innovation should have positive (+) effects on business profits.

3.3. Sample Design

In the present study, to obtain data for analysis, offline questionnaire surveys were conducted at six business places of K Company for 10 days from October 20 to 29, 2014. Questionnaire scales were composed using five-point scales. The questionnaire surveys were conducted with 535 participants of K Company's innovation projects. Of the collected questionnaire responses, 470 responses, excluding unfaithful responses, were used in the analyses. Percentages of respondents by position are as follows: officers 4%, team leaders 10%, and team members 86%.

Reliability tests and factor analyses were conducted using SPSS 21.0 as methods of analyzing the data used in the present study. Structural equating model analyses were conducted using AMOS 21.0.

Step 1: Reliability Analysis

The reliability of individual factors was tested through Cronbach's α coefficients. In general, a factor with a Cronbach's α coefficient value no smaller than 0.6 is judged reliable and a factor with a Cronbach's α coefficient value no smaller than 0.8–0.9 is judged highly reliable [27]. The Cronbach's α coefficient values of all factors were shown to be 0.859, indicating a high reliability, and all the Cronbach's α coefficient values of individual coefficients were at least 0.8, indicating that the questionnaires were valid.

Table 2. Cronbach's Alpha Coefficient

Variable		Cronbach alpha
Data management	S1	.841
Customer satisfaction measurement method	S2	.848
Project objective selection	S3	.844
Quality cost utilization	S4	.841
Linkage with business goals	S5	.858
Understanding of innovation activities	H1	.841
Ability of inputted human resources	H2	.838
Understanding of innovation methods	H3	.833
Reinforcement of innovation education	H4	.880
Leaders' understanding of innovation	H5	.830

Step 2: Factor Analysis

To examine whether the questions included in the tests in the present study properly reflect the factor structures assumed in the theory, exploratory factor analyses were conducted using the orthogonal rotation method (Varimax rotation) and as questions with

1 or larger eigenvalues are qualified as factors, questions with 1 or larger eigenvalues were classified and analyzed.

Table 3. Output of Varimax's Rotation

Variable	Factor	
	1	2
Data management	.755	.277
Customer satisfaction measurement method	.724	.167
Project objective selection	.721	.251
Quality cost utilization	.716	.328
Linkage with business goals	.555	.100
Understanding of innovation activities	.197	.808
Ability of inputted human resources	.296	.760
Understanding of innovation methods	.454	.678
Reinforcement of innovation education	.073	.669
Leaders' understanding of innovation	.515	.655
Eigenvalue	3.039	2.852
Variance	30.386	28.516

4. Test of Study Hypotheses

To test the causal relationships between the constructs of the study model, path models were used through covariance structure analyses. To judge the goodness-of-fit of the structure models, models with a CFI, IFI, and NFI not smaller than 0.9 were judged as desirable and those with an RMSEA 0.7 or smaller were judged as fitting. In addition, models with construct reliability (CR) values of 0.7 or higher used to measure internal consistency are judged as highly reliable. According to the results of the present study, as CFI = 0.930, IFI = 0.931, NFI = 0, and RMSEA=0.090, the study model can be judged as highly reliable.

Table 4. Relation of Factors

Factor	Estimate	S.E.	C.R.	P-value	
Linkage with business goals → Project	1.000			0.000	Accept
Quality cost utilization → Project	2.207	.254	8.706	0.000	Accept
Project objective selection → Project	1.826	.215	8.485	0.000	Accept
Customer satisfaction measurement method → Project	1.690	.208	8.113	0.000	Accept
Data management → Project	2.171	.248	8.746	0.000	Accept
Leaders' understanding of innovation → Human	1.000			0.000	Accept
Reinforcement of innovation education → Human	.929	.091	10.184	0.000	Accept
Understanding of innovation activities → Human	.876	.046	18.875	0.000	Accept
Ability of inputted human resources → Human	.853	.047	18.289	0.000	Accept
Understanding of innovation methods → Human	.800	.048	16.631	0.000	Accept
Profit ← Project	.046	.250	.183	0.855	Reject
Profit ← Human	.793	.093	8.522	0.000	Accept

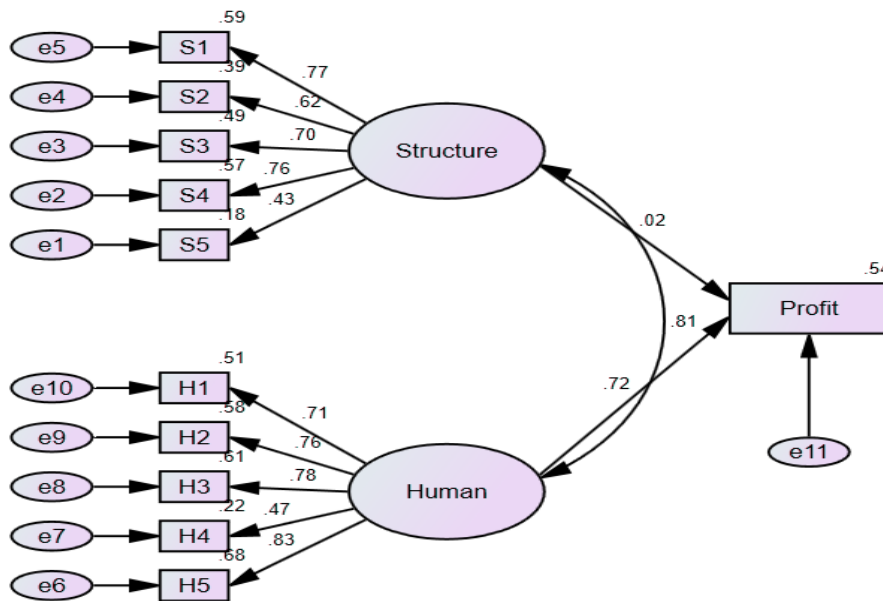


Figure 2. Relation of Factors

To review the results of the analyses in the present study, the hypothesis that core factors of structure innovation should have positive (+) effects on businesses profits was dismissed and the hypothesis that human resource innovation should have positive (+) effects on businesses' profits was adopted. The results indicated that although the introduction of proper methodologies was thought to be an important factor for achieving innovation in the introduction of generally known innovation, the respondents were thinking that unless human resources were substantially changed, businesses' profits would not change.

5. Conclusion

Although the necessity and importance of management innovation are recognized, empirical studies of the success factors for management innovation have been mainly those conducted through large business cases and basic research into several small- and medium-sized businesses; no study has analyzed the thoughts of the personnel of businesses in which innovation was in progress. In addition, analyses of success factors for management innovation mainly emphasized leadership, education, innovation activity promoters, process framework, and appropriate human resource operation. In the present study, 10 factors were selected from among factors that were frequently mentioned out of the aforementioned factors and factors that were considered the most important in the field. The selected factors were data management, customer satisfaction measurement methods, the selection of project objectives, the utilization of quality costs, a linkage with business goals, the understanding of innovation activities, the abilities of inputted human resources, the understanding of innovation methods, and the reinforcement of innovation education. Factor analyses were conducted with the 10 factors, and based on the results, the factors were divided into structure innovation factors and human resource innovation factors. The relationships between the two types of innovation factors and profits were structure analyzed, and according to the results, the structure innovation factor had weak effects, while human resource innovation factors had strong effects. Rather than the importance of innovation methodologies, this implies that personnel's consider that innovation affects businesses' profits in the field, thereby suggesting that how

organization members' mental attitudes should be changed must be considered more importantly before implementing innovation rather than deliberating on what management innovation methodologies should be introduced. However, the present study has the following limitations. First, rather than using quantitative indices of actual profits, the present study used qualitative questionnaires to analyze whether innovation affects profits. Therefore, later, quantitative indices and management innovation should be introduced for analysis. Second, the present study conducted surveys with the personnel of one business. Therefore, surveys should be conducted using diverse businesses that are implementing management innovation.

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Authors



Shinwon Seo, she is currently working as a Researcher in Technology intelligence Division at Korea Institute of Science and Technology Information, Seoul, Korea. She received the B.S. degree from Hanbat National University and an M.S degree in Industrial Engineering from Sungkyunkwan University, Korea. Her current research is concentrated on Bigdata, Policy Research, Quality management and R&D management



Changhwa Baek, he is an Assistant Professor of Industrial & Management Engineering at Daejin University, Pocheon, Korea. He received the B.S. from Hansung University and an M.S. in Industrial Engineering from Korea University. He worked for Pantech, Seoul, Korea (2001-2015) and Hyundai Electronics Inc. Seoul, Koea (2000-2001). His research interests are in Quality management, R&D management and Product planning.



Sunguk Lim, he is an Associate Professor of Industrial & Management Engineering at Daejin University, Pocheon, Korea. He received the B.S. from Hansung University and an M.S. and Ph.D. in Industrial Engineering from Sungkyunkwan University. He has published numerous books and academic articles. He is also working as Editor in several academic journals in Korea. His research interests are in quality management and quality measurement index.

