Test Monitoring and Control

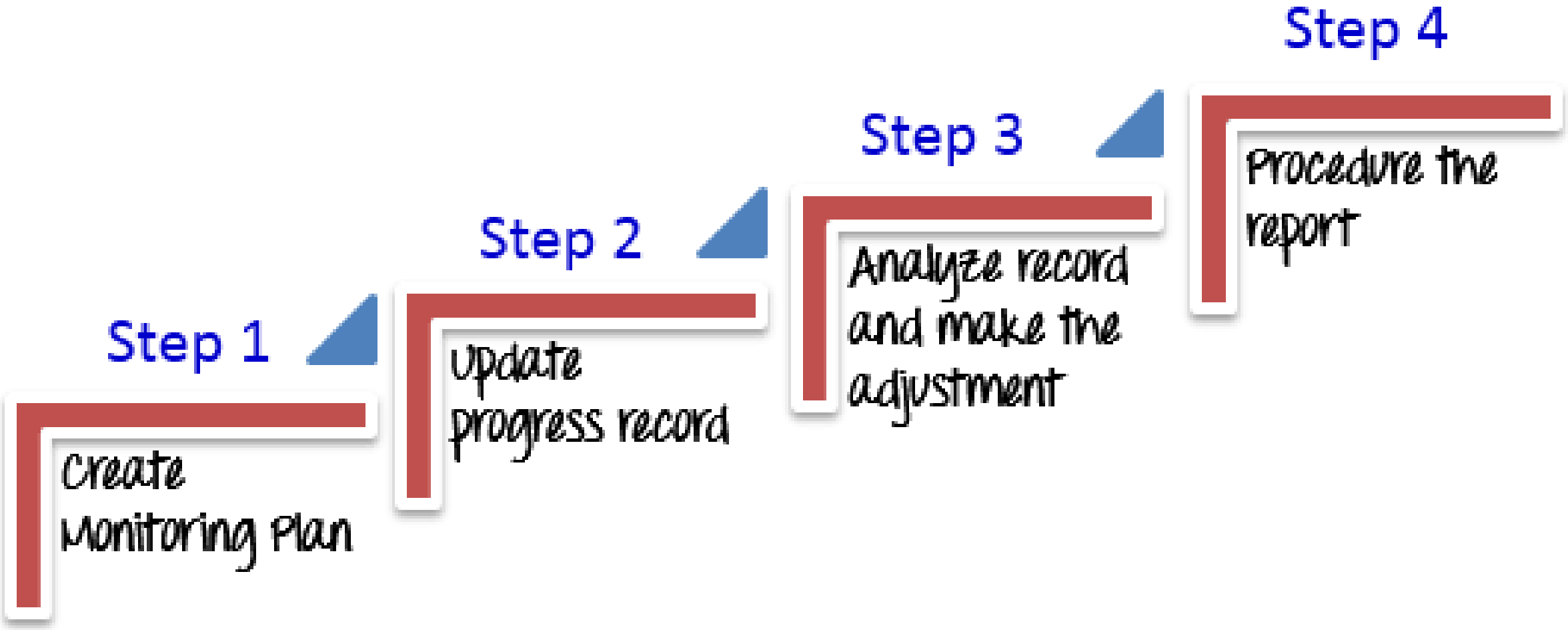
Track current progress of Test Activities

Test Monitoring & Control in Software Testing

Test Monitoring in test execution is a process in which the testing activities and testing efforts are evaluated in order to track current progress of testing activity, finding and tracking test metrics, estimating the future actions based on the test metrics and providing feedback to the concerned team as well as stakeholders about current testing process.

What do we monitor?

How to monitor?



What is Test Control?

Test Control occurs based on the results of Test Monitoring. It refers to taking corrective action based on test monitoring reports to improve quality and efficiency. Some examples of test control activities would be:

- Prioritize testing efforts in a different way
- Reorganize test schedules and deadlines
- Restructure the test environment
- Reprioritize the test case and conditions

Best Metrics to judge Test Efficiency

Test Passed Percentage: (Tests Passed/Total Tests)*100%

1. Metrics that cover cost-effectiveness and ROI

- **Automated test script development time** = (Hourly automation time per test x Number of automated test cases) / 8
- **Automated test script execution time** = (Automated test execution time per test x Number of automated test cases x Period of ROI) / 18
- **Automated test analysis time** = (Test Analysis time x Period of ROI) / 8
- **Automated test maintenance time** = (Maintenance time x Period of ROI) / 8
- **Manual Execution Time** = (Manual test execution time x Number of manual test cases * Period of ROI) / 8

Total defect containment efficiency:

(Bugs found in testing stage / Bugs found in testing stage + Bugs found after release)*100%

Function Test Coverage = FE/FT

Where,

FE is the number of test requirements that are covered by test cases that were executed against the software

FT is the total number of test requirements.

Test Execution Coverage:

[(Number of tests run) / (Number of tests to be run)] * 100%

Defect Gap Analysis :

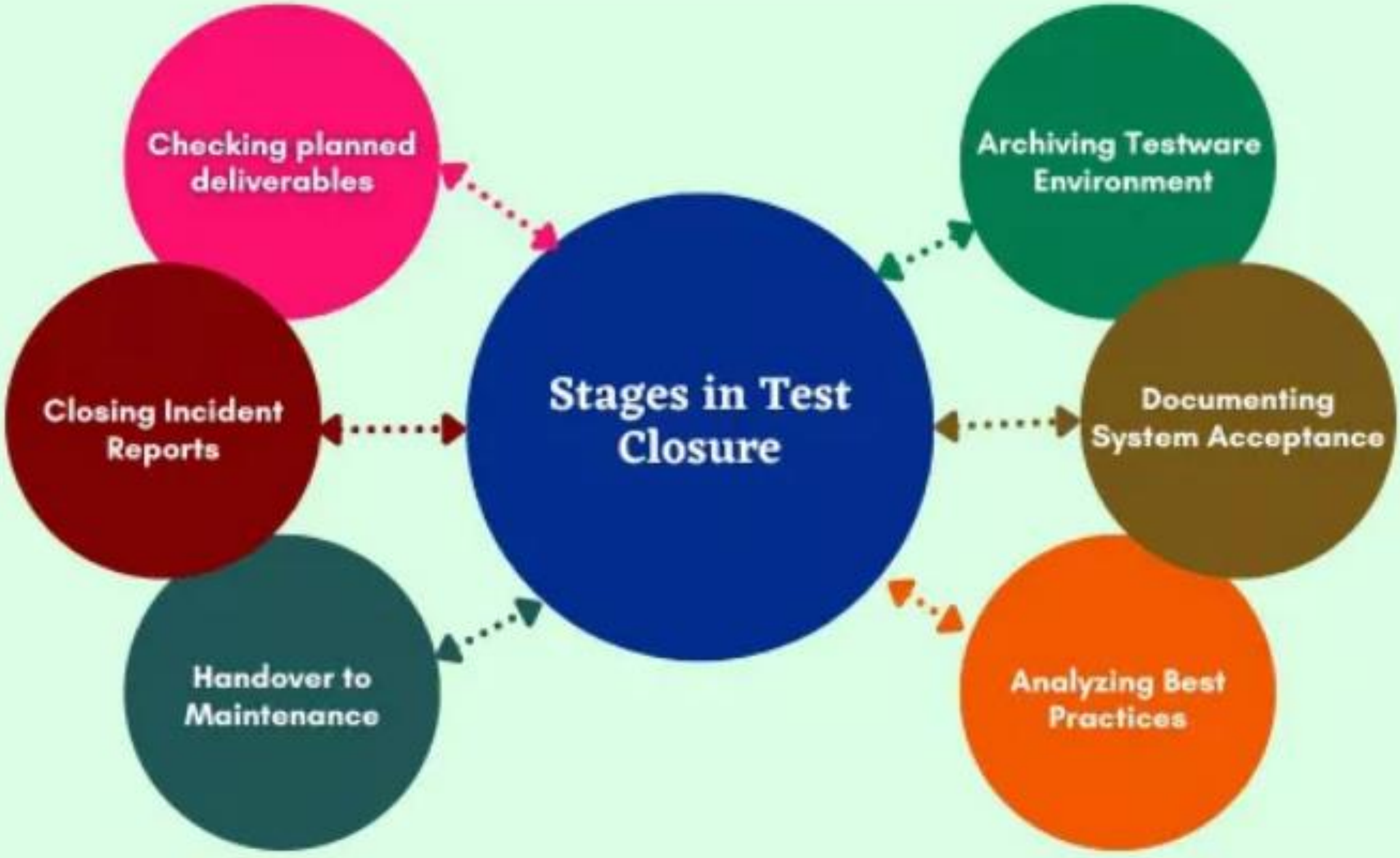
Defect Gap % = (Total number of defects fixed / Total Number of Valid Defects Reported) * 100 %

Test Closure -

Reporting Test Results

The contents of test closure report are as follows:

- Test Summary Report.
- Identifier.
- Test Summary.
- Variances.
- Comprehensive Assessment.
- Summary of Results.
- Evaluation.
- Summary of Activities.


Checking planned deliverables
Archiving Testware Environment
Closing Incident Reports
Stages in Test Closure
Documenting System Acceptance
Handover to Maintenance
Analyzing Best Practices

Test Log

Test Log Identifier

Description

The test log should be prepared by the person executing the tests. It is a diary of the events that take place during the test. It supports the concept of a test as a repeatable experiment

Activity and Event Entries

The tester should provide dates and names of test log authors for each event and activity. This section should also contain:

1. *Execution description:* Provide a test procedure identifier and also the names and functions of personnel involved in the test.
2. *Procedure results:* For each execution, record the results and the location of the output. Also report pass/fail status.
3. *Environmental information:* Provide any environmental conditions specific to this test.
4. *Anomalous events:* Any events occurring before/after an unexpected event should be recorded. If a tester is unable to start or compete a test procedure, details relating to these happenings should be recorded (e.g., a power failure or operating system crash).
5. *Incident report identifiers:* Record the identifiers of incident reports generated while the test is being executed.

Test Incident Report

The tester should record in a test incident report (sometimes called a problem report) any event that occurs during the execution of the tests that is unexpected, unexplainable, and that requires a follow-up investigation.

1. *Test Incident Report identifier:* to uniquely identify this report.
2. *Summary:* to identify the test items involved, the test procedures, test cases, and test log associated with this report.
3. *Incident description:* this should describe time and date, testers, observers, environment, inputs, expected outputs, actual outputs, anomalies, procedure step, environment, and attempts to repeat.
4. *Impact:* what impact will this incident have on the testing effort, the test plans, the test procedures, and the test cases? A severity rating should be inserted here.

Test Summary Report

This report is prepared when testing is complete. It is a summary of the results of the testing efforts. It also becomes a part of the project's historical database and provides a basis for lessons learned as applied to future projects. When a project postmortem is conducted, the Test Summary Report can help managers, testers, developers, and SQA staff to evaluate the effectiveness of the testing efforts.

1. *Test Summary Report identifier:* to uniquely identify this report.
2. *Variances:* these are descriptions of any variances of the test items from their original design. Deviations and reasons for the deviation from the test plan, test procedures, and test designs are discussed.
3. *Comprehensiveness assessment:* the document author discusses the comprehensiveness of the test effort as compared to test objectives and test completeness criteria as described in the test plan. Any features or combination of features that were not as fully tested as was planned should be identified.
4. *Summary of results:* the document author summarizes the testing results. All resolved incidents and their solutions should be described. Unresolved incidents should be recorded.
5. *Evaluation:* in this section the author evaluates each test item based on test results. Did it pass/fail the tests? If it failed, what was the level of severity of the failure?

6. *Summary of activities:* all testing activities and events are summarized. Resource consumption, actual task durations, and hardware and software tool usage should be recorded.
7. *Approvals:* the names of all persons who are needed to approve this document are listed with space for signatures and dates.

Reporting Test Results