

A comprehensive study of CMMI based framework for collaborative software maintenance

ABSTRACT

Software maintenance (SM) environment is a highly complex area, knowledge-driven and collaborative. Therefore, Capability Maturity Model Integration (CMMI) is a process improvement approach that provides organizations with the essential elements of effective processes that ultimately improve their performance. We propose a new framework of CMMI based on Multi-Agent System (MAS) to identify the process measurement of SM. The proposed MAS architecture includes three types of agents: Personal Agent (PA), Maintenance Agent (MA) and Key Process Area Agent (KPAA). In order to verify our proposed CMMI framework based on MAS architecture, a pilot study is conducted using a questionnaire survey. Rasch Model is used to analyze the pilot data. Item reliability is found to be poor and a few respondents and items are identified as misfits with distorted measurements.

Keyword: Capability maturity model integration; Software maintenance; Software maintenance process; Multi agent system; Rasch model