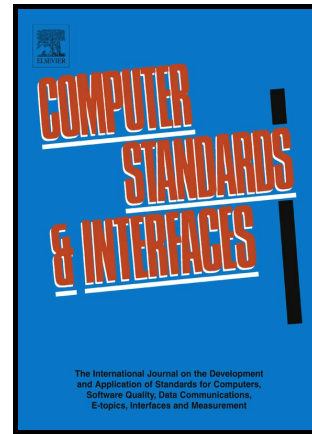


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Improvement? Insight from Employees

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Do Staged Maturity Models Result in Organization-Wide Continuous Process Improvement? Insight from Employees

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Abstract

During the last two decades, staged models have been successfully used by software organizations for process improvement. However, the relationship between these models and organization-wide continuous process improvement has not been studied extensively. This study questions the continuity, extent and participation characteristics of software process improvement by analyzing the software process improvement activities and employee perceptions within two different software companies that has CMMI level-3 certification. In order to perform this analysis a multiple case study in two phases were performed. In the first phase the process improvement suggestions submitted by the employees are analyzed from three aspects, namely the submitter, timing, and content characteristics. In the second phase, the employees' perception regarding the organization-wide continuous process improvement activities are analyzed by performing a factor analysis on questionnaire results obtained from the employees. The results of the multiple-case study show that there are shortcomings with respect to organization-wide continuous process improvement. It is seen that the software process improvement activities are not performed in a continuous manner. In addition, the contribution of employees to these activities and their perspectives of process improvement are highly dependent on their role within the organization. Based on these findings, it is concluded that staged maturity models fail to enable organization-wide continuous process improvement. Organizations employing these models display a case of process-wise oligarchy where a minority manages the processes for a majority who use them. We believe that these findings should generate the incentive to more deeply analyze these shortcomings and determine improvement opportunities for staged models.

Keywords

Software Process Improvement, Staged Maturity Models, Employee Participation, Continuous Improvement

1 Introduction

It has been 35 years since Crosby introduced the concept of staged maturity. Crosby's quality maturity management grid consists of 5 increasing stages or levels of maturity, where each stage defines different aspects of the state of the organization with decreasing quality costs [1]. His concepts were evolved over the years and the most prominent application of this concept was developed for software development organizations in the form of software process improvement (SPI) frameworks such as CMMI (Capability Maturity Model Integration) [2] and ISO-33000 family of standards [3]. The application of the models for process improvement is called model-based improvement. These frameworks have been extensively used for the last two decades.

In model-based improvement, the natural course of action for an organization is to first determine its current status (i.e. maturity level) based on the model. After that, the organization performs a gap analysis in order to determine the deviation between the current maturity level and the targeted ma-

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