The Benefits and Challenges of Maintaining a QC Work Plan

During a directors' project status meeting, one project manager states "we haven't met the schedule because the release is still in testing." The directors think "what are those testers doing and why are they holding up the schedule?" when the data, if it was tracked, would show that the Quality Control (QC) team has received 18 builds and the team cannot complete a test cycle because of severe defects that require fixes. One tool to track this data is a QC work plan. This work plan shows QC tasks, dependencies and resources, is flexible enough to use for different types and sizes of projects, may be used for various audiences, and documents historical data. Along with the benefits of the work plan, there are challenges and costs associated with it.

Project team members may not understand all that occurs during the testing process. Tasks such as planning, test plan reviews, scripting, script reviews, and defect tracking are part of the process, as well as the more visible test execution task. The QC plan shows each task, the person accountable to complete it, estimated duration, and actual duration for the task. It shows tasks others may not know are part of the test process and raises visibility to other teams' tasks that impact the QC schedule. Within the work plan, constraints regarding people and timelines quickly become apparent.

The QC work plan also provides a cornerstone for impact analysis. The work plan allows the owner to add or delete resources, change dates for code delivery, add or delete test cycles, change the scope of the test effort and accompanying tasks, and evaluate the impact these changes have on the project timeline. If a project schedule is slipping, a typical suggestion is to add an additional resource to the test effort. The QC work plan quickly shows whether adding a resource will bring the schedule back to its original target date or if other adjustments need to be made such as adding more than one resource or adding resources prior to test execution.

Based on the tasks listed, the QC work plan is flexible enough to use for small or large projects, custom-developed or off-the-shelf software testing, and major implementations or minor upgrades. Based on project size and complexity, the work plan may contain anywhere from four tasks with small durations (planning, scripting, execution, approval) to hundreds of tasks with large durations.

Another benefit of the QC work plan is that it may be used for different audiences by expanding or collapsing tasks. For instance, a director may be interested in only the start and finish dates of the entire test effort. A project manager, however, may be interested in the start and finish dates for test planning, test scripting, and test execution. A QC lead may be interested in even more detail.

In addition to using the QC work plan for several audiences, the work plan allows the QC team to build a repository of historical data. By tracking projects of various sizes and types that use different development methodologies, the QC team is able to create better estimates for future projects that are similar in size, methodology or type. This information may also be helpful in the absence of requirements. For instance, the QC team tracks that a major release of off-the-shelf software requires 800 QC hours to test. When a project manager asks for a QC estimate of

the next major release of the software but doesn't yet have requirements defined, the QC associate is able to retrieve past project history in order to make an estimate, without knowing the specifics of the current release.

Another benefit of the QC work plan is that the QC team may use this information to set test expectations on a product-by-product basis. Historically, one product may take 500 hours per major release to test and 250 hours per minor release to test, while another product may take 100 hours per major release to test and 40 hours per minor release to test. Saving the data from previous projects provides a repeatable set of test tasks and expectations by product. After utilizing the QC work plan for several projects, we've developed a higher level of schedule confidence with our project managers and directors.

Other benefits of the QC work plan are that it provides real data, rather than subjective data, for decision making, and that it may be used as a development tool for QC associates to improve their skills in planning and estimation.

However, along with the benefits mentioned, there are challenges and costs associated with the work plan. These challenges depend upon the audience's point of view. From the management perspective, the development of the QC work plan adds additional time to a project. And since time is a driving factor for most projects, additional time adds cost. While developing the QC work plan adds time to the process initially, future projects will benefit from this effort.

Another challenge is that the work plan may be perceived as outside the scope of QC because planning is a project manager function rather than a QC function. Some may find the QC work plan intimidating, especially those project managers who are not strong planners themselves. This may lead to the perception that the QC work plan doesn't add value and that QC should focus on test execution, rather than planning.

Even when project managers buy-in to the QC work plan, they may interpret the initial work plan as a final instead of an estimate. The work plan is as accurate only as the information provided to prepare it. Once testable requirements are defined, other project milestones are set, and the QC work plan is updated, it will show more accurate dates and durations.

From the QC perspective, the team initially may be intimidated by defining test processes at a granular task level, especially when the plan raises visibility to all tasks. For example, without using the QC work plan a QC member may estimate test planning to take approximately two weeks, but the delivery date is fluid and based on an educated guess. However, when creating the work plan, the QC member lists tasks related to testing and assigns a hard date for delivery. While a benefit of the work plan is that it raises visibility to all tasks associated with the "black hole" of testing, it also requires a level of confidence from the QC associates regarding task definition and timeline estimation. As the team creates and maintains more work plans, they will improve their confidence level and become more efficient and accurate in planning.

One other challenge for maintaining the QC work plan may be that the QC team will have the same perception as management that QC should spend time on test execution, rather than on developing and maintaining the work plan. The QC associate will need to maintain the work plan

throughout the project, which takes away time from other test activities. The QC team may perceive this planning as busy work, rather than value-added. They would rather be testing than planning. A solution to this is to include a task within the work plan that defines time for maintaining the plan.

In addition to the challenges, there are costs associated with introducing new tools or techniques such as license fees and training costs. We utilize Microsoft Project (and have attached screen shots as an example at the end of this article) but there are other options such as word processing tools, spreadsheet tools, or simple hard-copy calendars with dates and milestones documented in ink pen. Training costs of learning to create and maintain the work plan may be minimized by using templates and by re-using plans from previous projects when applicable.

Although there are challenges and costs with the QC work plan, we have found that the benefits have provided valuable, objective data for business process owners, project managers, business analysts, developers, and test analysts. Also, the work plan allows the cross-functional project team to remain in the loop regarding test status. Additionally, these plans have allowed several levels of the organization, including directors, managers, and analysts to better set and meet expectations regarding product development.