

Practical Software Measurement

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1999 User's Group Conference - Vail, CO



***Process Improvement
Measurement Workshop***

***Facilitated by: Don Dortenzo
Dr. Joyce Statz***

Workshop Objectives

- ***Continue efforts to identify ways to apply PSM guidance to measuring process improvement initiatives***
 - ***Build on the initial concepts developed at the 1998 PSM UG Conference and the 1999 TWG Meetings***
- ***Continue adaptation and tailoring of current I-C-M structure to process improvement measurement***

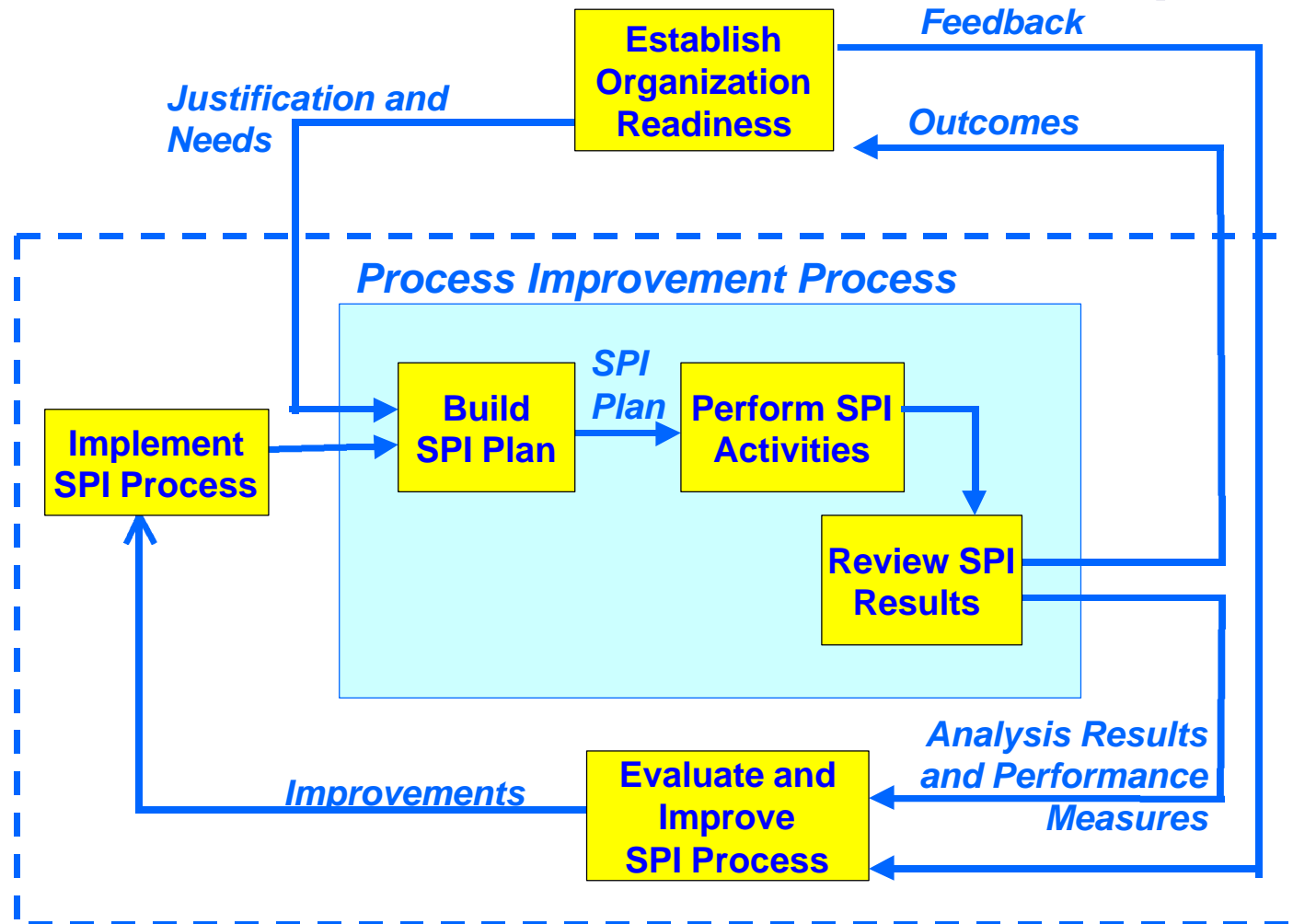
Workshop Objectives (cont.)

- ***Identify follow-on activities for the focus group such as:***
 - ***Finalizing I-C-M mapping***
 - ***Definitions***
 - ***Examples of use***
 - ***Define possible approaches for updating PSM product suite, e.g.,***
 - ***Guidebook***
 - ***Training materials***
 - ***Case studies***
 - ***Future activities and milestones***

Process Improvement Scope

- ***Culture and organizational readiness***
- ***PI Initiatives as a project***
 - ***Managed using measures***
- ***Improvement outcomes, e.g.,***
 - ***Cycle time***
 - ***ROI***
 - ***COQ***
- ***Process management not covered***
 - ***Addressed by PSM, Measurement for Process Management and Improvement***

Process Improvement Scope (cont.)



Workshop Agenda Followed

- *Review workshop inputs (20 min)*
- *Refine I-C-M table for software process improvement use (2 hrs 30 min)*
- *Identify follow-on activities and schedule (30 min)*

Workshop Approach

- ***22 workshop participants***
- ***Broke participants into subgroups***
 - ***Organizational Readiness (Kevin Richins)***
 - ***Process Improvement Progress (Don Dortenzo)***
 - ***Product Quality and Performance (Joyce Statz)***
 - ***Process Improvement Outcomes (Wayne Sherer)***
- ***Worked in subgroups to refine and/or add to I-C-M table as appropriate***
- ***Captured decisions, questions, and other information in notes***



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Organizational Readiness

Process Improvement Progress

- ***Reviewed following I-C-Ms***
 - ***Schedule and Progress***
 - ***Resources and Cost***
 - ***Product Size and Stability***
- ***Current overall I-C-Ms map well***
 - ***Couple of categories and corresponding measures do not apply, e.g., Environment and Other Resources***
 - ***Several measures in certain categories (such as Physical Size and Stability) do not apply***

Product Quality and Performance

- ***Reviewed following I-C-Ms***
 - ***Product Quality - used 2 of 13, added 1***
 - ***Process Performance - used 6 of 6, added 6***
- ***Perspectives need adjustment when using the ICM table for SPI***
 - ***product quality refers to process asset quality***
 - ***process performance covers the performance of the process assets for SPI, when in use by the organization or project***

Process Improvement Outcomes

- ***Impact on organization***
 1. ***Practices and Processes Profile***
 - ***Tracks progress against specific PI practices for all projects/areas***
 2. ***Tracking progress against PI plan***
 3. ***Community Standing***
 - ***Track progress against the IT community***
 4. ***Corporate Success Factors***
 - ***Cycle Time, Productivity, Knowledge/Capability, Cost of Quality, Customer Satisfaction, Cost, Infrastructure, maturity level, ROI, value added, etc.***
- ***I-C-M structure appears to support these needs***

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Draft I-C-M Table Update

Issues – Categories – Measures Mapping					
Issue	Category	Measures	SW	SE	PI
Schedule and Progress	Milestone Performance	Milestone Dates	X	X	X
		Critical Path	X	X	X
	Work Unit Progress	Requirement Status	X	X	?
		Problem Report Status	X	X	?
		Reviews Completed	X	X	X
		Change Request Status	X	X	X
		Component Status	X	X	X
		Test Case Status	X	X	
	Incremental Capability	Tracked Item Status	X	X	
		Increment Content - Component	X	X	
Resources and Cost	Personnel	Increment Content - Functionality	X	X	
		Effort	X	X	X
		Staff Experience	X	X	X
	Financial Performance	Staff Turnover	X	X	X
		Earned Value	X	X	X
	Cost	X	X	X	
Environment and Other Resources	Resource Availability	X	X		
	Resource Utilization	X	X		
Product Size and Stability	Physical Size and Stability	Database Size	X	X	
		Components	X	X	X
		Interfaces	X	X	
		Lines of Code	X		
		Physical Characteristics		X	
	Functional Size and Stability	Requirements	X	X	?
		Change Requests	X	X	X
		Function Points	X		

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Draft I-C-M Table Update (cont.)

Issues – Categories – Measures Mapping					
Issue	Category	Measures	SW	SE	PI
Product Quality	Functional Correctness	Defects	X	X	X
		Test Coverage	X	X	
		Achieved Accuracy in Performance (Technical Performance Measures)	X	X	X
		Suitability			X
	Supportability	Recovery Impact	X	X	
		Cyclomatic Complexity System Maintenance	X	X	
	Efficiency	Utilization	X	X	
		Throughput	X	X	
		Timing	X	X	
	Portability	Standards Compliance	X	X	
Usability	Operator Errors	X	X		
Dependability	Failures	X	X		
	Fault Tolerance	X	X		
Process Performance	Process Compliance	Reference Model Level	X	X	X
		Process Audit Findings	X	X	X
		Tailorings			X
		Waivers			X
		Waivers in Process			X
	Process Efficiency	Productivity	X	X	X
		Cycle Time	X	X	X
	Process Effectiveness	Escapes	X	X	X
		Rework	X	X	X
		Stability			X
User Survey Results Lessons Learned				X	

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Draft I-C-M Table Update (cont.)

Issues – Categories – Measures Mapping					
Issue	Category	Measures	SW	SE	PI
Technology Effectiveness	Suitability	Technology Fit	X	X	
	Impact	Technology Impact	X	X	
	Volatility	Product Releases	X	X	
Customer Satisfaction	Customer Feedback	Survey Results	X	X	
		Performance Award	X	X	
		Unsolicited Comments	X	X	

Next Steps/Activities

- | | <u>End Date</u> |
|---|------------------------------|
| <ul style="list-style-type: none">• <i>Complete and distribute I-C-M Draft</i><ul style="list-style-type: none">- <i>First draft plus notes</i>- <i>Distribute to Focus Group</i>- <i>Post on TWG Web page</i> | • <i>Aug 30, 1999</i> |
| <ul style="list-style-type: none">• <i>Review I-C-M Draft</i> | • <i>Sep 10, 1999</i> |
| <ul style="list-style-type: none">• <i>Update and distribute Measurement Category Tables</i><ul style="list-style-type: none">- <i>Incorporate first review comments</i>- <i>Update tables</i>- <i>Distribute to Focus Group</i>- <i>Post on TWG Web page</i> | • <i>Oct 08, 1999</i> |
| <ul style="list-style-type: none">• <i>Review I-C-M Update and Tables</i> | • <i>Oct 22, 1999</i> |

Next Steps/Activities (cont.)

- | | <u>End Date</u> |
|--|------------------------------|
| <ul style="list-style-type: none">• <i>Update and distribute Measurement Description Tables</i><ul style="list-style-type: none">- <i>Incorporate review comments</i>- <i>Update descriptions</i>- <i>Distribute to Focus Group</i>- <i>Post on TWG Web page</i> | • <i>Nov 19, 1999</i> |
| <ul style="list-style-type: none">• <i>Review I-C-M Table and Measurement Tables</i> | • <i>Dec 10, 1999</i> |
| <ul style="list-style-type: none">• <i>Map out changes to PSM products</i><ul style="list-style-type: none">- <i>Guidebook</i>- <i>Training materials</i>- <i>Tools</i> | • <i>Jan 14, 1999</i> |
| <ul style="list-style-type: none">• <i>Develop and document changes</i> | • <i>Feb 18, 1999</i> |