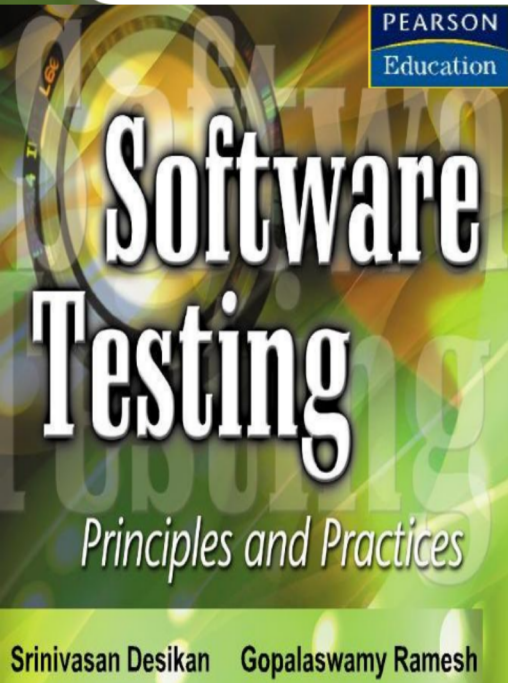


Test Planning and Management (Chapter 15)



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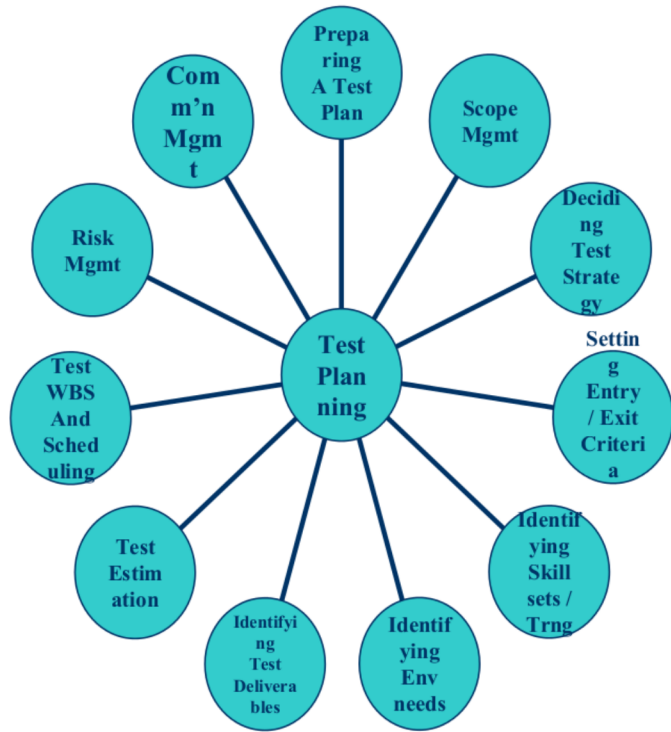
Test Planning and Management: Agenda of the Session

- Testing phase as a project
- Planning a testing project
- Test management
- Test process
- Test reporting
- Best practices

Test Planning

- What needs to be tested ?
- How the testing is going to be performed ?
- What resources are needed ?
- The timelines by which the testing activities will be performed
- Risks that may be faced

Parts of Test Planning: XXX Please have the artist create a better image of this...



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Test Planning and Management

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Scope Management

- Understanding what constitutes a release of a product
- Breaking down the release into features
- Prioritizing the features for testing
- Deciding which features will be tested and which will not be
- Gathering details to prepare for estimation



Factors That Drive Choice and Prioritization of Features

- Features that are new and critical for the product release
- Features whose failures will be catastrophic
- Features that are re-extensions of features that have a problem-prone track record
- Consideration on environmental and other combinatorial factors

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Deciding the test approach / strategy for the chosen features

- What type of testing would you use for testing the functionality of each feature?
- What are the configurations or scenarios for testing the features?
- What integration testing would you do to ensure these features work together?
- What localization validations would be needed?
- What “non-functional” tests would you need to do?

Setting Up Criteria for Testing

- Entry criteria
 - Ideally tests must be run as early as possible to avoid last minute pressure
- Exit criteria
 - When a test cycle is supposed to be completed
- Suspension criteria
 - Show stopper bugs
 - Crossing a threshold number of bugs
 - Developers producing a new version, making the old one redundant
- Resumption criteria
 - The above mentioned hurdles being cleared

Identifying Staffing and Training Needs

- Role definitions to:
 - Ensure there is clear accountability for a given task, so that each person knows what he or she has to do
 - Clearly list the responsibilities for various functions to the various people involved so that everyone knows how his or her work fits into the entire project
 - Complement each other, ensuring no one steps on others' toes
 - Supplement each other, so that no task is left unassigned
 - Establish management and reporting responsibilities
 - Match job requirements with people's aspirations as best as possible

Identifying Resource Requirements

- Machine configuration (RAM, processor, disk, etc.) needed to run the product under test
- Overheads required by the test automation tool, if any
- Supporting tools like compilers, test data generators, configuration management tools, etc.
- The different configurations of the supporting software (e.g., OS) that must be present
- Special requirements for running machine-intensive tests like load tests and performance tests
- Appropriate number of licenses of all the software
- Office space, support functions, etc.

Identifying Test Deliverables

- The test plan (master test plan, and various other test plans for the project)
- Test case design specifications
- Test cases, including any automation that is specified in the plan
- Test logs produced by running the tests
- Test summary reports

Test Estimation: Phases of Estimation

- Size
- Effort
- Schedule

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Test Planning and Management

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Size Estimate for Testing

- Actual amount of testing to be done
- Depends on
 - Size of product under test
 - Extent of automation required
 - Number of platforms and inter-operability requirements
- Expressed as
 - Number of test cases
 - Number of test scenarios
 - Number of configurations to be tested
 - Etc.

Effort Estimate for Testing

- Has a direct influence on cost
- Factors that affect effort estimate
 - Productivity data (test case writing, automation, execution, analysis, etc., per day)
 - Re-use opportunities
 - Robustness of processes

Scheduling of Activities

- Identifying external and internal dependencies among the activities
- Sequencing the activities based on the expected duration as well as on the dependencies
- Identifying the time required for each of the WBS activities, taking into account the above two factors
- Monitoring the progress in terms of time and effort
- Rebalancing the schedules and resources as necessary

External Dependencies

- Availability of the product from developers
- Hiring
- Training
- Acquisition of the hardware / software required for training
- Availability of translated message files for testing

Internal Dependencies for Testing

- Completing the test specification
- Coding / scripting the tests
- Executing the tests

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Risk Management: Common Risks and Mitigation in Testing Projects

- Unclear requirements
 - Involving the testing team up-front
- Schedule dependence, being “downstream”
 - Back-up jobs/ multiplexing / automation in parallel
- Insufficient time for testing / over-cautious testing
 - Use of V Model, entry / exit criteria
- “Show stopper” defects
- Availability of skilled and motivated people for testing
 - Showing career paths
- Inability to get test automation tool



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Test Management

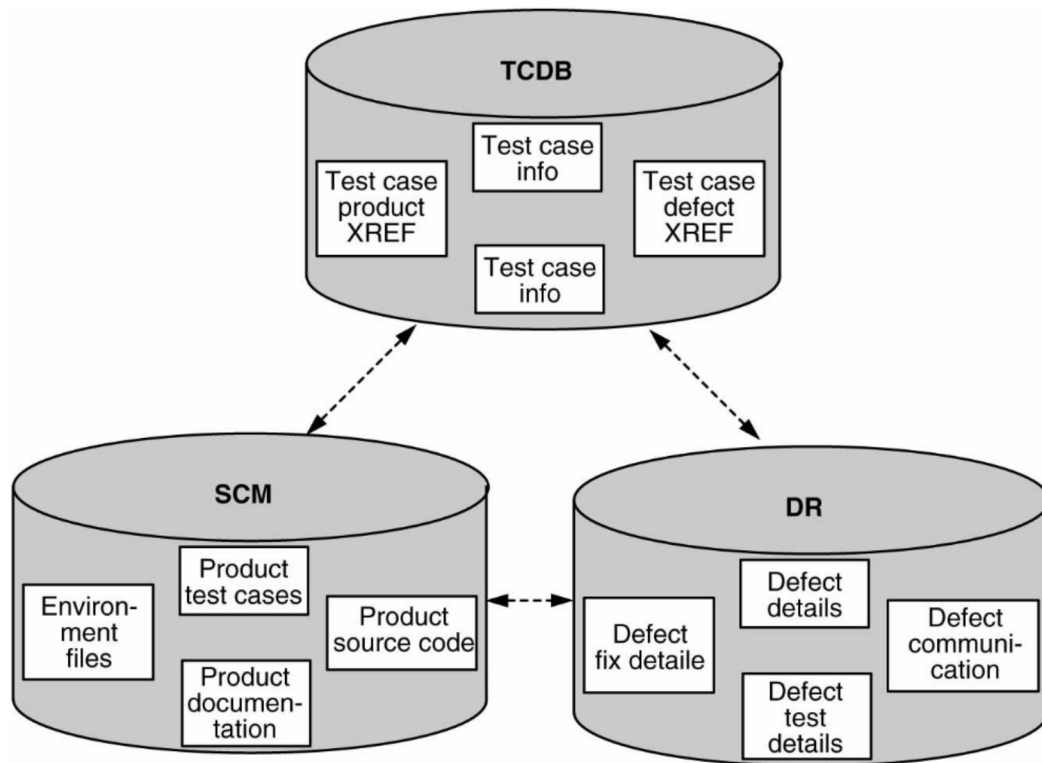
- Planning aspects are proactive measures that can have an across-the-board influence on all testing projects
 - Choice of Standards
 - Test Infrastructure management
 - Test people management
 - Integrating with product release

Choice of standards

- Standards are
 - Externals
 - Standard test supplied by external consortia and acceptance test supplied by customers
 - Internal
 - Formulated by an organization to bring in consistency and predictability
- Internal standards include:
 - Naming and storage conventions for test artifacts
 - Documentation standards
 - Test coding standards
 - Test reporting standards (covered separately)

Test Infrastructure Management

- Testing requires a robust infrastructure to be planned, and is made up of
 - A test case database (TCDB)
 - A defect repository
 - Configuration management repository and tool
- Change control ensures that
 - Changes to test files are made in controlled fashion and only with proper approvals
 - Changes made by one test engineer are not accidentally lost or overwritten by other changes
 - Each change produces a distinct version of the file that is recreatable at any point of time
 - At any point of time, everyone gets access to only the most recent version of the test files



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People Management

- Ability to hire, motivate and retain the right people
- Team building exercise should be ongoing and sustained
- Periodic recharge necessary

Integrating with Product Release

- Sync points between development and testing as to when the different types of testing can commence (for example, when integration testing could start, when system testing could start)
- Service Level Agreements between development and testing as to how long it would take for the testing team to complete the testing
- Consistent definitions of the various priorities and severities of the defects
- Communication mechanisms to the documentation group to ensure that the documentation is kept in sync with the product in terms of known defects, work-arounds, etc.

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Test Process

- **Putting together and baselining a test plan (discussion of template)**
- **Getting detailed test specifications**
 - Purpose of test
 - Items being tested, with their version numbers
 - Environmental set-up needed
 - Input data required
 - Steps to be followed
 - Expected results
 - Any relationship to other tests
- **Identifying possible automation candidates**
- **Developing and baselining test cases**
- **Executing tests and keeping RTM and DR current**
- **Collecting and analyzing metrics**
- **Preparation of test summary report**
- **Recommending product release criteria**

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Test Reporting

- Test incidence report
 - Update to DR
 - Id, product info, component info, defect description, fix info, etc.
- Test cycle report
 - a summary of the activities carried out during that cycle
 - defects that were uncovered during that cycle, based on their severity and impact
 - progress from the previous cycle to the current cycle, in terms of defects fixed
 - outstanding defects that are yet to be fixed in this cycle
 - any variations observed in effort or schedule (that can be of future use)
- Test summary report – phase-wise summary and final test summary

Test Summary Report

- **A summary of the activities carried out during the test cycle or phase.**
- **Variance of the activities carried out from the activities planned. This includes**
 - **The tests that were planned to be run but could not be run (with reasons)**
 - **Modifications to tests from what was in the original test specifications (in this case, the TCDB should be updated)**
 - **Additional tests that were run (that were not in the original test plan)**
 - **Differences in effort and time-taken between what was planned and what was executed**
 - **Any other deviations from plan**
- **Summary of results**
 - **Tests that failed, with root-cause descriptions, if any**
 - **Severity of impact of the defects uncovered by the tests**
- **Comprehensive assessment and recommendation for release**
 - **“Fit-for-release” assessment**
- **Recommendation of release**

Recommendation for Release

- Dijkstra's Doctrine!
- The testing team gives management an idea of what defects exist and what risks may be expected
- Management makes a final call whether to release as is or to expend extra resources to fix the reported defects

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Best Practices

- Process related
 - Following process models like CMMI / TMM
- People related
 - Team gelling
- Technology related
 - Integrated SCM-DR-TCDB infrastructure
 - Use of test automation

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Test Planning and Management

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Test Planning and Management: Agenda of the Session (Recap)

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