*If you don’t measure something, you can’t change it.*

**What is metrics?**

Metrics are parameters or measures of quantitative assessment used for measurement, comparison or to track performance or production.

‘Metric’ is defined as “Standard of [measurement](http://www.businessdictionary.com/definition/measurement.html) by which [efficiency](http://www.businessdictionary.com/definition/efficiency.html), [progress](http://www.businessdictionary.com/definition/progress.html), [performance](http://www.businessdictionary.com/definition/performance.html), productivity, [quality](http://www.businessdictionary.com/definition/quality.html) of a [deliverable](http://www.businessdictionary.com/definition/plan.html), [process](http://www.businessdictionary.com/definition/process.html), project or [product](http://www.businessdictionary.com/definition/product.html) can be assessed”.

Project management performance metrics enable Project managers to:

* Assess status of ongoing project in terms of schedule, cost and profitability.
* Foresee any potential risks.
* Nail down the problems much before they become severe.
* Keep a check on project profitability.
* Assess productivity of team.
* Assess quality of work products to be delivered.

Types of Metrics:

Project Management metrics:

1. Effort variations:

**Performance Metric #1: Schedule and Effort/Cost Variance:** The goal of this metric is to measure the performance as well as progress of the project against signed baselines.

Basis is EVM (Earned value management) concept.

This metric is the difference between Estimated and Actual effort.

(Actual Effort - Estimated Effort)/

(Estimated Effort) \*100

1. Schedule variations

Objective:

The objective of this metric is to reduce the schedule variation by tracking it from beginning stage of the project through the end of the project, thereby reducing time overruns. Schedule Variation metric is mainly used as an indicator for capability to meet milestones

((Actual End date – Planned End date) /

(Planned End date - Planned Start date)) \* 100

1. Test case design productivity metric:

It determines the number of Test cases / Scripts that can be prepared per person days of effort.

Objective:

To determine the test design productivity based on which future estimation can be done for the similar projects

(No of Test Cases or scripts)/

(Effort spent for Test Case/script

Preparation)

1. Test Effectiveness % metric:

This metrics shows the efficiency of removing defects by internal Testing before delivering to customer. It determines Quality of defects logged.

Total Number of defects found by test team = 100  
 \ Number of defects Rejected by dev = 10

Total number of defects found by customer during UAT = 2

Test Effectiveness % = ((100 -10)/(100 + 2))\*100 = 88.23 %

1. **Test Execution Coverage**

This metrics is useful to measure the number of test case executed against the plan.

Total Number of test cases executed = 1100

Total Number of test cases planned to execute = 1080

Test Execution Coverage = (1080/1100)\*100 = 98.18

1. Test Execution productivity

Total Number of test cases executed = 1100

Total Number of test cases planned to execute = 1080

Test Execution Coverage = (1080/1100)\*100 = 98.18

1. Test ExecutionStatus:

Total Number of test cases = 100

% Test Cases Passed = (70/100)\*100 = 70%

% Test Cases Failed = (10/100)\*100 = 10%

% Test Cases Blocked = (10/100)\*100 = 10%

% Test Cases Not Completed = (10/100)\*100 = 10%

1. Error Discovery Rate or it is also called defect density ratio

It is defined as ratio of defects per test cases

Total no of Defects found = 100

Total no of test cases or scripts executed = 800

Error Discovery rate = 100/800 = 0.125 Defects/Test cases

**Objective:** The aim of this metrics is to determine the application stability

1. Defect Removal Efficiency %

Comparison of internally reported defects with total defects (including customer reported).

Objective:

This metrics shows the efficiency of removing defects by Internal Review and Testing process before shipment of the product to customer. The metric involves pre-ship defects and post-ship defects.

Total number of Pre-shipment Defects. = 100

Total number of post-shipment Defects = 2

Defect Removal Efficiency % = (100/102)\*100 = 98.0

1. Metrics to determine the quality of test execution:

Two ways can determine the quality of test execution

* **Defect rejection ratio:** (No. of defects rejected/ total no. of defects raised) X 100
* **Defect leakage ratio:** (No. of defect missed/total defects of software) X 100