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A Theoretical Study on Improvement of Public Delivery System according to IT Service Cost Estimation

Jin-kyung Kim[1], Chun-Hee Park[2], Nam-Yong Lee[3], Sangphil Kim[4] and Jong-Bae Kim[5*]

[1,3,4,5*] Soongsil University, [2] Seoul Metropolitan Office of Education
[1]Kyong@dbcs.co.kr, [2]pch@sen.go.kr, [3] nylee@ssu.ac.kr, [4]sangphilkim@ssu.ac.kr,
[5*]kjb123@ssu.ac.kr

Abstract. Forecasting ordering size and performance cost correctly in ordering of IT service project and initial stage of performance is very important factor not only to ordering body but also the company who performs the project. Middle standing IT service companies receive/perform public IT service projects, substituting large companies, after 2013 amendment of Software Industry Promotion Act. However, the business competence accumulated by middle standing IT service companies is relatively insufficient in project management ability, compared with large companies, and the style that project companies bear all risks of the project, such as Turn-key order in the market focused on large companies in the past, has great risk to ordering body, project company, and service beneficiaries in quality, costs, profit and delivery date. Currently, the market centered with middle standing IT service companies deteriorates the profitability of interested parties which makes IT service ecosystem, as an element of cost increase due to reduction of ordering size, low earnings yield, and increase of management expenses. Therefore, there's necessity that the cost calculation and order style structure for IT service, which project companies should bear all the risk of project performance, should be improved. This treatise is going to analyze IT service market ecosystem and agreement, project performance style upon current IT service project cost calculation method based on SW lifespan process and suggest improvement method.

Keywords: IT Service, Cost Pricing, Cost Estimation, Public Delivery System, SW Development Life cycle

1 Introduction

It is important for both a project initiator and a constructor to accurately estimate the scale and cost of the project at the stage of ordering and initial execution if IT service project. After Software Industry Promotion Act was revised in 2013, middle--sized IT service companies got orders of public IT service business projects partly replacing large companies. However, it is true that middle-sized companies are relatively weak-

*Jong-Bae Kim (kjb123@ssu.ac.kr) is the corresponding author of this paper.

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er accumulated business competence and management capability than large companies. In particular, Turn-key ordering method, in which a project carrier largely has to bear overall risks related to the project and thus mostly large companies would be chosen for, accompanies high risk for a project initiator (business ordered), a business constructor and beneficiaries from the project, regarding quality, cost, profit and delivery. Unfortunately, the current profitability of IT service is inflicting all the parties involved in IT service ecology because the present IT service industry, which is mainly operated by middle-sized companies, is characterized with the small scale of project order, low profitability, and rise of cost due to increasing management expense. Therefore, it seems necessary to improve the method of cost estimation and ordering of IT service business of which related risks are all imposed on project carrier at present. Based on SW life cycle process, this study is aimed to analyze IT service market and the ordinary method of contract and business performance prevailing on the current business cost estimation and propose an improved estimation method. The present study consists of 4 chapters: Introduction (I); IT service market and related studies (II); Proposal of an improved cost estimation method and project ordering system for efficient IT business performance on the basis of the implications of precedent studies; and Conclusion and suggestion

2 Related Researches

IT service cost estimations can be divided into 3 models: Top-Down, Co-efficient Model and Bottom-Up Model [2]. First, Top-Down Cost Estimation Method is a cost estimation technique that computes the overall scale of business project and man hours and distributes it by unit work on the ground of previous cases or experiences. Although it is not much accurate, but the fastest and easiest way to product cost. Analogical technique and Delphi technique are used. Second, Co-efficient Model uses reference value or equations to calculate business scale and man hours. It has relatively more accurate and faster than other methods. Co-efficient Cost Estimation includes LOC (Line of Code), Function Point, and COCOMO (Constructive Cost Model). Third, Bottom-Up Cost Estimation Model calculates project scale and man hours by calculating the individual size and man hours of each unit work and integrating them. It takes a longer time than other methods, but its level of accuracy is higher. Table 1 summarizes the accuracy, calculation period and applicable timing of the three IT service cost estimations.

3 Improvement of Ordering System Based on Cost Estimation Technique

In macro-point of view, the development of IT service system starts with establishing informatization strategy necessary in planning IT business. Mainly a large company or IT consulting firm handles this job and the output includes IT service vision, As-IS & To-Be analysis and, and system development plan. A project client prepares an ISP-

based request for proposal (RFP), announces it to invite proposals from bidders, selects IT service provider and has it develop the system. In micro perspective, the procedure of IT service development business is defined on the basis of SW development life cycle. SW development life cycle is divided into such stages as definition of user requirements, analysis and designing, system development, testing, realization and implementation and maintenance. In general ordering practice, a project order is made through ISP and a request for proposal (RFP) and an IT service provider should fulfill the entire stages of SW development life cycle. In reality, however, the risks of rework or additional works happen at the development stage due to a project client's lack in expertise, project planning based on unclear request for proposal(RFP), and insufficient analysis and designing. In this case, most of project clients do not pay for them or change the scope of a project. Therefore, IT service provider cannot help but bear the risks occurring during performing the project. In addition, although middle-sized IT service providers began to perform public informatization business projects after Software Industry Promotion Act was revised, they are relatively weaker in project performance than large companies, so they are exposed to the risk of poor project performance. Therefore, it should be considered that institutional improvement is necessary to stabilize the early market of IT service. In this respect, this study proposes a 2-stage cost estimation method that disperses such risks to a project client and an IT service provider, separately.

4 Conclusions

For systematic and efficient budget management, it is far more important than anything else to estimate IT service project cost in advance. Because accurate cost estimation is very important for an IT service provider to successfully perform public IT service project. Therefore, more detailed standards of the proposed 2-stage cost estimation method are necessary to come. Particularly, specific introduction criteria and applicable scope of IT service cost estimation method based on this 2-stage cost estimation should be also discussed. When they are ready, the proposed ordering method for cost estimation can be expected to contribute to improving mutual understanding and maximizing profit as well as yield reasonable cost estimation of IT service project that meet the purposes of the entire parties involving the project.

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