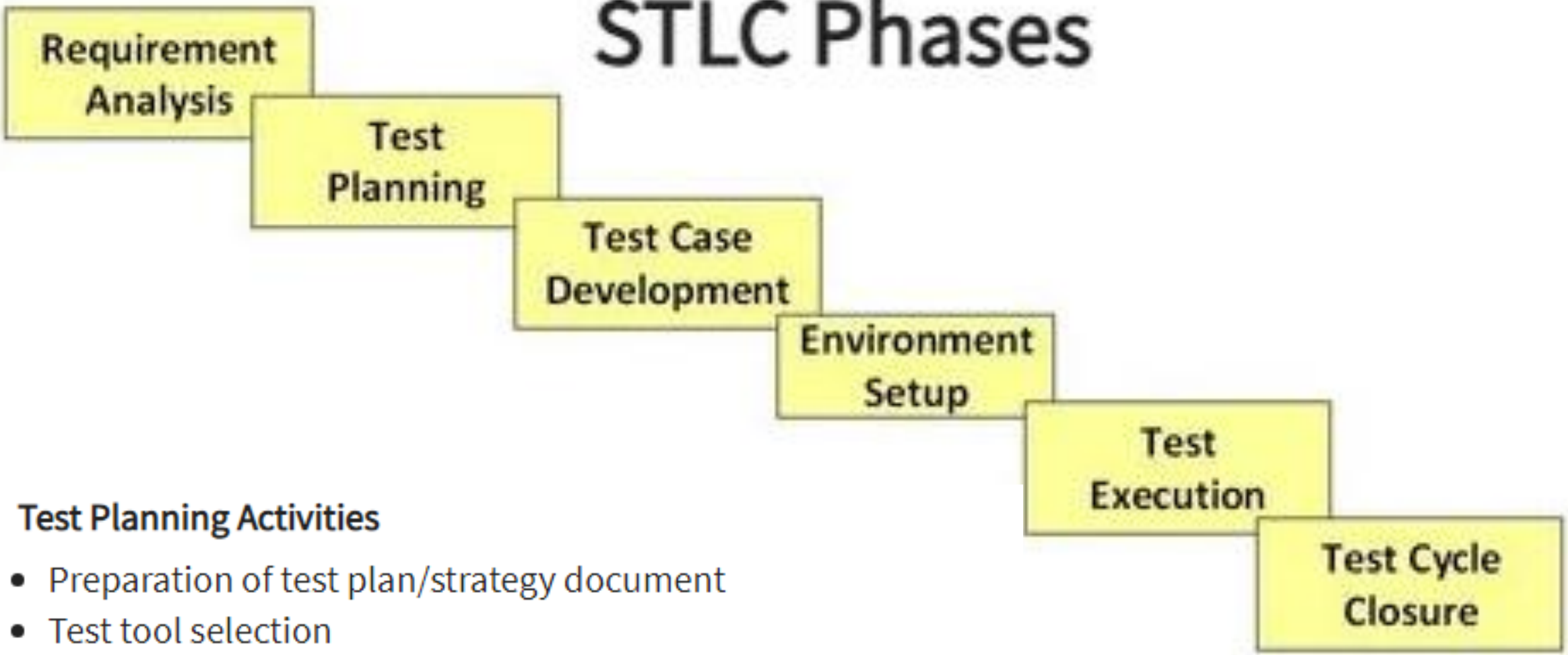
Test Plan

a framework or approach or document for achieving a set of goals

STLC Phases



Test Planning Activities

- Preparation of test plan/strategy document
- Test tool selection
- Test effort estimation
- Resource planning and determining roles and responsibilities.
- Training requirement

Test Process

Test Planning

A plan is a document that provides a framework or approach for achieving a set of goals.

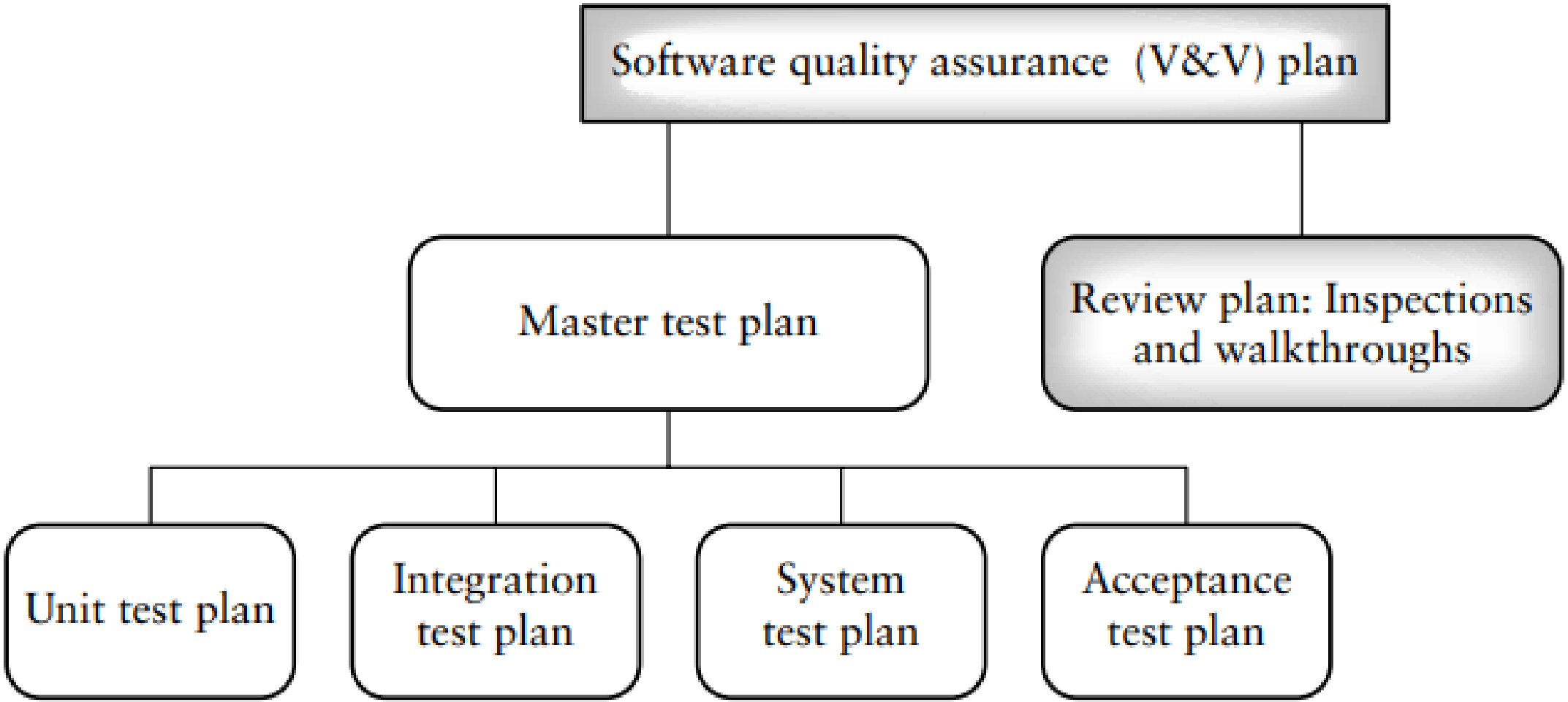
In order to meet a set of goals, a plan describes what specific tasks must be accomplished, who is responsible for each task, what tools, procedures, and techniques must be used, how much time and effort is needed, and what resources are essential. A plan also contains milestones.

Milestones are tangible events that are expected to occur at a certain time in the project's lifetime. Managers use them to determine project status.

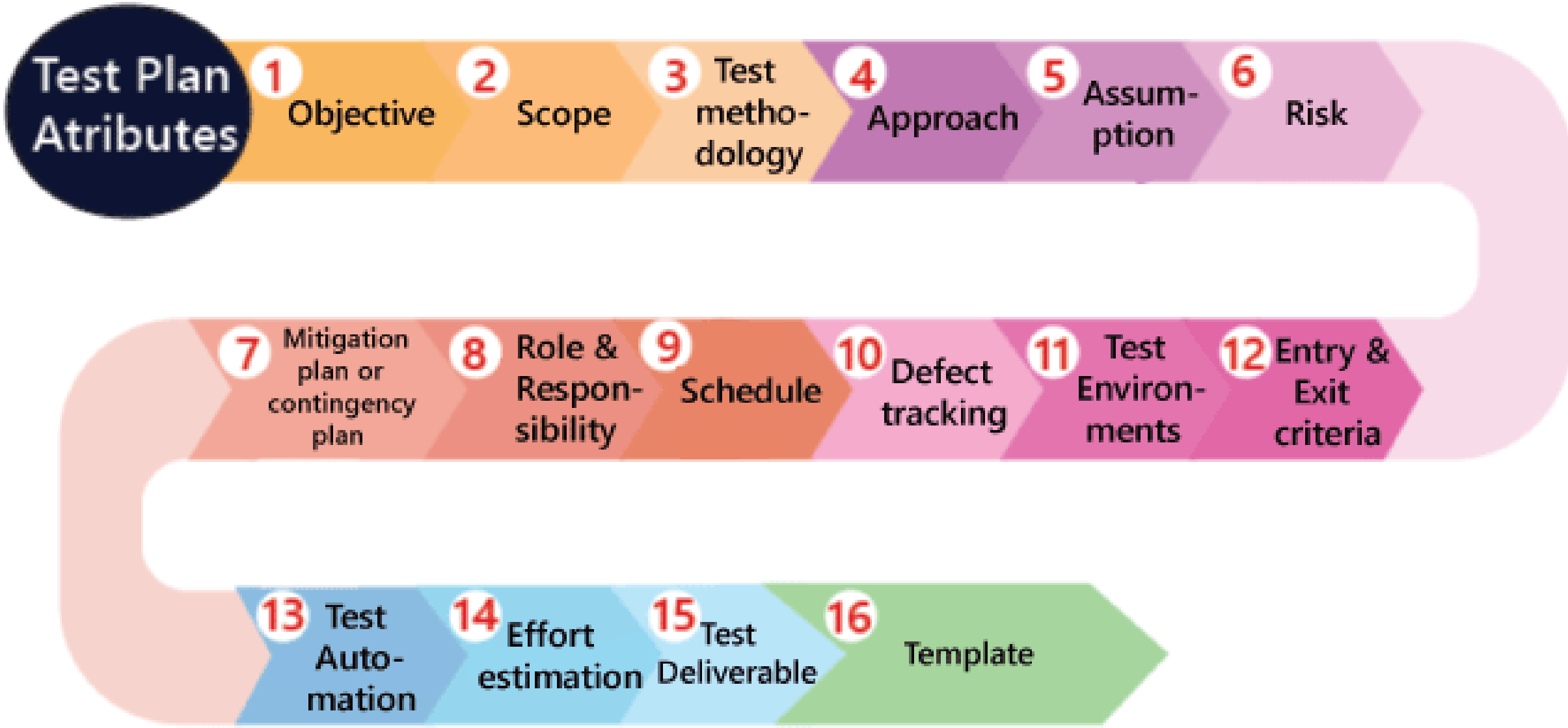
high-level items.

Test Planning

1. *Overall test objectives.* As testers, why are we testing, what is to be achieved by the tests, and what are the risks associated with testing this product?
2. *What to test (scope of the tests).* What items, features, procedures, functions, objects, clusters, and subsystems will be tested?
3. *Who will test.* Who are the personnel responsible for the tests?
4. *How to test.* What strategies, methods, hardware, software tools, and techniques are going to be applied? What test documents and deliverable should be produced?
5. *When to test.* What are the schedules for tests? What items need to be available?
6. *When to stop testing.* It is not economically feasible or practical to plan to test until all defects have been revealed.



A hierarchy of test plans.


Test Plan Atributes
1 Objective
2 Scope
3 Test metho-dology
4 Approach
5 Assum-ption
6 Risk
7 Mitigation plan or contingency plan
8 Role & Respon-sibility
9 Schedule
10 Defect tracking
11 Test Environ-ments
12 Entry & Exit criteria
13 Test Auto-mation
14 Effort estimation
15 Test Deliverable
16 Template

Test Plan Components

Test Plan Components
1. Test plan identifier
2. Introduction
3. Items to be tested
4. Features to be tested
5. Approach
6. Pass/fail criteria
7. Suspension and resumption criteria
8. Test deliverables
9. Testing Tasks
10. Test environment
11. Responsibilities
12. Staffing and training needs
13. Scheduling
14. Risks and contingencies
15. Testing costs
16. Approvals

Features may be described as distinguishing characteristics of a software component or system.

A Work Breakdown Structure is a hierarchical or treelike representation of all the tasks that are required to complete a project.

Responsibilities

- transmitting the software-under-test;
- developing test design specifications, and test cases;
- executing the tests and recording results;
- tracking and monitoring the test efforts;
- checking results;
- interacting with developers;
- managing and providing equipment;
- developing the test harnesses;
- interacting with the users/customers.

Testing Costs

- costs of planning and designing the tests;
- costs of acquiring the hardware and software necessary for the tests (includes development of the test harnesses);
- costs to support the test environment;
- costs of executing the tests;
- costs of recording and analyzing test results;
- tear-down costs to restore the environment.

Key characteristics that we will call “test cost impact items”

> **A cost driver can be described as a process or product factor that has an impact on overall project costs.**

The nature of the organization; its testing maturity level, and general maturity
The nature of the software product being developed
The scope of the test requirements
The level of tester ability
Knowledge of the project problem domain
The level of tool support
Training requirements.

Testing Costs

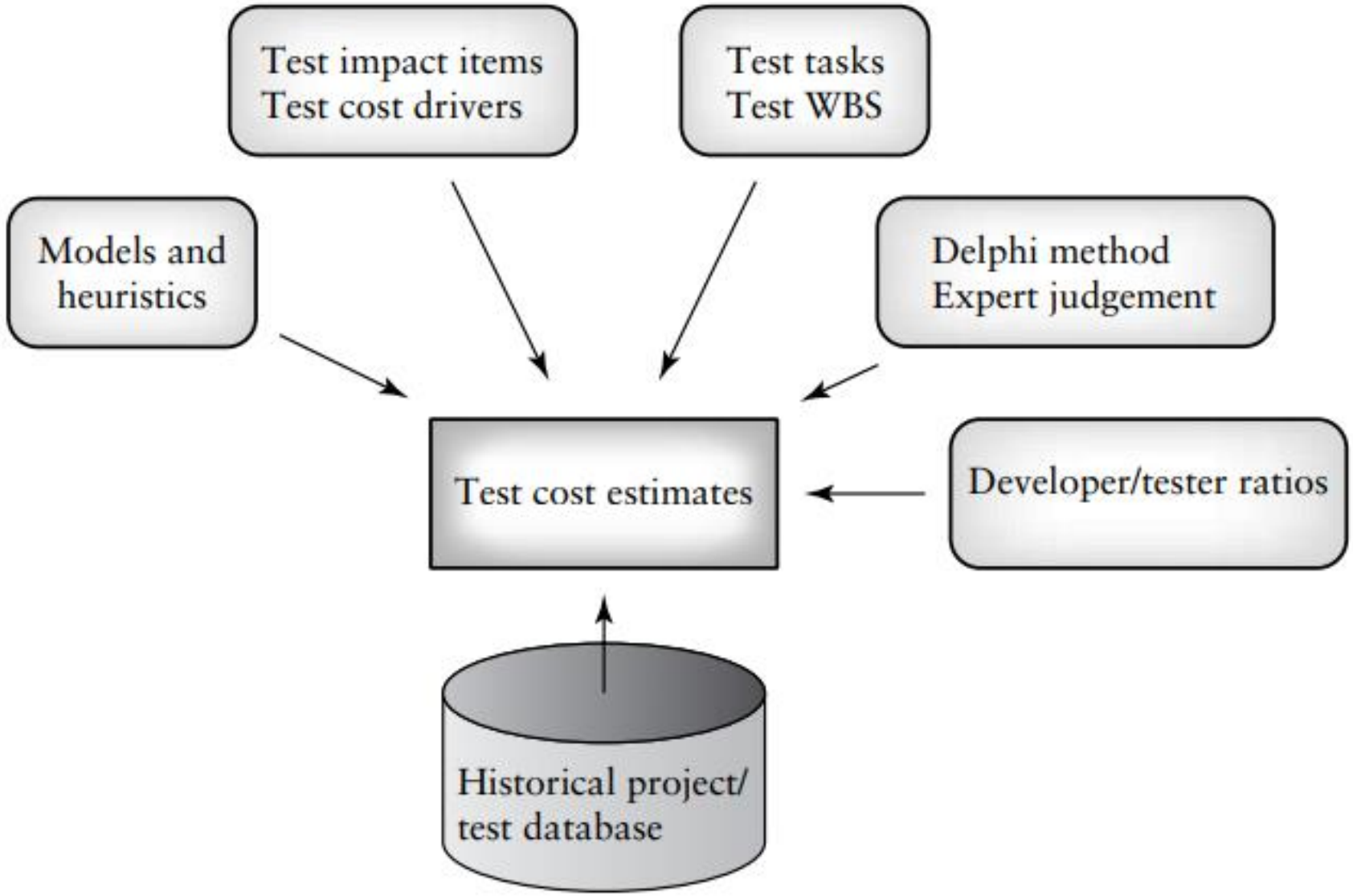
(i) the COCOMO model and heuristics;
(ii) use of test cost drivers;
(iii) test tasks;
(iv) tester/developer ratios;
(v) expert judgment (Delphi).

$$E = a\,(\text{size in KLOC})^b$$

$$\text{Testing costs} = 0.5 \times \text{total project costs}$$

Cost drivers for project the include:

- product attributes such as the required level of reliability;
- hardware attributes such as memory constraints;
- personnel attributes such as experience level;
- project attributes such as use of tools and methods.



Some approaches to test cost estimation.

- number of test procedures;
- number of requirements;
- number of modules.

Test-oriented Work Breakdown Structure (WBS)

Example WBS elements for testing.

1. Project startup
2. Management coordination
3. Tool selection
4. Test planning
5. Test design
6. Test development
7. Test execution
8. Test measurement, and monitoring
9. Test analysis and reporting
10. Test process improvement

4.0 Test Planning

4.1 Meet with project manager. Discuss test requirements.

4.2 Meet with SQA group, client group. Discuss quality goals and plans.

4.3 Identify constraints and risks of testing.

4.4 Develop goals and objectives for testing. Define scope.

4.5 Select test team.

4.6 Decide on training required.

4.7 Meet with test team to discuss test strategies, test approach, test monitoring, and controlling mechanisms.

4.8 Develop the test plan document.

4.9 Develop test plan attachments (test cases, test procedures, test scripts).

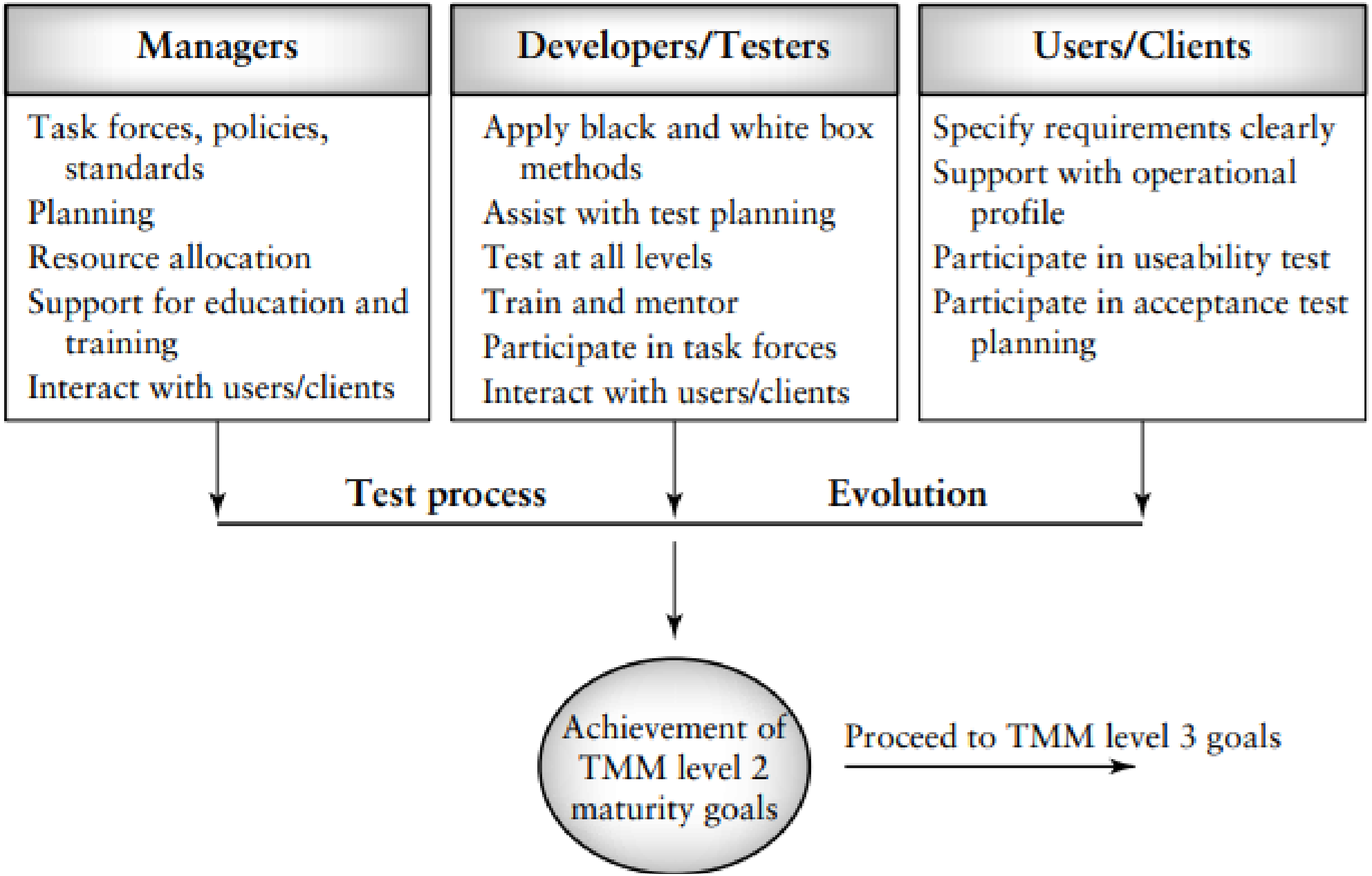
4.10 Assign roles and responsibilities.

4.11 Meet with SQA, project manager, test team, and clients to review test plan.

Test Plan Attachments

Example of entries in a requirements traceability matrix.

Requirement identifier	Requirement description	Priority (scale 1–10)	Review status	Test ID
SR-25-13.5	Displays opening screens	8	Yes	TC-25-2 TC-25-5
SR-25-52.2	Checks the validity of user password	9	Yes	TC-25-18 TC-25-23



The Role of the Three Critical Groups in Testing Planning