Integrating TSP[SM] Data with External Systems: Challenges and Opportunities

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Data Integration Opportunities

- TSP provides a powerful framework for data collection and analysis
- Mature organizations will have planning, tracking, and reporting processes of their own
- Well-designed data integration efforts can:
  - Remove barriers to organizational adoption
  - Improve the quality of data provided to organizational processes
  - Enable new synergies between complementary business processes

Pitfalls to Avoid

- Data Privacy
- Corruption of Data Purpose
- Impedance Mismatch

Data Privacy

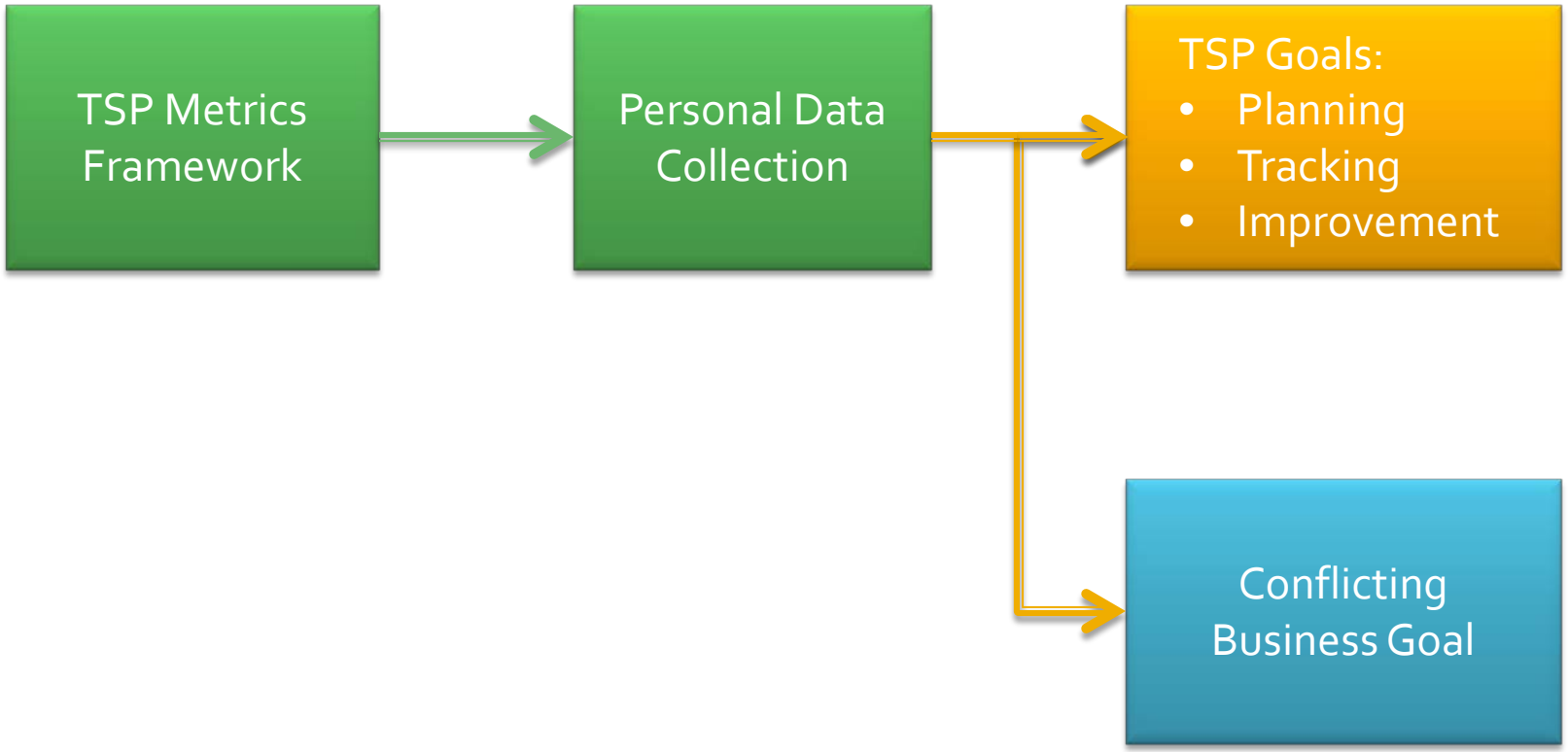
- Multiple potential pitfalls
  - Using data to reward or punish
  - Comparing individuals or teams
  - Oversharing of detailed data
  - Release of data to people who do not understand how to interpret it properly

Data Privacy – 2

- When someone in your organization uses TSP data to [reward / punish / compare / etc], individuals will begin collecting data that makes them look good.
- Once that happens, the data is no longer useful for making [reward / punish / compare] decisions. And unfortunately, it becomes worthless for the original TSP purposes too.
  - Quick and easy way to destroy a TSP initiative

Corruption of Data Purpose

Corruption of Data Purpose – 2



Mitigation Strategies

- Constant vigilance
- Data Governance Board to set policies and procedures
- Continual training and mentoring of downstream consumers of data
- Careful sanitization / filtering of data

Impedance Mismatch

Two concepts may:

- share the same name
- be measured with the same units

…but that does not ensure they are compatible

TSP Data Collection

Time

Size

Defects

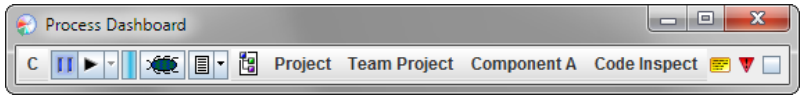
Schedule

Time Logging

- Common integration desire – but ill-advised
- Man Hours ≠ Task Hours
  - Task Hours are a *proxy* for total effort, designed to:
    - Measure the project tasks that
      - correlate most closely to project completion
      - have a direct impact on product quality
    - Keep metrics collection overhead to a minimum
- Impedance mismatch → Corruption of Purpose

Incurred/Remaining Cost Integration

Softtek Integration of TSP Time Data with HP PPM / SAP



Team Project Data Folder (XML files)

Nightly Batch Process

- Planned task effort
- Raw time log data

Scaling Factor

- Incurred Cost
- Remaining Cost

HP PPM

SAP

- Capacity Planning reports for Upper Management

- Custom reports for middle management
- Audit reports for coaches (e.g. Benford's Law)
- MS Project reports for non-TSP customers

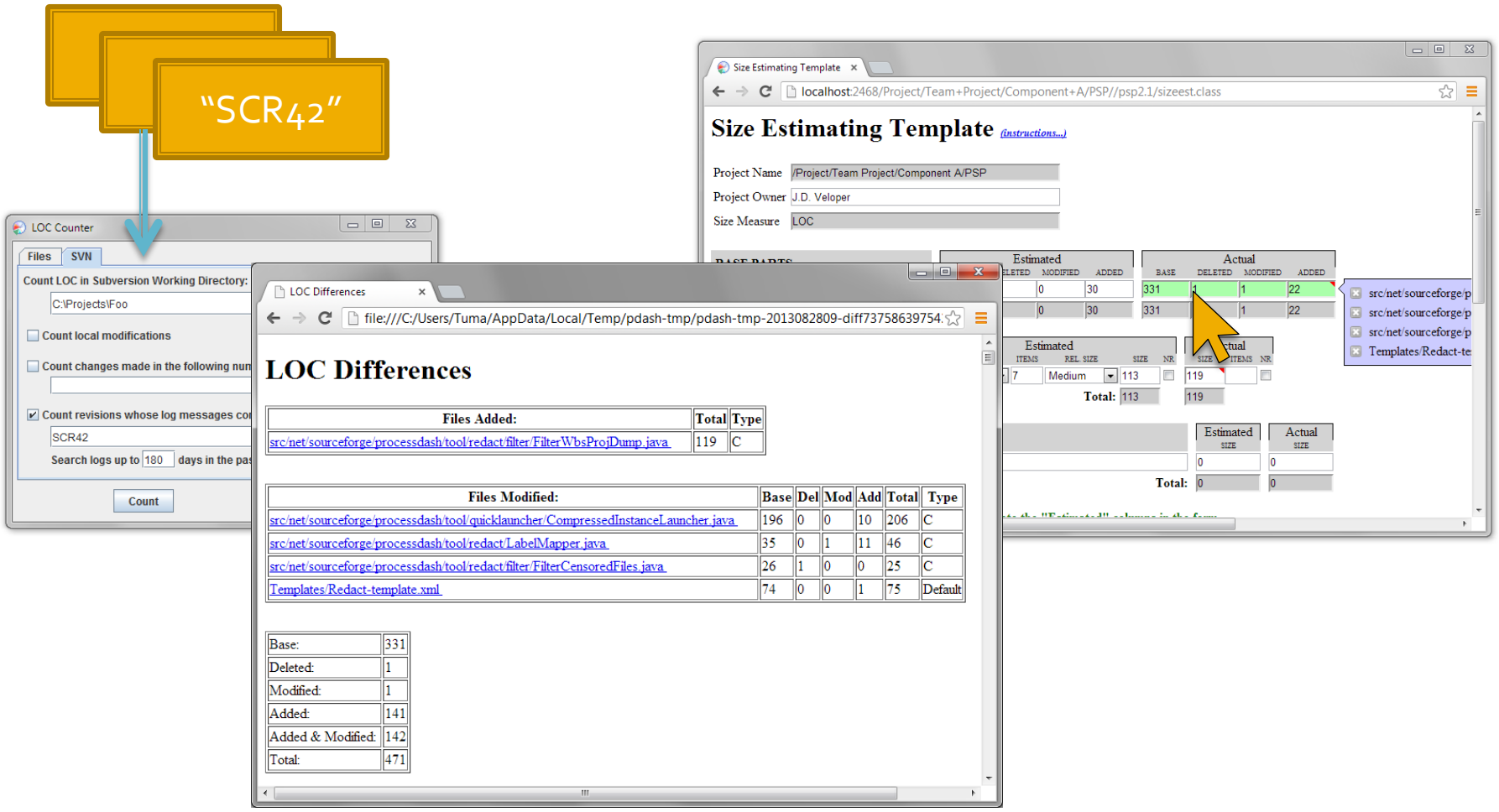
Size

- Actual Size data is very important to TSP
- Gathering the data requires discipline
- Many COTS products only measure Total LOC
- Valuable opportunity: integrate with version control system
  - Compare versions to see added/deleted/modified
  - Take care to observe LOC Counting Standard

Automatic Size Counting

FNB Integration of SVN and Size Estimating Template

Code Commits to SVN



Automatic Size Recording from SCM Systems

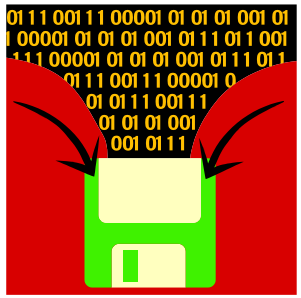
Perforce/Clearcase integrations with Process Dashboard

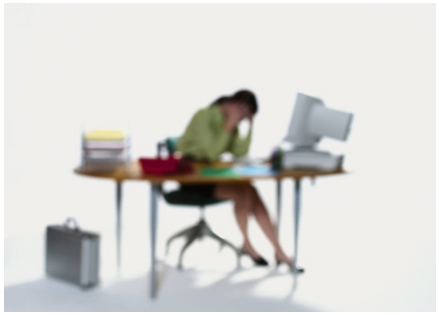
PERFORCE

Rational ClearCase

Code change set

Lines of Code?



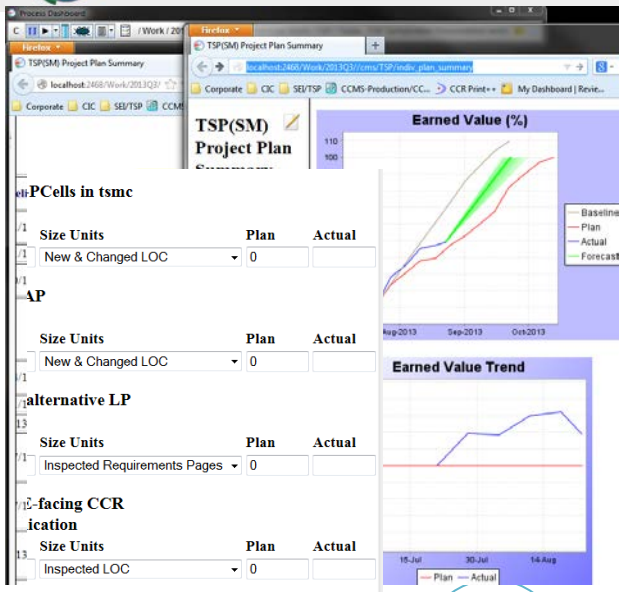


Legacy

In-memory SQL database standard representation of TSP data

SCM-specific Scripts to process data

Process Dashboard



Size Inventory REST API

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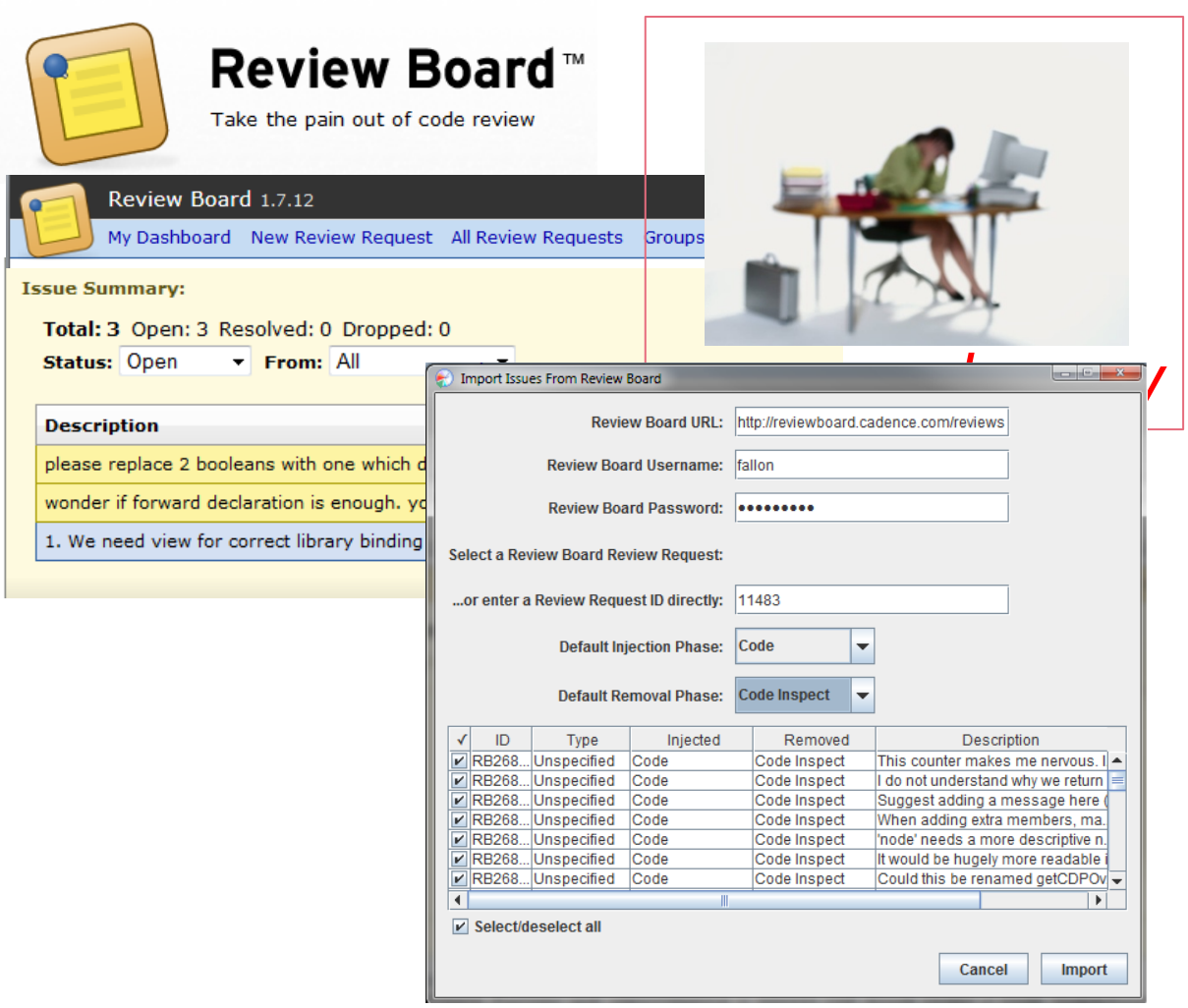
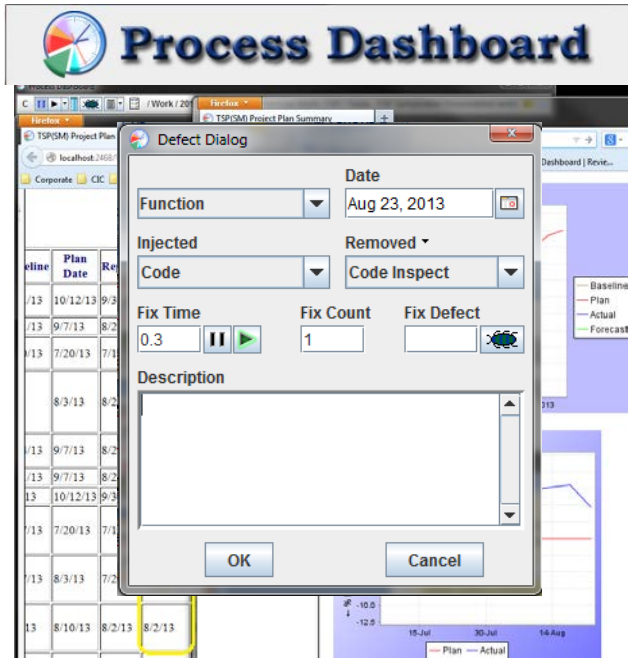
Defects

- Defects are often captured in a number of different systems and tools
  - Peer Review / Inspection Tools
  - Organizational Defect Trackers
  - TSP Defect Log
- Duplicate entry can be frustrating

Code Inspection Defect Import

Importing issues as TSP Defects





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Organizational Defect Trackers

- Organizational defect tracking databases are used for system test, IV&V, and production
- Teams dislike double-entry into a TSP tool
- This seems like an obvious candidate for integration
- Unfortunately, teams encounter several common challenges when attempting to integrate these databases

Organizational Defect Trackers – 2

"A defect is anything in software programs or other products that must be changed for it to be properly designed, developed, maintained, enhanced, or used."

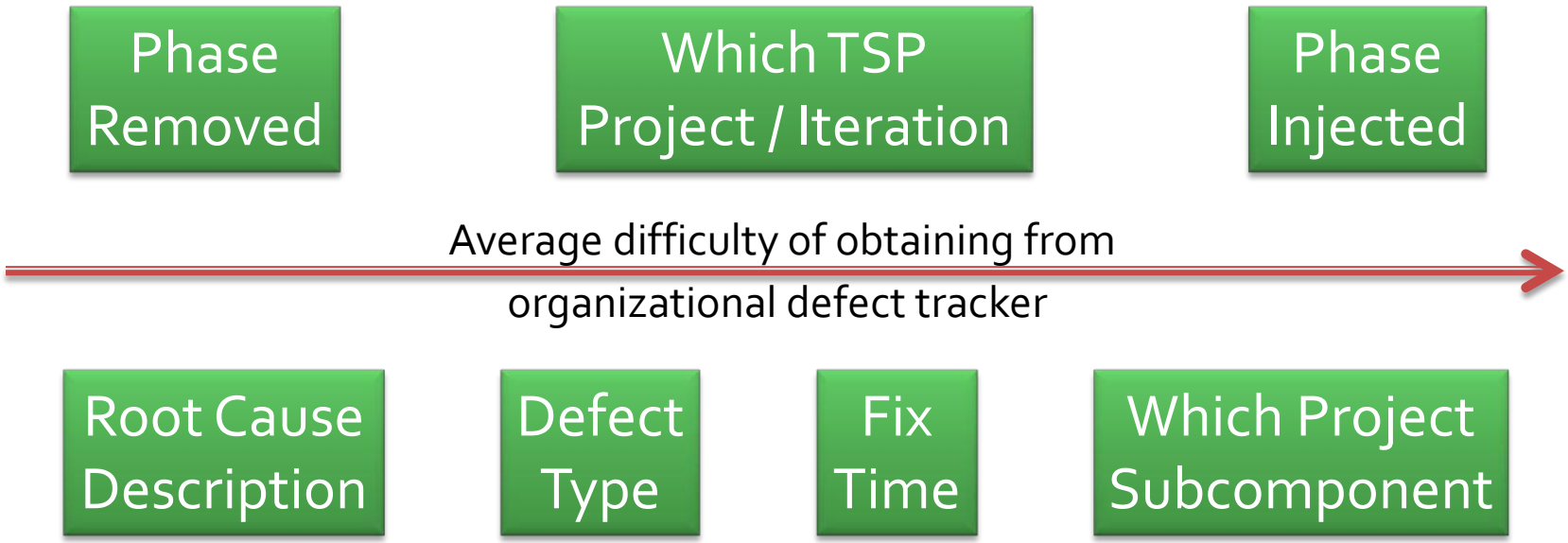
– TSP Body of Knowledge

Entries in an organizational defect tracker may be:

- Symptoms of an underlying defect or defects
- Enhancement requests or changes to requirements
- New project tasks

Organizational Defect Trackers – 3

Organizational defect trackers often do not capture the full range of descriptive attributes needed to support all TSP analyses



Schedule

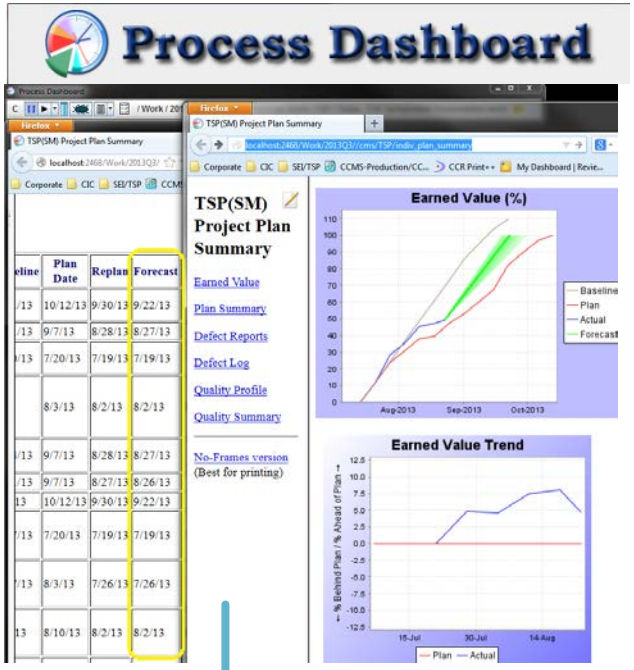
- TSP Schedule data is a particularly attractive target for data integration
  - Fewer impedance mismatches
  - Simpler data privacy concerns
  - Common business goal avoids corruption of intent
  - Impressive quality of TSP data
- Prudence and good judgment are still required
  - Avoid oversharing of task detail
  - Effort ≠ Task Hours

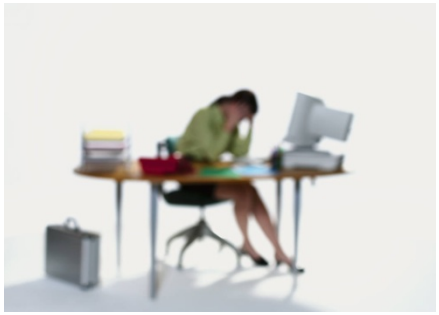
MS Project

- TSP teams may be one part of a larger program that is managed with MS Project
- Simplest possible integration
  - Create MS Project Plan at the *summary* level only
  - Weekly updates copied manually from TSP tool for % Complete, Planned Completion Date, etc.
- More sophisticated integrations are possible

Cadence Project Tracking Systems

Integration with TSP Projected Completion Dates

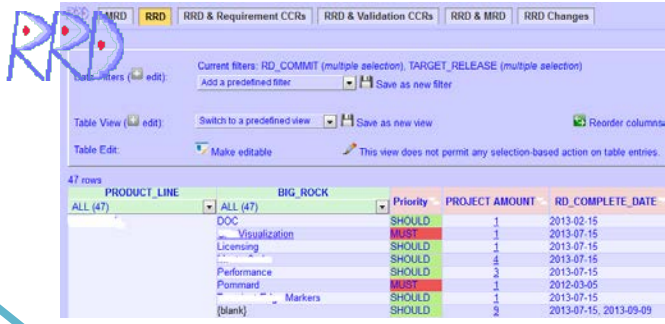




Legacy

CCMs Cadence Change Management System

SQL database with script-able access & change



In-memory SQL database standard representation of TSP data

Team-Custom Scripts to process data from SQL DBs and update

SQL database connected to CCMS

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Summary

- Data Integration efforts can
  - Improve organizational efficiency
  - Increase satisfaction of TSP teams
  - Help to speed TSP adoption
  - Help make TSP part of organizational culture
- Data must be handled with care and respect
- The return from a successful integration effort can be well worth the investment

Questions

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