

# Integrating TSP<sup>SM</sup> 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

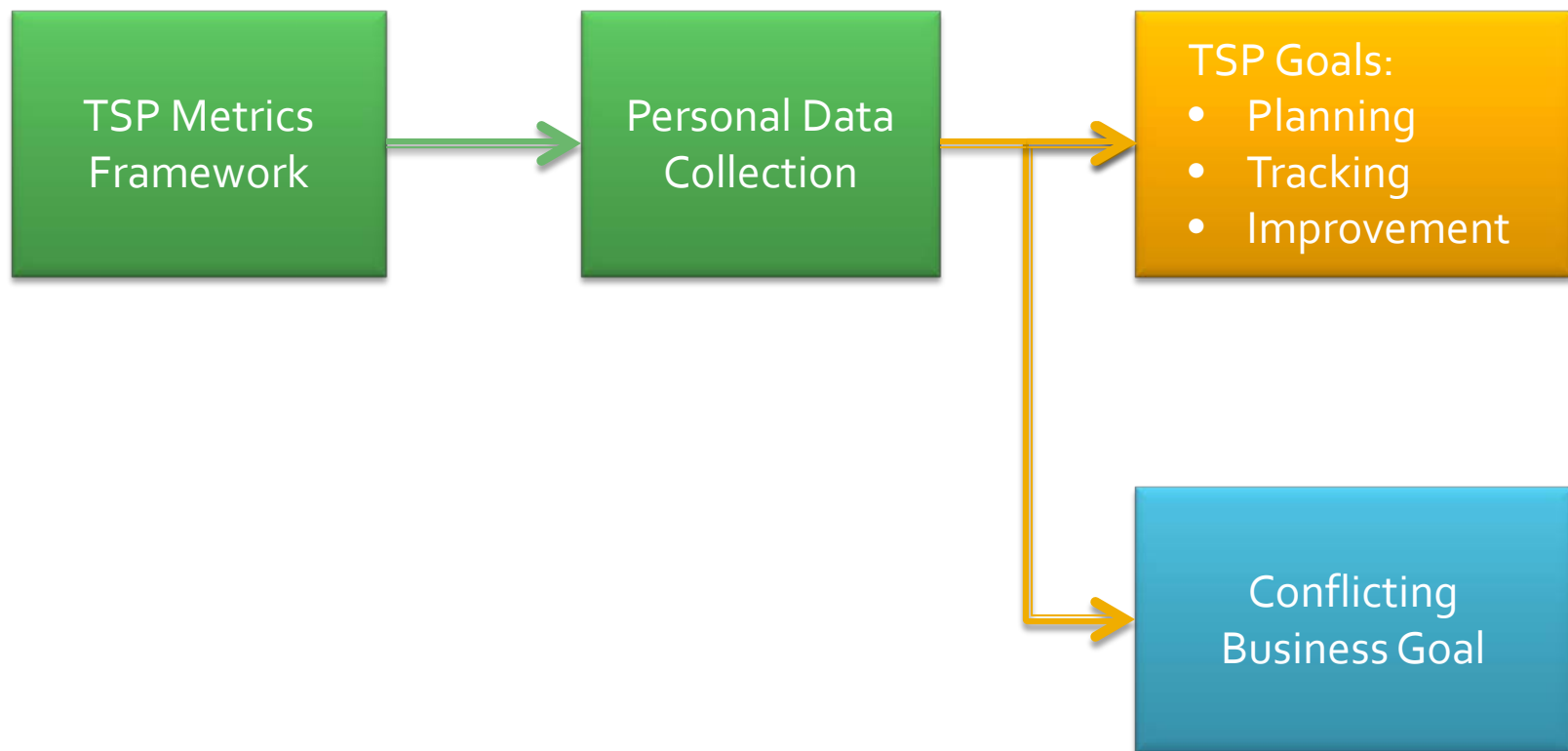
# Data Privacy – 2

- 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

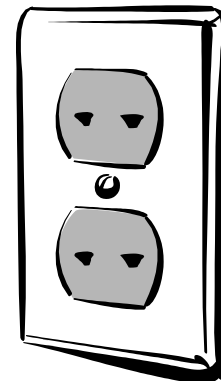


# Impedance Mismatch

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

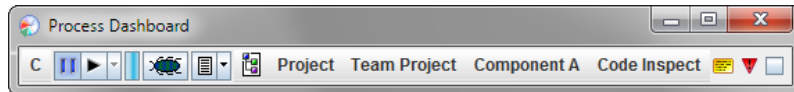


# Time Logging

- Common integration desire – but ill-advised
- Man Hours  $\neq$  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  $\rightarrow$  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



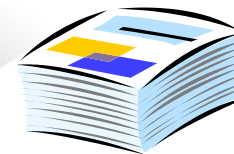
HP PPM



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

The diagram illustrates the workflow for automatic size counting. It shows three main components: a 'LOC Counter' window, a 'LOC Differences' window, and a 'Size Estimating Template' web application.

**LOC Counter:** This window is used to count LOC in a Subversion Working Directory. It has a 'Files' tab and an 'SVN' tab. The 'SVN' tab is selected, showing the directory 'C:\Projects\Foo'. It includes checkboxes for 'Count local modifications', 'Count changes made in the following number of days', and 'Count revisions whose log messages contain'. The 'Count revisions whose log messages contain' checkbox is checked, and the search term 'SCR42' is entered. The 'Search logs up to' field is set to 180 days. A 'Count' button is at the bottom.

**LOC Differences:** This window shows the results of the LOC counting. It has a 'Files Added' section and a 'Files Modified' section. The 'Files Added' section shows a table with columns 'File', 'Total', and 'Type'. The 'Files Modified' section shows a table with columns 'File', 'Base', 'Del', 'Mod', 'Add', 'Total', and 'Type'. A summary table at the bottom shows the following data:

Category	Value
Base:	331
Deleted:	1
Modified:	1
Added:	141
Added & Modified:	142
Total:	471

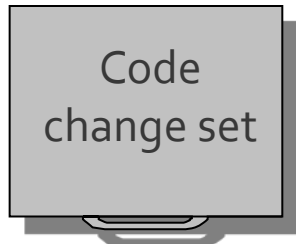
**Size Estimating Template:** This is a web application running on localhost:2468. It has a 'Project Name' field set to '/Project/Team Project/Component A/PSP', a 'Project Owner' field set to 'J.D. Veloper', and a 'Size Measure' field set to 'LOC'. It displays a table with columns 'Estimated' and 'Actual', each with sub-columns 'DELETED', 'MODIFIED', and 'ADDED'. The 'Estimated' table shows a total of 113. The 'Actual' table shows a total of 119. A yellow arrow points to the 'Actual' table, highlighting the 'ADDED' column.

# Automatic Size Recording from SCM Systems

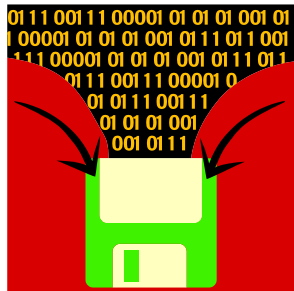
## Perforce/Clearcase integrations with Process Dashboard



Rational ClearCase



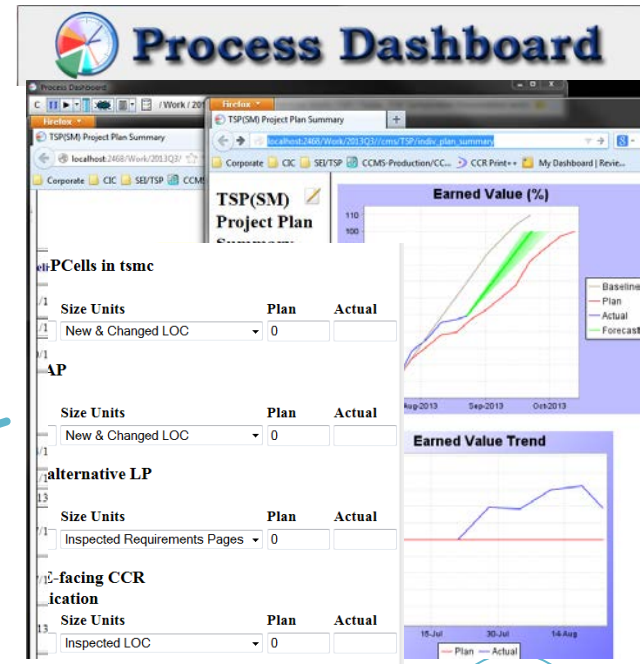
Lines of Code?



Legacy

In-memory SQL  
database  
standard  
representation  
of TSP data

SCM-specific Scripts to  
process data



Size Inventory  
REST API

# 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



## Review Board™

Take the pain out of code review



Review Board 1.7.12

[My Dashboard](#) [New Review Request](#) [All Review Requests](#) [Groups](#)

### Issue Summary:

Total: 3 Open: 3 Resolved: 0 Dropped: 0

Status: **Open** From: **All**

### Description

please replace 2 booleans with one which d

wonder if forward declaration is enough. y

1. We need view for correct library binding



Import Issues From Review Board

Review Board URL:

Review Board Username:

Review Board Password:

Select a Review Board Review Request:

...or enter a Review Request ID directly:

Default Injection Phase:

Default Removal Phase:

✓	ID	Type	Injected	Removed	Description
<input checked="" type="checkbox"/>	RB268...	Unspecified	Code	Code Inspect	This counter makes me nervous. I
<input checked="" type="checkbox"/>	RB268...	Unspecified	Code	Code Inspect	I do not understand why we return
<input checked="" type="checkbox"/>	RB268...	Unspecified	Code	Code Inspect	Suggest adding a message here
<input checked="" type="checkbox"/>	RB268...	Unspecified	Code	Code Inspect	When adding extra members, ma
<input checked="" type="checkbox"/>	RB268...	Unspecified	Code	Code Inspect	'node' needs a more descriptive n
<input checked="" type="checkbox"/>	RB268...	Unspecified	Code	Code Inspect	It would be hugely more readable
<input checked="" type="checkbox"/>	RB268...	Unspecified	Code	Code Inspect	Could this be renamed getCDPOv

☒ Select/deselect all

Process Dashboard

Defect Dialog

Date:

Function:

Injected:  Removed:

Fix Time:  Fix Count:  Fix Defect:

Description:

# 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."*

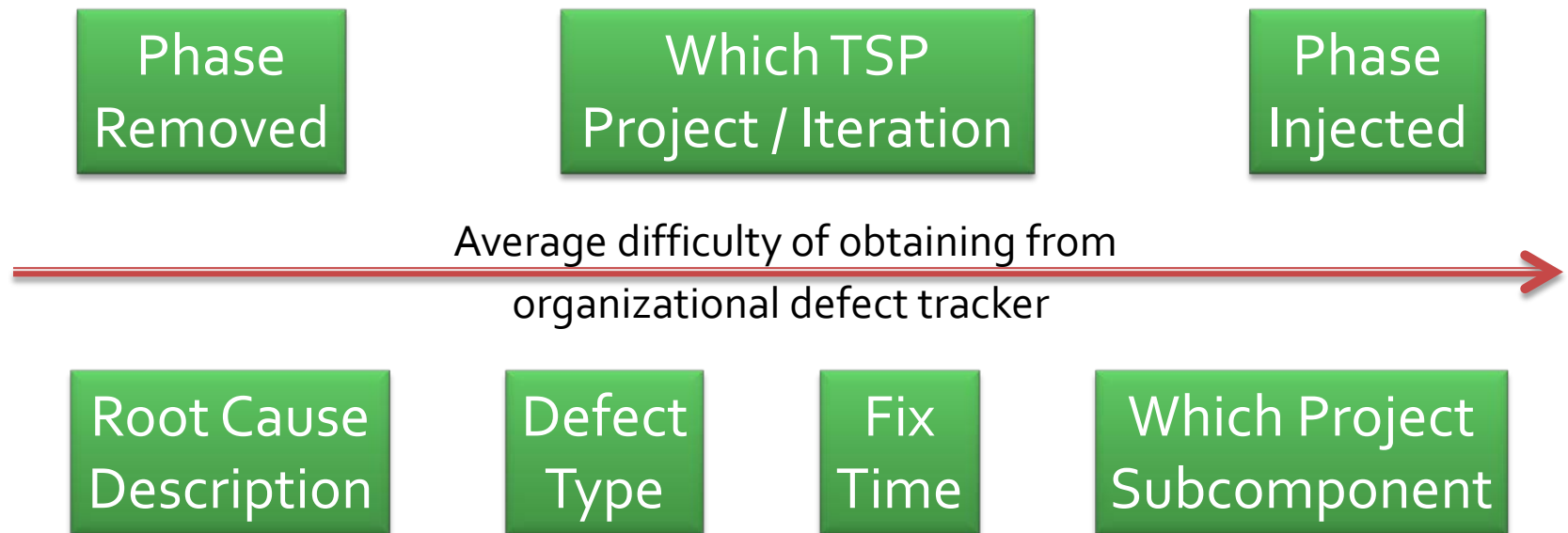
–TSP Body of Knowledge

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

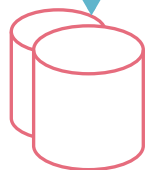
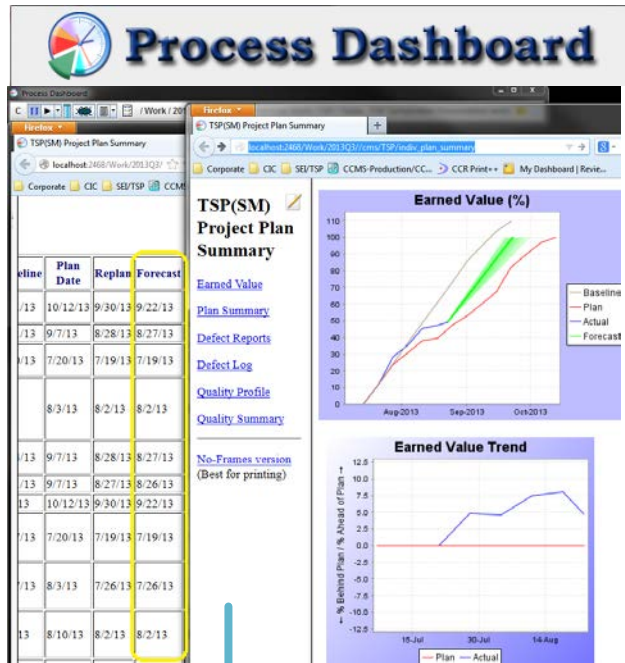
- TSP Schedule data is a particularly attractive target for data integration
  - Fewer impedance mismatches
  - Simpler data privacy concerns
  - Common business goal avoids corruption of intent
  - Impressive quality of TSP data
- Prudence and good judgment are still required
  - Avoid oversharing of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

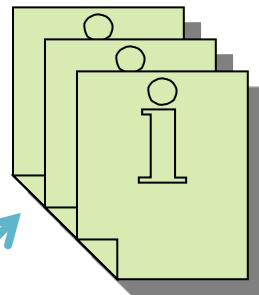
## Integration with TSP Projected Completion Dates



In-memory SQL database standard representation of TSP data



*Legacy*



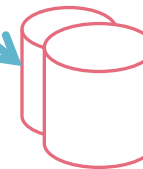
Team-Custom Scripts to process data from SQL DBs and update



SQL database with script-able access & change



RRD & Requirement CCRs					RRD & Validation CCRs	RRD & MRO	RRD Changes
Current filters: RD_COMMIT (multiple selection), TARGET_RELEASE (multiple selection)					Add a predefined filter		
Table View (edit)					Switch to a predefined view		
Table Edit					Make editable		
47 rows					This view does not permit any selection-based action on table entries.		
PRODUCT_LINE	BIG_ROCK	Priority	PROJECT_AMOUNT	RD_COMPLETE_DATE			
ALL (47)	ALL (47)						
DOC		SHOULD	1	2013-02-15			
Visualization		MUST	1	2013-07-15			
Licensing		SHOULD	1	2013-07-15			
Performance		SHOULD	4	2013-07-15			
Command		SHOULD	3	2013-07-15			
Markers		MUST	1	2013-03-05			
[blank]		SHOULD	1	2013-07-15			
		SHOULD	2	2013-07-15, 2013-09-09			



SQL database connected to CCMS

# 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



# Contact Information

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