An Application Case of Process Asset Library (PAL) for Small & Medium Sized Software Companies

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Unlike large corporations, venture or small and medium enterprises (SMEs) have a lot of trouble in consistently accumulating their technology and expertise. This results in a decline in software competitiveness of venture companies or SMEs. Still, they need to improve the quality of software and that of process by investing more human resources and time, which few of them could afford. Then, is there any option available for venture companies or SMEs to enhance their software quality for themselves? In this paper, we propose a method of enabling the continuous maintenance of projects based on Software Process Certification (SP Certification) of National IT Industry Promotion Agency (NIPA), not only for improving software quality but also for building in-house process assets involving project-related experience, knowledge and documentation, which would otherwise remain challenging for venture companies or SMEs. In addition, we built some document assets using the proposed method to help companies and developers standardize business processes and documentation.

Keywords: Software Development Process, Process Asset Library, Software Document, Project Management Plan, Requirement Traceability Matrix

1. INTRODUCTION

In 2011, the software industry surpassed the hardware industry. Google took over Motorola, and Microsoft bought Nokia. In addition, the convergence of the software and other industries is sustaining the continued expansive evolution of the software industry. However, in Korea, the software business structure serves as a factor that prevents many software companies from accumulating their technology and expertise. As of 2011, there were a total of 6,785 software companies in Korea, 82.6% of which were SMEs whose aggregate sales amounted to no more than KRW 5 billion [1]. Korean venture companies or SMEs have difficulty in securing software competitiveness due to poor environment. Nevertheless, more human resources and time are required to improve the software quality and the software process quality as an increasing number of companies are seeking to improve their software processes in tandem with software quality. In other words, companies are focusing on managing their processes to improve the quality of their final outputs. The government also pays increasing attention to the quality of

software and its process developed by domestic companies. In order for companies to manage their software quality, they need to share hard-earned knowledge and experience involving how to resolve problems arising in the implementation and documentation of projects [2]. Most organizations have trouble in creating output documents and constructing frameworks because of tight development schedules [3]. Moreover, when developers are asked to prepare various documents including design documents, they slightly modify the existing design documents and submit the modified ones, which results in discrepancies between final software codes and their documentation [4]. Such discrepancies cause many difficulties in software maintenance.

This paper concerns the continuity of project maintenance and management based on Software Process Certification (SP Certification) of NIPA. There are various cases that Process Asset Library (PAL) defined by Capability Maturity Model Integration (CMMI) is constructed. Yet, in this paper, we attempted to build in-house process assets using open source and Extensible Stylesheet Language Transformations (XSLT)