

**TQA**

**Test Metrics**

**Version 1.1**

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**Xavient Information Systems**

2125 C Madera Road; Simi Valley, C.A 93065.

Main Line: 1.805.955.4111, Fax Line: 1.805.955.4144 Visit US: [www.xavient.com](http://www.xavient.com/)

**Version Summary:**

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| 1.0 | Ali Mahdi | Rashid Mustafa | Nishant Kumar Yadav | 14/06/2017 |

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# **Purpose**

This document serves as a guideline for understanding metrics.

**About Metrics -** Combination of two or more measures used to compare s/w processes, projects, and products. Set of metrics derived from the data collected from past projects at the organization level. These baselines are used as a basis to arrive at project specific quality goals

**Need for metrics in Testing and Quality analysis:**

• To determine the quality and progress of testing.

• To calculate how much more time is required for the release

• To estimate the time needed to fix defects.

• Metrics help in deciding the scope of the product that can be released by considering the defect density across modules, their importance to customers and impact analysis of those defects

**Benefits of Test Metrics:**



# **Requirement Slippage**

Requirements Slippage gives indication on ratio of Number of Missed requirements with Total No. of requirements.

**Objective:** Requirements Slippage index gives indication on effectiveness of the Requirements elicitation process. Requirements Slippage is given by Number of Missed Requirements to Number of Total Requirements, expressed as percentage figure. Here the missed requirements are those that were missed by the Project team during Requirements Elicitation process

**When it should be measured**: It should be measured at overall project level.

|  |  |  |
| --- | --- | --- |
| **Input/Measure** | **Formula** | **Example** |
| Total No. of Initial Requirements Total No. of Missed Requirements | (No. of Missed Requirements)/ (Total No. of Initial Requirements) \*100 | Total No. of Initial Requirements = 162 Total No. of Missed Requirements = 1  RLI = (1/162)\*100 = 0.61 |

**Benefits:** This helps to know effectiveness of the Requirements elicitation process.

# **Defect Leakage to UAT/Production**

This metric gives a very good indication of the review / testing process within a stage. It determines the % of defect leaked to the subsequent phases

**Objective:** To determine the Defect Leakage

**When it should be measured:** It should be measured at overall project level and stage level.

|  |  |  |
| --- | --- | --- |
| **Input/Measure** | **Formula** | **Example** |
| Total number of defects captured in that stage Number of defects attributed to a stage but only captured in subsequent stages (UAT) | (Number of defects attributed to a stage but only captured in subsequent stages) / (Total number of defects captured in that stage + Total Number of defects attributed to a stage but only captured in subsequent stages) \*100 | Total number of defects captured in that stage = 10 Number of defects attributed to a stage but only captured in subsequent stages (UAT) = 2 Defect Leakage % = (2/(10+2))\*100 =16% |

# **Review Efficiency**

It’s the ratio of number of review defects to total defects in software (review and testing)

**Objective:** This metric shows the efficiency of the review process. A higher ratio of Review Defects to Total Defects indicates a very efficient Review Process. However, a lower ratio need not necessarily mean that the review is inadequate. This may be due to frequent changes in scope, requirements etc. Typically, the review defects include all reviews, starting from the Requirements Stage. All review comments that arise from the

Review of Code/unit / integration / system test plans / procedures / cases shall be counted under Review defects. The total number of Defects includes all the defects found in reviews and testing.

**When it should be measured:** It should be measured at overall project level and stage level.

|  |  |  |
| --- | --- | --- |
| **Input/Measure** | **Formula** | **Example** |
| Number of Review defects Total number of Testing Defects including customer reported test defects | (Number of Review defects) / (Total number of Review + Testing Defects [including customer reported test defects])\*100 | Number of Review defects = 10 Total number of Testing Defects including customer reported test defects = 20 Review Efficiency% = (10/20)\*100 = 50 |

# **Test Coverage**

This is to measure the percentage of test case coverage against the number of test requirements.

**Objective:** The objective of this metrics to measure the functional coverage of test cases designed.

When it should be measured: It should be measured during test design phase

|  |  |  |
| --- | --- | --- |
| **Input/Measure** | **Formula** | **Example** |
| Total number of baselined testable requirements mapped to test cases Total number of baselined testable requirements | ((Total number of testable requirements mapped to test cases or Scripts ) /(Total number of baselined testable requirements)\*100 | Total number of baselined testable requirements mapped to test cases = 162 Total number of baselined testable requirements = 161 Design Coverage % =(161/162)\*100 =99.34% |

# **Test Case Effectiveness**

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

**Objective:** The objective of this metrics is to determine the testing efficiency.

When it should be measured: It should be measured at end of every build or test execution phase

|  |  |  |
| --- | --- | --- |
| **Input/Measure** | **Formula** | **Example** |
| Total Number of defects found by test team Total Number of defects Rejected by Customer Total number of defects found by customer during UAT | ((Total no of application defects found by test team -Total number of application defects rejected by the customer)/( Total no of application defects found by test team + Total number of defects found by customer during UAT))\*100 | Total Number of defects found by test team = 10 Total Number of defects Rejected by Customer = 0 Total number of defects found by customer during UAT = 2 Test Effectiveness % = ((10 -0)/(10 + 1))\*100 = 90.99 % |

# **Schedule Adherence**

Schedule Adherence is the ratio of difference between the Actual End Date and Planned End Date Vs. difference between Planned End Date and Planned Start Date for the project.

**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

**When it should be measured:** It should be measured at overall project level, Stage level and Task level (Process level and Sub process level for SDLC stages). Schedule variation need to be calculated only when the stage is completed.

|  |  |  |
| --- | --- | --- |
| **Input/Measure** | **Formula** | **Example** |
| Actual End Date Planned Start Date Planned End Date | ((Actual End date – Planned End date) / (Planned End date - Planned Start date)) \* 100 | 0 Planned Start Date = 1-April-17 Planned End Date = 15-May-17  Actual Start Date = 1-April-17 Actual End Date = 15-May-17  Schedule Variation % = (1 / 45) \* 100 = 2.22% |

**Benefits:** Schedule variation metrics is mainly used as an indicator for capability to meet milestones