

1.4.2_1 Test planning

During test planning, we make sure we understand the goals and objectives of the customers, stakeholders, and the project, and the risks which testing is intended to address. This will give us what is sometimes called the mission of testing or the test assignment. Based on this understanding, we set the goals and objectives for the testing itself, and derive an approach and plan for the tests, including specification of test activities. To help us we may have organization or program test policies and a test strategy. Test policy gives rules for testing, e.g. 'we always review the design documents'; test strategy is the overall high-level approach, e.g. 'system testing is carried out by an independent team reporting to the program quality manager. It will be risk-based and proceeds from a product (quality) risk analysis' (see Chapter 5). If policy and strategy are defined already they drive our planning but if not we should ask for them to be stated and defined.

Test planning has the following major tasks, given approximately in order, which help us build a test plan:

- **Determine the scope and risks and identify the objectives of testing:**

we consider what software, components, systems or other products are in scope for testing; the business, product, project and technical risks which need to be addressed; and whether we are testing primarily to uncover defects, to show that the software meets requirements, to demonstrate that the system is fit for purpose or to measure the qualities and attributes of the software.

- **Determine the test approach (techniques, test items, coverage, identifying and interfacing with the teams involved in testing, testware):**

we consider how we will carry out the testing, the techniques to use, what needs testing and how extensively (i.e. what extent of coverage). We'll look at who needs to get involved and when (this could include developers, users, IT infrastructure teams); we'll decide what we are going to produce as part of the testing (e.g. testware such as test procedures and test data). This will be related to the requirements of the test strategy.

- **Implement the test policy and/or the test strategy:**

we mentioned that there may be an organization or program policy and strategy for testing. If this is the case, during our planning we must ensure that

what we plan to do adheres to the policy and strategy or we must have agreed with stakeholders, and documented, a good reason for diverging from it.

- **Determine the required test resources (e.g. people, test environment, PCs):**
from the planning we have already done we can now go into detail; we decide on our team make-up and we also set up all the supporting hardware and software we require for the test environment.

- **Schedule test analysis and design tasks, test implementation, execution and evaluation:**

we will need a schedule of all the tasks and activities, so that we can track them and make sure we can complete the testing on time.

- **Determine the exit criteria:**

we need to set criteria such as coverage criteria (for example, the percentage of statements in the software that must be executed during testing) that will help us track whether we are completing the test activities correctly. They will show us which tasks and checks we must complete for a particular level of testing before we can say that testing is finished.

Management of any activity does not stop with planning it. We need to control and measure progress against the plan. So, test control is an ongoing activity. We need to compare actual progress against the planned progress, and report to the project manager and customer on the current status of testing, including any changes or deviations from the plan. We'll need to take actions where necessary to meet the objectives of the project. Such actions may entail changing our original plan, which often happens. When different groups perform different review and test activities within the project, the planning and control needs to happen within each of those groups but also across the groups to coordinate between them, allowing smooth hand-offs between each stage of testing. Test planning takes into account the feedback from monitoring and control activities which take place through out the project.

Test control has the following major tasks:

- **Measure and analyze the results of reviews and testing:**

We need to know how many reviews and tests we have done. We need to track how many tests have passed and how many failed, along with the number, type and importance of the defects reported.

- **Monitor and document progress, test coverage and exit criteria:**

It is important that we inform the project team how much testing has been done, what the results are, and what conclusions and risk assessment we have made. We must make the test outcome visible and useful to the whole team.

- **Provide information on testing:**

We should expect to make regular and exceptional reports to the project manager, project sponsor, customer and other key stakeholders to help them make informed decisions about project status. We should also use the information we have to analyze the testing itself.

- **Initiate corrective actions:**

For example, tighten exit criteria for defects fixed, ask for more effort to be put into debugging or prioritize defects for fixing test blockers.

- **Make decisions:**

Based on the measures and information gathered during testing and any changes to business and project risks or our increased understanding of technical and product risks, we'll make decisions or enable others to make decisions: to continue testing, to stop testing, to release the software or to retain it for further work for example.