

Proposal for SCM Metrics

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Definitions

- Configuration Item (CI)
 - a CI is a collection of objects related to the specific functionality of a larger system
 - Code
 - Requirements
 - Documentation
 - Models



Configuration status accounting

- Configuration status accounting activities record and report the status of project CIs.
 - What data elements are to be tracked and reported for baselines and changes;
 - What types of status accounting reports are to be generated and their frequency;
 - How information is to be collected, stored, processed, and reported;
 - ~~How access to the status data is to be controlled.~~
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Common tools

- Version Control System (VCS)
 - Controls versions and revisions of software products
 - CVS, SVN, Mercury, GNU Arch
- Task Management System (TMS)
 - Controls developers' tasks
 - Trac, SourceForge, Savane



Metrics provided by VCS

- Date of commits
- Number of commits
- Versions/Revisions
- LOC per date, LOC per developer, LOC per ...



Metrics provided by TMS

- Change petition status
- Change petition date/status log



Minimum data elements

- initial approved version (VCS)
 - date, version, number of changes
- the status of requested changes (TMS)
 - fixed, assigned, postponed, scheduled
- the implementation status of approved changes (TMS)
 - complete, percentage, hold



Calculable metrics

- From TMS database
 - Mean time to accept a a change
 - Mean time to complete a change
 - Percentage of accepted changes
 - Percentage of completed changes



Desirable metrics

- Change complexity
 - Combination of LOC, affected files and time to complete
 - Could be validated by expert review
- Impact analysis accuracy
 - A comparison between change complexity and impact analysis



Estimations

- Time to make a change based on its impact analysis
 - We must obtain a high impact analysis accuracy
 - We could estimate based on previous impact analysis accuracies



What's next?

- GQM analysis?
- Create a model?
- Apply the model?
- Validate the model?



Questions please

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