



Using the TSP to Implement the CMM

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Organizations using the Capability Maturity Model® for Software (SW-CMM®) to guide their software process improvement efforts often struggle with implementation details. The Team Software ProcessSM (TSPSM) was designed to implement high maturity processes for projects. This article examines the relationship between these two complementary technologies by analyzing the degree to which the CMM is addressed by the TSP. An overview of the relationship between the TSP and the CMM is presented first. This is followed by a description of how the TSP addresses each CMM key process area.

The Capability Maturity Model® for Software (SW-CMM®) is a descriptive model of the characteristics of an organization at a particular level of software process maturity [1]. The Team Software ProcessSM (TSPSM) is a prescriptive process for projects. It contains an adaptable set of processes, procedures, guidelines, and tools for projects to use in producing high-quality software on time and on budget. It also includes an introduction strategy for building management sponsorship, training managers and engineers, and coaching and mentoring TSP

practitioners.

The CMM and the TSP are complementary by design [2, 3, 4]. After guiding the development of the CMM, Watts Humphrey went on to develop the TSP as a way to apply CMM principles at the individual and project levels [5]. The CMM describes what an organization at a particular maturity level should be doing, while the TSP prescribes how high maturity practices are implemented at the project level.

This article explores the relationship between the TSP and the CMM by

describing how the TSP addresses each key process area of the CMM, and by showing the number of CMM key practices that are addressed by the TSP. Further details about the relationship between the CMM and the TSP are available in a Software Engineering Institute (SEI) technical report [6].◆

Due to space constraints, CrossTalk was not able to publish this article in its entirety. However, it can be viewed in this month's issue on our Web site at <www.stsc.hill.af.mil/crosstalk> along with back issues of CrossTalk.

From Performance-Based Earned Value to the CMMI

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Earned Value Management (EVM) can be a process thread to enable effective process integration and improvement during transition to the Capability Maturity Model® IntegrationSM (CMMISM). Organizations that already use EVM can reduce their transition costs and increase the effectiveness of EVM by following the guidance in this article. Other organizations should consider implementing EVM during transition to the CMMI. Quantitative project management, with the effective use of performance-based earned value, will reduce the risk of failing to achieve a project's cost, schedule, and technical objectives.

Many organizations are planning to transition their framework for process improvement efforts from the Capability Maturity Model® for Software (SW-CMM®) to the Capability Maturity Model® IntegrationSM (CMMI®). The CMMI is generally consistent with the guidelines of the primary external industry benchmarks for Earned Value Management (EVM), including the Electrical Industries Association standard EIA-748-A, "Earned Value Management Systems" [1] (EVM standard). However, the CMMI is more

stringent than the EVM standard regarding objective measurement and more focused on requirements.

Those organizations that already use EVM can develop efficient process improvement plans and minimize transition costs, including appraisal costs if they utilize the relationships between the CMMI and external industry benchmarks, and address the gaps between their EVM practices and CMMI goals.

Other organizations should consider implementing EVM as a process improvement. In the CMMI context,

EVM is a process thread that crosses many discipline boundaries and is critical to effective process integration. Consequently, implementation of EVM during the transition will be more efficient if it is part of an overall plan to improve and integrate processes.◆

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