Software Quality Management (SQM) Procedure

Documented procedure

The table below lists the recommended documented procedure for the software quality management process.

√	Documented Procedure	References
	The project's software quality plan is developed and maintained according to a documented procedure. (L4-23, A1) This procedure typically specifies that: ❑ An understanding of the software quality needs of the organization, customer, and end users is developed as appropriate. ❑ The software quality needs and priorities of the organization, customer, and end user are traceable to the system requirements allocated to software and the software quality goals. ❑ The capability of the project's defined software process to satisfy the software quality goals is assessed and documented. ❑ The software quality plan satisfies the quality plans of the organization, as appropriate. ❑ The software quality plan is based on plans for previous or current projects in the organization, as appropriate. ❑ The software quality plan is updated at the start of the project, at major project milestones, and whenever the allocated requirements change significantly. ❑ The software quality plan undergoes peer review. ❑ The software quality plan is reviewed by **affected groups** and **individuals**. ❑ **Senior management** reviews the software quality plans. ❑ The software quality plan is managed and controlled. ❑ The software quality plan is available to all **affected groups** and **individuals**.	

QPM Procedures, Continued

Documented procedures, continued

The table below lists the recommended documented procedures for the quantitative process management process, continued from the previous page.

√	Documented Procedures	References
	The process capability baseline for the organization's standard software process is established and maintained according to a documented procedure. (L4-13, A7) This procedure typically specifies that: ❑ The project's software process data, as summarized in its process performance baseline, are recorded in the organization's software process database. ❑ The process performance baseline for each project's defined software process is incorporated, as appropriate, into the process capability baseline for the organization's standard software process. ❑ The process capability baseline for the organization's standard software process is documented. ❑ Process capability trends for the organization's standard software process are examined to predict likely problems or opportunities for improvements. ❑ The process capability baseline for the organization's standard software process is managed and controlled. ❑ When a software project that is substantially different from past projects is undertaken, a new process performance baseline is established for that project as part of tailoring the organization's standard software process. ❑ Changes to the organization's standard software process are tracked and analyzed to assess their effects on the process capability baseline.	

QPM Procedures, Continued

Documented procedures, continued

The table below lists the recommended documented procedures for the quantitative process management process, continued from the previous page.

√	Documented Procedures	References
	The project's defined software process is analyzed and brought under quantitative control according to a documented procedure. (L4-10, A5) This procedure typically specifies that: ❑ The specific data analysis activities are predefined. ❑ Measurement data on the process activities throughout the project's defined software process are identified, collected, and analyzed. ❑ The selected measurements appropriately characterize the process they represent. ❑ The expected values for mean and variance are specified for each measurement. ❑ The acceptable limits for each measurement are defined and the project's process performance baseline is established. ❑ The actual values of each measurement are compared to the expected values of the mean and variance. ❑ Adjustments are made to bring the actual process performance in line with the defined acceptable limits, as appropriate. ❑ When the project's defined software process is controlled quantitatively, baselines are established for: ❑ the definition of the measurements, ❑ the actual measurement data, and ❑ the acceptable limits for the measurements. ❑ The process performance baseline for the software project is managed and controlled.	

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QPM Procedures, Continued

Documented procedures, continued

The table below lists the recommended documented procedures for the quantitative process management process, continued from the previous page.

√	Documented Procedures	References
	The measurement data used to control the project's defined software process quantitatively are collected according to a documented procedure. (L4-9, A4) This procedure typically specifies that: ❑ The measurement data collected support the organization's and the software project's measurement goals and objectives. ❑ The specific measurement data to be collected, their precise definitions, the intended use and analysis of each measurement, and the process control points at which they will be collected are defined. ❑ The measurements are chosen from the entire software life cycle (e.g., both the development and post-development stages). ❑ The measurements cover the properties of the key software process activities and major software work products. ❑ The measurement data that relate to the organization's standard software process are uniformly collected across the software projects. ❑ The measurements to be controlled are a natural result of the software activities where possible. ❑ The measurements are selected to support predefined analysis activities. ❑ The validity of the measurement data is independently assessed. ❑ The collected measurement data are stored in the organization's software process database as appropriate.	

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Quantitative Process Management (QPM) Procedures

Documented procedures

The table below lists the recommended documented procedures for the quantitative process management process.

√	Documented Procedures	References
	The software project's plan for quantitative process management is developed according to a documented procedure. (L4-6, A1) This procedure typically specifies that: ❑ The quantitative process management plan is based on: ❑ the organization's strategic goals for product quality, productivity, and product development cycle time; ❑ the organization's measurement program; ❑ the organization's standard software process; ❑ the project's goals for the software product's quality, productivity, and product development cycle time; ❑ the measured performance of other projects' defined software processes; and ❑ the description of the project's defined software process. ❑ The plan undergoes peer review. ❑ The plan is reviewed by the **group responsible for the organization's software process activities (e.g., the software engineering process group)**. ❑ The plan is managed and controlled.	

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Level 4 Procedure Checklists

Overview

Introduction

This section describes all the explicit documented procedures in the Capability Maturity Model for maturity level 4.

Purpose

The purpose of the procedure checklists is to provide:

- Guidance in identifying which procedures are recommended by the CMM at level 4.
- Criteria that an organization can use to evaluate its software procedures to determine if those procedures are consistent with the CMM at level 4.
- Information that can be used to develop software procedures that are consistent with the CMM at level 4.

In this section

This section covers the following documented procedures: