

Process 4: A Test Estimation Process

Step #	Step	Done?
1.	Working one-on-one or as a group with the assigned test team, develop the work-breakdown-structure and estimated schedule.	<input type="checkbox"/>
1.A	Decompose the test project into phases.	<input type="checkbox"/>
1.B	Decompose each phase into constituent activities.	<input type="checkbox"/>
1.C	Decompose each activity into tasks and subtasks until each task or subtask at the lowest level of composition satisfies the criteria below.	<input type="checkbox"/>
1.D	Taking risk priority into account, set up dependencies, resource assignments, and dependent tasks internal to the test subproject. Document dependencies, resources, and tasks external to the test subproject (i.e., those that involve collaborative processes).	<input type="checkbox"/>
1.E	Sanity check the durations and efforts at the subtask, task, activity, and phase levels. If possible, augment professional judgment and gut instinct with previous project data, industry metrics, and so forth. Identify and, if possible, resolve discrepancies between the test subproject schedule and the project schedule. Where discrepancies cannot be resolved, document the obstacles.	<input type="checkbox"/>
1.F	Review the work-breakdown-structure and schedule with the individuals to whom you've assigned responsibility for each task, taking special care to surface any hidden assumptions or dependencies.	<input type="checkbox"/>
1.G	Review the work-breakdown-structure and schedule with the entire test team along with any subject matter experts available within or outside your organization.	<input type="checkbox"/>
2.	Use the work-breakdown-structure and schedule to develop a budget.	<input type="checkbox"/>
2.A	Extract from your work-breakdown-structure a complete list of resources. For each resource, determine the first and last day of assignment to the project. If you have resources shared across multiple test projects within a given time period, understand the percentage	<input type="checkbox"/>

	allocation of each resource's assignment to each project during various time periods.	
2.B	Identify any incidental resources required to support these resources.	<input type="checkbox"/>
2.C	Categorize the resources into staff, travel, tools, test environments, and, if applicable, outsourcing costs. Total by time periods and categories.	<input type="checkbox"/>
2.D	Sanity check the budget details and totals. If possible, augment your professional judgment and gut instinct with previous project data, industry metrics, and so forth. Identify and, if possible, resolve discrepancies between the test subproject budget and the overall budget. Should resolution prove impossible, document the obstacles.	<input type="checkbox"/>
2.E	Amortize budget items that are long-term investments, documenting the reuse opportunities and the period of time over which you expect to recoup the costs.	<input type="checkbox"/>
2.F	If required or desirable, analyze return on investment. If the return on investment is negative, review your assumptions about amortization in 2.E and repeat this step if necessary. If the return on investment remains negative, review those items on your estimated work-breakdown-structure that consume the most money while contributing the least return, tracing back to the quality risks. Document the money losing activities.	<input type="checkbox"/>
2.G	If permitted by your management, review the budget with your test team. Take special care to identify any missing resources, especially incidental ones. Iterate steps 2.D through 2.F if necessary.	<input type="checkbox"/>
3.	Obtain management support for the estimated schedule and budget.	<input type="checkbox"/>
3.A	Present the benefits of the test subproject.	<input type="checkbox"/>
3.B	Outline the time and money commitment required to receive those specific benefits.	<input type="checkbox"/>
3.C	Understand and attempt to resolve any objections to the estimate through iteration of steps 3.A and 3.B.	<input type="checkbox"/>
3.D	If management commitment to the proposed budget and schedule cannot be gained, discuss specific areas	<input type="checkbox"/>

	of testing to be deleted, setting cost and/or schedule goals to be met to obtain management support.	
4.	Repeat steps 1 through 3 if necessary, fine-tuning the estimated schedule and budget, until resources and management commitment adequate to the (possibly adjusted) scope of the test effort are secured.	<input type="checkbox"/>
5.	Check the approved budget and schedule documents into the project library or configuration management system. Place the document under change control	<input type="checkbox"/>

Criteria of complete work-breakdown-structure decomposition for a test subproject

In a well-formed work-breakdown-structure for a testing subproject, every task at the lowest level of decomposition has the following characteristics:

- 1) measurable status;
- 2) clearly defined start and end criteria;
- 3) one or more deliverables;
- 4) an estimation of resource requirements, effort, duration, and other costs;
- 5) a short duration;
- 6) independence (once the start criteria are satisfied) from other tasks inside or outside the test subproject;
- 7) clearly defined ownership, ideally one responsible person;
- 8) maps to one or more of the recommended testing actions from the quality risk analysis (with all phases, activities, and tasks collectively covering all recommended testing actions); and,
- 9) to the extent that dependencies and resource constraints allow, activities and tasks occur in order of their risk priorities.