

Multi-Model Appraisals

Additional Considerations

Rules and tailoring specific to a multi-model SCAMPI A

When performing a multi-model SCAMPI A appraisal, a Lead Appraiser is likely to encounter several circumstances that require tailoring to the practices and processes involved with a standard SCAMPI A. These adjustments include changes to the SAS entry, appraisal planning, and reporting of appraisal results.

Two of these adjustments will come when performing sampling analysis. As discussed in the [January 2014 Quality Tip](#), the presence of multiple process models means extra steps must be taken to ensure that a representative sample is achieved. First, each appraised model is likely to create a difference in the “Type of Work” factor. For example, an organizational unit that uses both CMMI-DEV and CMMI-ACQ would be expected to have separate processes for its acquisitions and its development projects. Additionally, if any basic units have implemented both models, those units would represent a third type of work, with process sets that vary from the basic units that use only one of the two models.

The second consideration when performing sampling analysis for a multi-model appraisal comes when calculating the minimum sample size. With each subgroup comprised of a singular model implementation, the sampling formula must be applied differently. Using the earlier appraisal example, let’s say the sampling factor values result in six subgroups: three subgroups of basic units only performing CMMI-DEV, two subgroups of basic units that only perform CMMI-ACQ, and one subgroup in which basic units perform both models. When determining the minimum sample size for a DEV-only subgroup, the LA would restrict the numbers used to those related to the DEV-only subgroups (three total subgroups, “x” total basic units in those three subgroups). Similarly, when determining the minimum number of basic units to sample from an ACQ-only subgroup, the LA would use numbers pertaining to the ACQ-only subgroups (two total subgroups, “y” total basic units in those two subgroups). The subgroup performing both models would have a minimum sample size of one basic unit, since it is the only such subgroup in the OU.

Multi-model appraisals also require additional attention be paid to the appraisal team’s qualifications. Each team member must be trained in each reference model, either through a three-day Introduction course, or a one-day Supplement course. The minimum requirements for field experience must be met separately for each model, as well. This means that a team—excluding the LA—must have a total of 25 years and a per-ATM average of six years of engineering experience for CMMI-DEV, and must also meet those minimums in service delivery experience for CMMI-SVC, acquisitions experience for CMMI-ACQ, and human relations experience for P-CMM. If a four-person team that has been assembled for the combined DEV/ACQ appraisal has 30 total years of development field experience, but only 15 years of acquisition field experience, the team does not meet the minimum requirements and is considered invalid.

The added considerations for the team's qualifications lead to differences in the appraisal plan and the SAS record. When preparing the plan for a multi-model appraisal, the ATM qualifications table should include a separate column for each type of field experience relevant to the appraisal. When setting up the appraisal's SAS entry, each ATM will have to be added to the record separately for each reference model. Therefore, if the appraisal will be covering CMMI-DEV and CMMI-ACQ, each ATM would appear on the SAS record twice. If the appraisal is against CMMI-DEV, CMMI-ACQ, and P-CMM, each of the team members will be added to the SAS record three times. This is required by the system so that it can verify the ATMs' training histories against each model.

It is also important to remember that, if the appraised models "share" a process area, the review of evidence for that PA cannot be combined so as to eliminate examination against one or more of the models. For example, when reviewing Process and Product Quality Assurance (PPQA) for an appraisal targeting ML3 for both CMMI-DEV and CMMI-ACQ, artifacts and affirmations must first be collected for each DEV practice, and then again for each ACQ practice. The performance of this PA takes on a different context in each model, and requires separate evaluation of the development and acquisition practices.

Questions regarding this Quality Tip can be sent to quality@cmmiinstitute.com.