Metrics Guidelines

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Revision History

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1.0	May 03, 2017	Sridhar	First Draft Made	Anitha T G	May 18, 2017

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1. Introduction

This guideline document describes the measurements and metrics analysis to be done by the projects for effective monitoring and improvement of the ePAL processes.

Metrics Report is used to consolidate all the project/sprint related measurements and compute the metrics as per metrics framework definitions. The metrics report helps in quantitative analysis of project progress during project reviews.

This report contains information related to:

- Project details
- Planned and actual sprint schedule
- Planned and actual sprint effort
- User stories delivered
- User Story Rejection Index
- Defect Density
- Defects details such as source, phase and severity captured in reviews and testing
- Test case related information
- Productivity information
- Project specific Metrics

This report is updated periodically at the end of each sprint and submitted to the next level during the Management Review meetings. The metrics report should be shared with the OPG team once in every quarter for the organizational level analysis.

2. Base Measures

- **Schedule:** Schedule is computed based on the calendar day's duration of sprint. Each sprint will have planned start date, planned end date, actual start date and actual end date.
- **Effort:** Effort needs to be captured in Person Hrs only. Effort computation takes the following conditions into account
- **User Stories:** Agile considers the requirements as user stories. For each sprint below count are to be calculated
  - Number of user stories planned
  - Number of user stories delivered
  - Number of user stories rejected
- **Defects:** In each sprint the team has to capture the defects reported either during review or testing activities. Also capture the defects reported by the customer during the sprint demo or during UAT.

- Internal Defect count (Reviews and Testing)
- Customer Reported Defects count
- Test cases passed
- Test cases failed
- Code Coverage

- **Size:** Agile each user story is estimated using story points and at the end of the sprint the stories are reassessed to get the actual size of the sprint in terms of story points.

3. Metrics Report

This section is designed to show the sprint metrics over the entire life cycle of the project. All the sprint level data and metrics are calculated in this report. Each sprint is one column and at the end of the sprint the scrum master has to update this sheet to understand the sprint level metrics.

Below is the list of metrics that gets calculated for each sprint

- Schedule Deviation
- Effort Deviation
- Productivity
- Defect Density
- User Story Rejection
- Velocity

3.1. Charts

This section shows the graphical representation of the metrics and their trends over the sprints. The scrum master should understand the pattern from this chart and take any corrections as required.

The trend charts are available for

- Schedule Deviation
- Effort Deviation
- Productivity
- Defect Density
- User Story Rejection
- Velocity
- Defect Removal Efficiency
- Field Error Rate

Effort Distribution (Pie Chart): This chart illustrates the % of efforts being spend in each of the following activities that are to be performed in each sprint.

- User Story Grooming

- Design
- Coding
- Unit Testing
- Integration Testing
- Regression Testing
- System Testing
- Project Management
- Others

3.2. Project Specific Metrics

This section is left to the discretion of the scrum master. Description of Metrics, expected and actual results need to be entered. Typically project specific Metrics are derived based on the customer expectations from project execution. The scrum master can define the metrics in the project management plan and update the metrics analysis report with the required calculations and charts.

3.3. Inferences and Actions

- The scrum master has to update the inferences and actions at each sprint based on the metrics analysis for that month and also based on the trends and patterns.
- The scrum master has to go through each individual metric and update the observations in the inferences sheet of metrics analysis report.
- Wherever there are goals set the scrum master has to compare the metrics actual values for that month against the goals. Where the goals are not available the scrum master has to relatively understand from the previous sprint values and accordingly update his inferences.
- For any significant deviations the reasons have to be updated in the report and if the trend is consistent with respect to deviations then it is recommended to go for a Root Cause Analysis.
- Also update the actions and track the actions in the project workbook towards closure.
- Some of the sample inferences includes
    - There is no significant deviation observed in this metric from the previous sprints
    - The deviation for this month is very high and need to do an investigation
    - Goals were met
    - Goals were not met
    - Consistently the goals were not met in the last 4 sprints, there is a need to do a Root Cause Analysis