Integrating TSP\textsuperscript{SM} Data with External Systems: Challenges and Opportunities
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
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

Our goal is to write bug-free software. I'll pay a ten-dollar bonus for every bug you find and fix.

Yahoo! We're rich! Yes!!! Yes!!! Yes!!!

I hope this drives the right behavior.

I'm gonna write me a new minivan this afternoon!
Corruption of Data Purpose – 2

TSP Goals:
- Planning
- Tracking
- Improvement

Conflicting Business Goal
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
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
Softteck Integration of TSP Time Data with HP PPM / SAP

Nightly Batch Process
- Planned task effort
- Raw time log data

Scaling Factor

- Incurred Cost
- Remaining Cost

HP PPM

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

Team Project Data Folder (XML files)

SAP

- Capacity Planning reports for Upper Management

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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

“SCR42”
Automatic Size Recording from SCM Systems
Perforce/Clearcase integrations with Process Dashboard

- Legacy
  - Rational ClearCase
  - Code change set
  - Lines of Code?
  - SCM-specific Scripts to process data
  - In-memory SQL database standard representation of TSP data
  - 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
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
“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 often do not capture the full range of descriptive attributes needed to support all TSP analyses.
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 oversharinng of task detail
- Effort ≠ Task Hours
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.
In-memory SQL database standard representation of TSP data

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

Legacy

SQL database with script-able access & change

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
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