A CASE STUDY ON THE PROCUREMENT PROCESS DEVELOPMENT IN THE PUBLIC ENTERPRISE THROUGH ERP ADOPTION

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ABSTRACT

Enterprise Resource Planning (ERP) system, which is recognized as a useful tool in the view of enterprise process integration, has pursued automated transactions, efficiency of operational decision making, productivity and development of customer service. In 2000s, it is a trend that ERP system adoptions in the public-sector organizations is gaining acceptance. The features of the recent trend in public enterprises are related that the goal of public enterprises are mainly based 'cost minimization' rather than 'profit maximization'. In this study, a public enterprise which has adopted ERP systems recently and is now in the phase of stabilization, is selected and a case study is made about the success factors in ERP system adoption process and the procurement process development in the public enterprise.

INTRODUCTION

Enterprise Resource Planning (ERP) system has been recognized as a useful tool in the view of enterprise process integration mainly in the manufacturing fields since 1990s. Based in the development of IT and business reengineering, ERP system has been spotlighted as one of the most powerful tool among methodologies which set up and actualize enterprise future vision in the aspects of establish enterprise-wide management innovation. Enterprises which introduce ERP system expect automated transactions, high efficiency in decision making and productivity, and high market performance through advanced customer services.

The objective of ERP system introduction eventually could fall into the secure and keeping the company's competitive advantage. Garcia-Sanchez and Perez-Bernal (2007) defined ERP systems as an information system that combine organizational functions and distribute shared benefits to all departments. Business risks drive from the models, artifacts, and processes that are chosen and adopted as a part of implementation and are generated from the firm's portfolio with respect to their internal consistency and their external match with business partners. Organizational risks derive from the environment – including personnel and organizational structure – in which the system is chosen and implemented (Daniel E. O'Leary, 2000).

In 1990s, ERP adoptions focused on the integration of the various inner-processes and operations systems of the enterprise. Moving into 2000's, the focus of ERP adoption expanded its range including CRM (Custom Relationship Management) and SCM (Supply Chain Management) related value chain, and pursued more advanced integration. The business fields which are introduced ERP system also widened from earlier manufacturing to service and public sectors. Due to the features connected with the transparency of company, even tax benefit was introduced to encourage the ERP adopters. But the general ERP adoption by public enterprises still limited. It resulted from that the objective of public enterprises focus to 'cost minimization' compared with the private company's 'profit maximization'.

However ERP system has many benefits, implementation of ERP is still considered wide, time consuming process with high cost. The cost of ERP system adoption is not only for IT software but consulting, education and previous system integration. Although ERP system cause largely high cost, the satisfaction of the result performance of ERP adoption relatively has not been so high. As there are many companies which adopt ERP system, ERP adoption could be no longer the sufficient conditions of gaining the company's competitive advantage because ERP systems become a one of IT solution-commodities.

The earlier research about ERP system is largely limited with finding the critical success factor and the successful implementation while ERP introduction proceed as planned. Recently, the importance of maintenance and expansion of the given ERP system stand out. Although some studied about defining business process requirements for large-scale public sector ERP implementations (George Blick *et al*), researches which are related with the public enterprise who adopted ERP system and its successful usage are still limited. In this study, a public enterprise which has adopted ERP systems recently and is now in the phase of

stabilization, is selected and a case study is made about the success factors in ERP system adoption process and the procurement process development in the public enterprise.

LITERATURE REVIEW

In public sector markets, federal, state, and local ERP systems evolved due to advancements in the commercial sector in the 1980s. Specifically, independent financial systems were augmented to include those functions required to manage the "business of government," where constituents replaced the consumer in the value chain and accounting and budgeting were required to account for tax revenue expenditures.

Bearing Point points that the success factors of ERP adoption in public sectors are categorized into nine elements, which are the senior executive's strident sponsorship before proceeding; business transformation project, not an IT project; the most talented business manager in the organization as project manager; to decide issues quickly and decisively; communication among relatives; robust infrastructure before implementing an ERP solution; not changing the ERP source code; sufficient test of the given ERP software; to plan user training and assign sufficient resources to this activity; and to set reasonable user and executive expectations (2003).

Pansoo Lee argues in the study of finding the effects of introduction characteristics of ERP system on the performance of public enterprise that consentaneity and complexity; publicity and education; easiness and comprehension are significant statistically. In general, the will of CEO is the most important factor in adopt of the ERP system or for the improvement of performance. But in public enterprise, the enough publicity and education for use of ERP system are the most important factors in adopt of the ERP system. The public enterprise has to educate system user highly and professionally for using and understanding of ERP system.

METHODOLOGY

The article is based on a single case study of ERP system implementation with the procurement process development stretching over several years. The empirical data have been collected through observation in Korea Gas Corporation (KOGAS), where the author has been as a researcher of the economics and management. The case study focuses on the procurement process development of KOGAS as a typical

public enterprise in Korea. Observation has been chosen for data collection in order to obtain access to rich and detailed process data. The previous procurement process before ERP system adoption and the advanced process were compared in the aspect of the systemic approach.

Followed by Weick and Quinn (1999), the case narrative could be divided into 4 phases, namely learning, reviewing, aligning and redirecting. Most ERP adopter has separated steps to implement ERP system in order to save time and cost. The KOGAS's case is belonged to so called "Big Bang" ERP adoption. So, it is not difficult to compare the systemic difference between the previous procurement process and the later one in the view of the involved system. But it is not easy to trace the enterprise wide change in the decision making process along the procurement process. Because the change due to the ERP system adoption in any business process and step, is likely to not be directly linked to system performance at the beginning step.

In the following, a short account of the empirical context is given, followed by the short brief of KOGAS's ERP adoption.

EMPIRICAL CONTEXT

In Korea, the public corporation is defined as an organization that is established, operated with investment, contribution or maintained by the government. The public corporation is divided into three groups, namely the public enterprise, the proxy public corporation, and other public corporations by its scale and type. The public enterprise where KOGAS falls into is divided again into two categories that are market-type and the proxy market-type by its asset level. By 2009, 8 public enterprises among 24 in Korea operate their ERP system and 5 proxy public corporations among 78.

KOGAS was incorporated by the Korean government in 1983. Since its founding, it has grown to become the world's largest LNG (liquefied natural gas) importer. As the nation's sole LNG provider, KOGAS currently operates three LNG terminals and a nationwide pipeline network spanning over 2,739km in order to ensure stable supply for the nation.

KOGAS's main business is importing LNG from around the world and supplying it to power generation plants, gas-utility companies and city gas companies throughout the country. It produces and supplies natural gas, purifies and sells gas-related by-products, builds and

operates production facilities and distribution network, and explores, imports and exports natural gas for domestic and overseas markets.

Establishment	August 1983
Number of Employees	2,828(as of Feb, 2010)
Major Business Lines	Production and Distribution of Natural Gas including Purification and Sales of By-products / Exploration and Import/Export of Natural Gas and Liquefied Natural Gas (LNG) / Construction and Operation of LNG Terminals and Natural Gas Distribution Network / Research and Technical Development (R&D) for Related Business Areas / Other Related Businesses
Sales	KRW 23,166,089,000,000 (2008)
Net Income	KRW 330,784,000,000 (2008)
Earnings Per Share (EPS)	KRW 4,556 (2008)
Major R&D Fields	Natural Gas Run Vehicle (NGV), Natural Gas Cooling/Heater system for households, Fuel Cells, NOx Reduction Technology, Cooling Energy Technology.

source: http://www.kogs.or.kr

KOGAS's ERP ADOPTION

KOGAS introduced ERP system in order to develop business process and information system up to the level of the top global energy company. The total phases are consist of six steps, whish are system analysis and design; establish; test; data transfer; 1st stabilization; and 2nd stabilization. The system analysis and design started in December 2007 and continued until March 2008. In this period, As-Is status about current 301 business processes was analyzed and To-Be design was prototyped. The establish phase ended by June 2008. From July 2008, test phase continued during two months, followed by two-month transfer phase. The ERP system began in the year of January 2009 and two-step stabilization phases were followed. In these stabilization phases, system supplementation, maintain education and account balancing support were executed.

The ERP software was chosen as SAP ERP, which is dominant in Korean ERP market. The key concepts of implementation are business process innovation, integrated information system, enterprise data standardization, knowledge management system building, IT management system establishment and total change management.

The possible risks in adopting ERR were carefully considered in four aspects, which were like below;

- Employee's negative reaction based in thoughts that an introduction of the integrated information system will lead enforcement of work condition strength and control
- Preference for the conventional way of working rather than the global standard which is advanced in general
- Temporary inefficiency between old and new operations process while the acceptance goes
- Task gap due to the participation to the ERP projects and educations

Before the introduction of ERP system, KOGAS used a couple of procurement system in order to manage the public procurement. The analysis of the existing system which related with procurement covers different systems rooted in various reasons and introduction time. The one of them is "e-bidding system", which based in web platform. The system was introduced in order to align with government's policy of public procurement computerization. It pursues the efficiency of the procurement process through reduction of lead time and transaction cost; gaining transparency through open procurement process; contribution to national e-trading vitalization; reinforcement of the enterprise competitive advantage; and e-government building.

The limitation of this e-bidding system is that it is just for the bidding process of KOGAS. The linkage of the system reaches just few systems like as a G2B site, named "Naranjangteo" that means national market palace. Other problems are lack of reporting functions, not available in e-contract which can make on-line condition with the count parties. These limitation leads the system has to need redundant process by hands that is necessary to meet the needed task. In the new ERP system, these problems are solved by business process analysis and rebuilding aligned with the world best practice.

Through the adopted ERP system, KOGAS is able to meet various procurement tasks along the multi-department in the organization and with various partners while eliminating unnecessary processes. The benefit of the ERP system is not only the enhancement in the routine process as procurement order, but the whole process of the public procurement become open to the anyone in the company and counter parties. These characteristics are more profitable to the company in the long run that is the one of the most important goals of ERP system adoption.

LIMTATIONS AND FUTHER STUDY

It is difficult that a result through one single case study about ERP system adoption in public procurement sector have objectivity and generality. Even though there is a couple of evidence of successful implementation of ERP in the public enterprise, especially in the procurement process, as like Korea Railroad (KORAIL), Korea Plant Service & Engineering (KPS) and Korea National Oil Corporation (KNOC), the development of the proper measurement or metric to measure the performance of ERP is very important. It is time for the earlier ERP adopter to revise and pursue the fine tuning of the given ERP system in order to maintain the enterprise competitive advantage. The point is that what makes a meaningful success in business is no longer ERP system itself but the combination of industrial characteristic and ability to integrated synergy through a given system.

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