Organizational metrics program
how to avoid measuring an average color of fruits

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Metrics Gathering. Why?

Organization
Unified Process model

Establish set of metrics in all projects

Vs.

Organization
Heterogeneous environment
- projects are parts of distributed programs
- projects following different process models
- term “project” - team with its area of responsibility in the assigned activity (-ies)

Establish set of metrics in all projects
Faced Problems

How to gather and track metrics in heterogeneous environment?

How to make metrics gathered at project level visible and valuable to the senior management?

Establish metrics in all projects through finding a common “DENOMINATOR” that can:

• tie projects
• provide an instrument for quantitative project management

Our aim
Metrics Program at Project Level

Project Type Vs. Activity Type

- Code/test development
- Test execution
- Test automation
- Bug fix
- Agile (SCRUM)
Examples of Basic Metrics

<table>
<thead>
<tr>
<th>Activity</th>
<th>Basic Metrics</th>
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<tbody>
<tr>
<td>Test Execution</td>
<td>Number of Escape Defects</td>
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<td></td>
<td>Execution Productivity</td>
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<td></td>
<td>Number of defects submitted during test cycle</td>
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<tr>
<td></td>
<td>CR Rejection Ratio</td>
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<tr>
<td>Bug Fix</td>
<td>CR Closure Rate</td>
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<td></td>
<td>Age of open CRs</td>
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<tr>
<td></td>
<td>Number of open/closed CRs</td>
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<tr>
<td></td>
<td>CR Productivity</td>
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<td></td>
<td>Fix-on-Fix</td>
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<td>...</td>
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<tr>
<td>Agile (SCRUM)</td>
<td>Sprint Velocity</td>
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<td>Scope Completion</td>
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<td>Team Velocity</td>
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<td></td>
<td>Escaped Defects</td>
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<td>...</td>
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<tr>
<td>Other Types</td>
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To track open critical bugs and close them within the limited number of days

Data for analysis: how to prevent functionality breakage by related fix

To evaluate defect submission efficiency of test team
Metrics Selection

Selects type(s) of activities

Studies the list of basic metrics for selected activity type

Defines metrics applicability (based on project goals and specifics)

Establishes additional metrics (if needed)

Documents in Summary Metrics Plan

Defines:
- collection method
- update and analysis frequency

Project
**Summary Metrics Plan (example)**

### Project Information
- **Project A**: active, Bug Fix, Age of open CRs, Tailored, Age of open customer's bugs, completed, 1-Feb-12, Defect tracking tool dashboard is used, each time dashboard is opened, not more than 30 days.
- **Project B**: active, Bug Fix, Age of open CRs, Yes, Done for bugs and new work by components, completed, 25-Mar-12, spreadsheet is used, weekly, No.
- **Project C**: active, Test Execution, Escape Defects, Tailored, Only critical bugs from higher levels of testing and from customer's testing are tracked, completed, 10-Nov-11, spreadsheet is used, monthly, Zero escaped defects.
- **Project D**: active, Test Execution, CR Rejection Ratio, Yes, 6% of rejected bugs, completed, 10-Nov-11, bi-weekly, No.

### Selected Activity Type and Metrics Applicability
- **Project A**: active, Bug Fix, Age of open CRs, Tailored, Age of open customer's bugs, completed, 1-Feb-12, Defect tracking tool dashboard is used, each time dashboard is opened, not more than 30 days.
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### Metrics Update Frequency
- **Project A**: active, Bug Fix, Age of open CRs, Tailored, Age of open customer's bugs, completed, 1-Feb-12, Defect tracking tool dashboard is used, each time dashboard is opened, not more than 30 days.
- **Project B**: active, Bug Fix, Age of open CRs, Yes, Done for bugs and new work by components, completed, 25-Mar-12, spreadsheet is used, weekly, No.
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### Related goal/specific limit and Management review applicability
Metrics analysis and review at organizational level

Make metrics analysis done at project level visible and valuable to the senior management

Management wanted:

*a simple, concise report on projects/programs metrics activities in the terms that are understandable for them and that can be compared somehow*
Corporate Product Development Framework

Business Portfolio Strategy

Concept Plan Develop Deploy EOL

Project 1
Project 2
Project 3
Metrics Dashboard

• Unified picture from different sources
• “Traffic light” indication of project health based on key metrics status
• Metrics selected as per criteria:
  – Goals/thresholds are established
  – Root cause analysis is conducted
  – Other: potential goals/thresholds can be established for trial metrics, e.g. important but new metrics
# Metrics Dashboard (Example)

- **Red** indicates change actions with high priority.
- **Yellow** indicates a need for improvement actions.
- **Green** indicates satisfactory progress of the analyzed metrics.
- **Not Rated** – explaining comments should be provided, e.g. it is a new metrics and there are no data for analysis.
- Analysis is done by PMs monthly.

<table>
<thead>
<tr>
<th>Project/Team</th>
<th>Metrics</th>
<th>Metrics Indicator/Goal</th>
<th>Link to chart</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project 1</td>
<td>Customer's open bugs age</td>
<td>all releases, opened not more than 30 days</td>
<td>Link to metrics</td>
<td>Red</td>
<td><img src="https://via.placeholder.com/15" alt="" /></td>
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<tr>
<td>Project 1</td>
<td>Escaped defects</td>
<td>Only critical bugs are analyzed</td>
<td>Link to metrics</td>
<td><img src="https://via.placeholder.com/15" alt="" /></td>
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<td>Apr–May: No new data for analysis. Mar: Analysis of new potential escaped defects was conducted. No escaped defects are defined. Corrective actions from previous month are closed. Feb: Potential escaped bugs were analyzed, part of defects were accepted as escaped. Action plan was defined.</td>
</tr>
<tr>
<td>Project 2</td>
<td>CR rejection rate</td>
<td>goal: not more than 5% of rejected bugs</td>
<td>Link to metrics</td>
<td>Not Rated</td>
<td><img src="https://via.placeholder.com/15" alt="" /></td>
<td><img src="https://via.placeholder.com/15" alt="" /></td>
<td><img src="https://via.placeholder.com/15" alt="" /></td>
<td>Mar–May: Number of rejected CRs is not above limit of 5%. Feb: The metrics is under implementation, no rating is applicable.</td>
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</tbody>
</table>
Summary

• Establishing organization Metrics Program by activity type in heterogeneous environment Data being collected can be used as a basis for organization history database

• Metrics Dashboard use has increased visibility, clarity and value of measurement and analysis process to the senior management in the highly distributed integrated environment
Thank you!
Questions?