

A Study on the Effect of ERP Introduction Strategy and IT Consulting Service Quality on the Introduction Performance

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Abstract: In the case of SMEs who intend to introduce ERP system at a stage when the experience of introducing and utilizing information systems is not mature it is a reality to take a considerable risk of human and material risks. To minimize these risks and maximize the likelihood of success of the introduction, it is necessary to identify the factors that must be considered. The results of this study are summarized as follows. First, the theoretical concept was established through the literature review of the existing research and the research model and hypothesis about the effect of the ERP introduction strategy and IT consulting service quality factors on the introduction performance were set up and then the empirical analysis was conducted. For the empirical analysis, the questionnaire method was used and analyzed by SPSSWIN 20.0 statistical package. How to introduce access in accordance with the enterprise situation for each company to introduce the ERP system (collectively approach, stepwise approach), the introduction type (external ERP package, developed, outer ERP system development), the order of the ERP system introduced as BPR (after BPR embodiment ERP implementation, BPR and ERP implementation and BPR implementation after ERP implementation) and the IT consulting service quality factor. The theoretical review and the previous study on the five dimensions of tangibility, reliability, responsiveness assurance, empathy. This study examines the previous studies on the system introduction strategy factors and the introduction performance and the existing research on the service quality measurement and examined the relationship between the introduction factors and the service quality. The results of this study are as follows. First, the results show that there is no significant difference in the degree of influence on the successful introduction of the ERP system according to the constituent factors of the introduction strategy. The adoption approach seems to favor the big bang approach which introduces thenecessary modules from the enterprise level or introduces the entire module at once, rather than the phased approach. Most of the companies that introduced ERP package introduced it. Most of the companies implement BPR and ERP concurrently in the order of introduction. As a result, specific introduction methods and procedures are different according to each strategy when introducing ERP system. Second, most of the tangibles, reliability, responsiveness assurance and empathy of IT consulting service quality are positively influenced by service quality in financial performance. There is little research on the effect of introduced ERP package on financial performance from a service perspective. IT consulting service quality has a significant effect on the introduction performance. Therefore, it is important to continuously improve the service quality.

Key words: ERP, IT consulting, quality of service, introduction strategy, adoption strategy, performance

INTRODUCTION

In a situation where the business environment is constantly changing and information technology is also developing differently, the growth and development of a company has a great influence on how quickly it responds to changes in internal and external environments.

Companies need to improve their competitiveness from production to sales. As the process is constantly redesigned and reengineered, the information system's share of business management is increasing day by day. Uncertainties in the corporate environment are increasing rapidly due to the global financial crisis in 2008.

In order to actively respond to these changes, it is important to improve competitiveness through information technology. Since the early 1990's, Enterprise Resource Planning (ERP) systems have become a major tool for management innovation and the introduction of this system has been rapidly increasing.

The ERP system is an integrated management system that maximizes utilization of resources by integrating into one system organizational resources such as personnel, salary, accounting, production, sales, logistics and cost which were independently operated in the enterprise.

In this study, the previous researches focused on the success factors of the ERP system construction based on

the internal factors and the external factors of the introduced companies, we analyze the ERP system quantitatively, focusing on manufacturing companies by classifying midsize and medium-sized businesses, excluding large companies and examine the influences on introduction strategy factors and performance we will examine the impact of IT consulting service quality on ERP system financial performance.

MATERIALS AND METHODS

Preliminary study on introduction strategy: Soung (2006) analyzed the degree of difference in the ERP system introduction performance according to the approach difference of ERP system introduction method of SMEs. (Self development or ERP package) and application method of ERP system construction (introduction of all aspects at the same time introduction by each research place, departmental introduction) and introduction order with BPR (introduction of ERP after BPR, simultaneous realization of BPR and ERP). The results of the analysis of the three variables and the introduction performance showed no significant difference. In conclusion, we explained that the issue of how to introduce the ERP system into the manufacturers is not important.

Hyeong (2001), ERP implementation method approach (full module implementation or module-specific implementation), implementation strategies (full simultaneous implementation or phased implementation), implementation period (BPR and ERP implementation in order relation), presented the ERP modification rate.

Preliminary research on introduction performance: There are many factors related to the financial performance of the accounting information provided by the ERP system. Cost performance, profitability and growth performance can be compared before and after introduction of ERP system introduction companies. Most ERP adopters use the return on investment, return on capital, increase in market share, increase in sales, cash flow, cost control, operating profit, contribution margin, etc. as the measure of performance measurement (Woo and Cooper, 1981; Anderson and Zeithaml, 1984; Gouindarajan and Gupta, 1985).

IT consulting service quality precedent study: In general, the best known measurement model is the SERVQUAL Model of PZB in 1988. The SERVQUAL model has been developed after extensively studying relationships with different customers from different service organizations. The SERVQUAL Model consists of five factors,

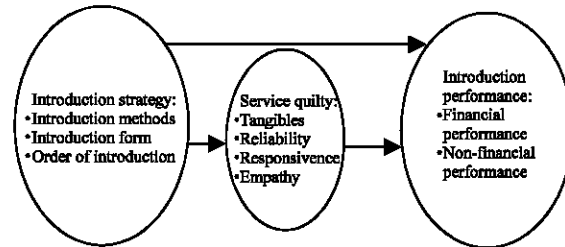


Fig. 1: Research model

tangibility, responsiveness, reliability, empathy and certainty. The process of service quality perception is determined by the difference between the perception score and expected score of the five factors (Jae-Young and Eung-bong, 2010).

From the supplier perspective, IT consulting service quality measurement model is a starting point for benchmarking and improving by comparing the service quality provided by the supplier with the service quality of the competing firm (Chae-Eun, 2005) (Fig. 1).

Research models and research methods:

- $H_{1,1}$: there will be a significant difference in the effect of adoption approach on the introduction performance of ERP system introduction
- $H_{1,2}$: there will be a significant difference in the effect of introducing ERP system introduction between introduction modes
- $H_{1,3}$: there will be a significant difference in the effect of the introduction of ERP system and the order of BPR on the ERP system introduction performance
- $H_{1,4}$: the adoption approach will have a positive impact on the quality of IT consulting services
- $H_{1,5}$: the type of introduction will positively affect the quality of IT consulting services
- $H_{1,6}$: The order of introduction of ERP system and BPR will positively affect the quality of IT consulting service
- H_2 : IT consulting service quality factors will have a positive impact on the introduction performance
- $H_{2,1}$: IT consulting service quality tangibility will have a positive effect on financial performance
- $H_{2,3}$: IT consulting service quality reliability will have a positive impact on financial performance
- $H_{2,5}$: IT consulting service quality responsiveness will have a positive impact on financial performance
- $H_{2,7}$: the quality assurance of IT consulting service will have a positive impact on financial performance
- $H_{2,9}$: the quality empathy of IT consulting service will have a positive effect on financial performance

Operational definition of research variables: In this study, we have identified the strategic factors of the introduction of ERP system for domestic companies and measured the service quality of IT consulting through previous research. The service quality factor was five dimensions of SERVQUAL as the measurement items. The effect of these ERP introduction factors and IT consulting service quality on financial performance was measured.

The variables that measure the financial performance and the nonfinancial performance are adopted as the dependent variables that constitute one variable of the introduction performance of the ERP system.

Variables on the introduction strategy: In this study, the following three items were presented and measured by the nominal scale.

After implementing BPR (Workflow Rebuilding), the introduction of ERP system is a method of building an ERP system centered on future processes that are generated after a project to efficiently rebuild work flows. BPR (Work flow rebuilding) and ERP system. In parallel with the introduction of BPR and ERP system, it is a method to reconstruct the business flow within the enterprise with the introduction of ERP system. Implementation of BPR (Work flow rebuilding) following the introduction of ERP system is a method to reconstruct research flow within the enterprise after implementing ERP system first (Mi-Yeon, 2009).

Variables related to introduction performance: ERP system performance is distinguished from financial performance and non-financial performance. There are seven items related to financial performance due to the introduction of ERP system (increase in sales, increase in net profit, decrease in logistics cost, improvement in inventory turnover rate, decrease in order processing cost) and 7 items related to non-financial performance Providing accurate and useful information, standardization of research information sharing, real-time research, automation of research, real-time research identification, communication between departments, formation of mutual cooperation basis and professional expertise (Chae-Eun, 2005; Seong, 2006).

Variables on service quality measurement factors: The SERVPERF Model which was developed by Cronin and Taylor (1992) and Kettinger and Lee (1994) in the development of IT consulting service quality measurement model showed that service quality is related to tangibles, reliability responsiveness, assurance and empath.

RESULTS AND DISCUSSION

As shown in Table 1, first among the firms adopting the ERP system among the factors of the introduction strategy (introduction approach, introduction style, introduction of ERP system and order of BPR) $H_{1,3}$ is that

Table 1: Summary between introduction strategy and introduction performance

Division	Financial performance		Non financial performance	
	Mean	SD	Mean	SD
Introduction method				
Big-bang approach	2.445	1.031	2.326	1.095
Phased approach	2.467	1.003	2.269	1.063
Roll-out	2.483	1.046	2.264	0.712
Black value				
F-values	0.017	0.075		
p-values	0.983	0.928		
Introduction form				
External ERP package	2.460	1.037	2.265	1.036
In-house development	2.556	1.003	2.135	0.944
Outsourcing ERP system development	2.413	0.989	2.451	1.115
Black value				
F-values	0.130	0.817		
p-values	0.878		0.443	
Order of introduction				
Implemented ERP system after BPR	2.484	1.008	2.243	1.050
BPR and ERP system are executed in parallel	2.450	1.036	2.323	1.061
Implementation of BPR after introduction of ERP	2.333	0.544	2.250	0.500
Black value				
F-values	0.052	0.117		
p-values	0.950	0.890		

Table 2: Summary between the introduction strategy and service quality

No.	Hypothesis content	p-values	Verification result
1-4	Introduction method->Quality of service	0.913	Rejected
1-5	Introduction form->Quality of service	0.684	Rejected
1-6	Order of ERP system introduction and BPR->Quality of service	0.368	Rejected

Table 3: Summary between service quality and introduction performance

No.	Hypothesis content	p-values	Verification result
2	Service quality->Introduction performance	0.000**	Partial adoption
2-1	Tangibility->Financial performance	Remove factor	Rejected
2-3	Reliability->Financial performance	Remove factor	Rejected
2-5	Responsiveness->Financial performance	0.05*	Adoption
2-7	Confidence->Financial performance	0.000***	Adoption
2-9	Empathy->Financial performance	0.436	Rejected

*<0.05, **<0.01, ***<0.001

there is no significant difference in how to introduce the ERP system in order to introduce the ERP system.

As shown in Table 2 the $H_{1,4}$, 1-6 was rejected because the introduction strategy (introduction approach, introduction form, introduction of ERP system and order of BPR) did not have a significant effect on IT consulting service quality.

As shown in Table 3, the responsiveness, assurance and empathy of IT consulting service quality have a positive effect on service quality->introduction performance within significance level for the introduction performance (H_2). Responsiveness, assurance ->financial performance are hypothetical influences of the positive (+) appeared to adopt, $H_{2,5}$, 2-7. Empathy->affect the financial performance of the positive (+) hypothesis was rejected $H_{2,9}$.

CONCLUSION

The ERP package SW company should strive to secure the business performance desired by the company through continuous improvement and enhancement of service quality.

IMPLICATIONS

Implications for the introduction strategy: The introduction (adoption) approach seems to favor the big bang approach which introduces the necessary modules from the enterprise level or introduces the entire module at once, rather than the phased approach.

Most of the companies that introduced ERP package introduced it. Because of the nature of the enterprise it is possible to adopt a standardized process that has already been verified and to achieve stable introduction and it is easy to maintain and improve continuously with the help of suppliers.

Most of the companies that implement BPR and ERP concurrently in the order of introduction. It seems that it seems to be best suited for the current situation to

introduce BPR in parallel with cost and time. As a result, specific introduction methods and procedures are different according to each strategy when introducing ERP system.

Implications for IT consulting service quality: As a result of the hypothesis test, reliability of the service quality component of the ERP package SW has a positive influence on the introduction performance and the tangibles and the assurance are partial adoption. This shows that the introduction performance is high when the willingness to provide the reliable service of the ERP package SW is fast and reliable. The ERP provider should be prepared to accurately communicate the information and services it provides to users. Tangibility and confirmity have been shown to influence the performance of the introduction which is influenced by physical facilities, equipments, employee attire, means of communication and confidence in employee etiquette, knowledge and confidence and ability to give faith and it was partially influenced.

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