

Quality Engineering Directorate

Software and Systems Measurement and Analysis

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Software Intensive Systems Evaluation

July 25, 2000

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Goal

- ***Implement measurement on TACOM-ARDEC programs***
 - ***Use “practical” experience base***
 - ***Share lessons learned***
 - ***Integrate SQA and process improvement activities***

Objectives

- *Show Project Leaders How to Plan and Implement the **M&A Process** for QED Projects*
- *Implement **Project Level M&A** - Practical Software and Systems Measurement - Technical Guidance and Practice*
- *Provide an Understanding of the QED **M&A Policy and Procedures***
- *Help Develop and Tailor **M&A Project Plans** for Specific QED Projects*

Approach

*M&A
Overview*



PSM



*M&A Policy
and
Procedures*



*M&A Project
Planning*

- *Measurement & Analysis – Overview and Perspective*

- *PSM 4.0 Curriculum*

- *Measurement and Analysis – Policy and Procedures*

- *Measurement and Analysis – Project Plan Development*

Types of Measurement

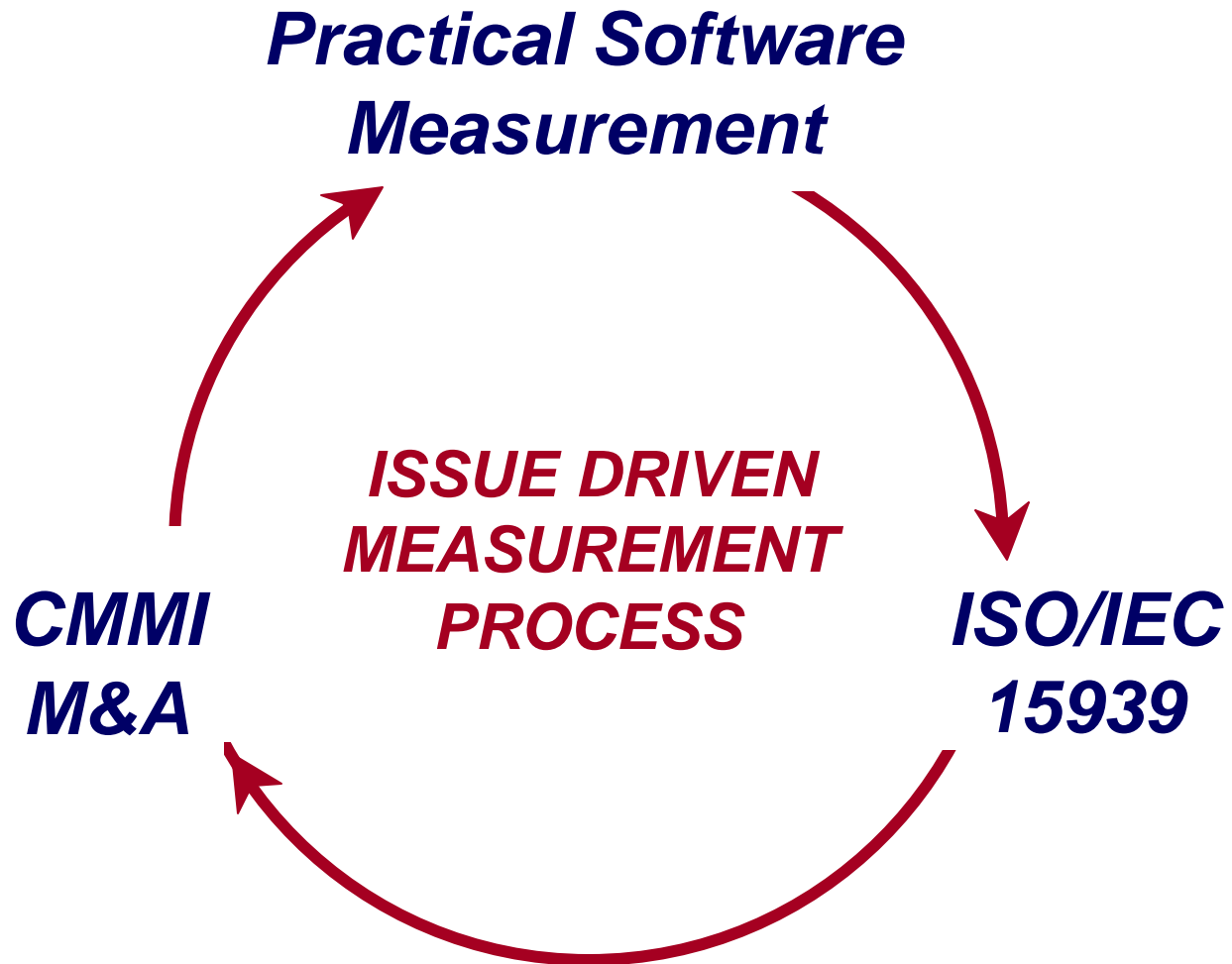
- *Measuring the Initiative*
 - *Performance measurement*
 - *PEG Infrastructure Progress, Adoption, Impact*
- *Measuring the Processes*
 - *Individual process capability, improvements*
 - *QED organizational maturity*
- *Measuring the Projects*
 - *Software and Systems*
 - *Project activities and products*

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The ARDEC Measurement “Conspiracy”



Measurement and Analysis History

- ***Practical Software Measurement Contains Detailed “How-To” Guidance on Implementing Measurement - PSM Was the Base Document for ISO/IEC 15939***
- ***ISO/IEC 15939, Software Measurement Process, Contains the Required Activities and Tasks for a Measurement Process - 15939 Was the Source for the CMMI M&A Process Area Definition***
- ***CMMI M&A Process Area Describes How to Evaluate a Measurement Process***

Performance Management Policy

- *Addresses Three Process Areas:*
 - *Measurement and Analysis*
 - *Risk Management*
 - *Decision Analysis and Resolution*

Measurement and Analysis Policy

- *Applies to QED Projects*
- *Issue-driven Process Based on Project Information Needs*
- *Information Needs Will Be Identified*
- *An Appropriate Set of Measures, Based on the Information Needs, Will Be Identified*

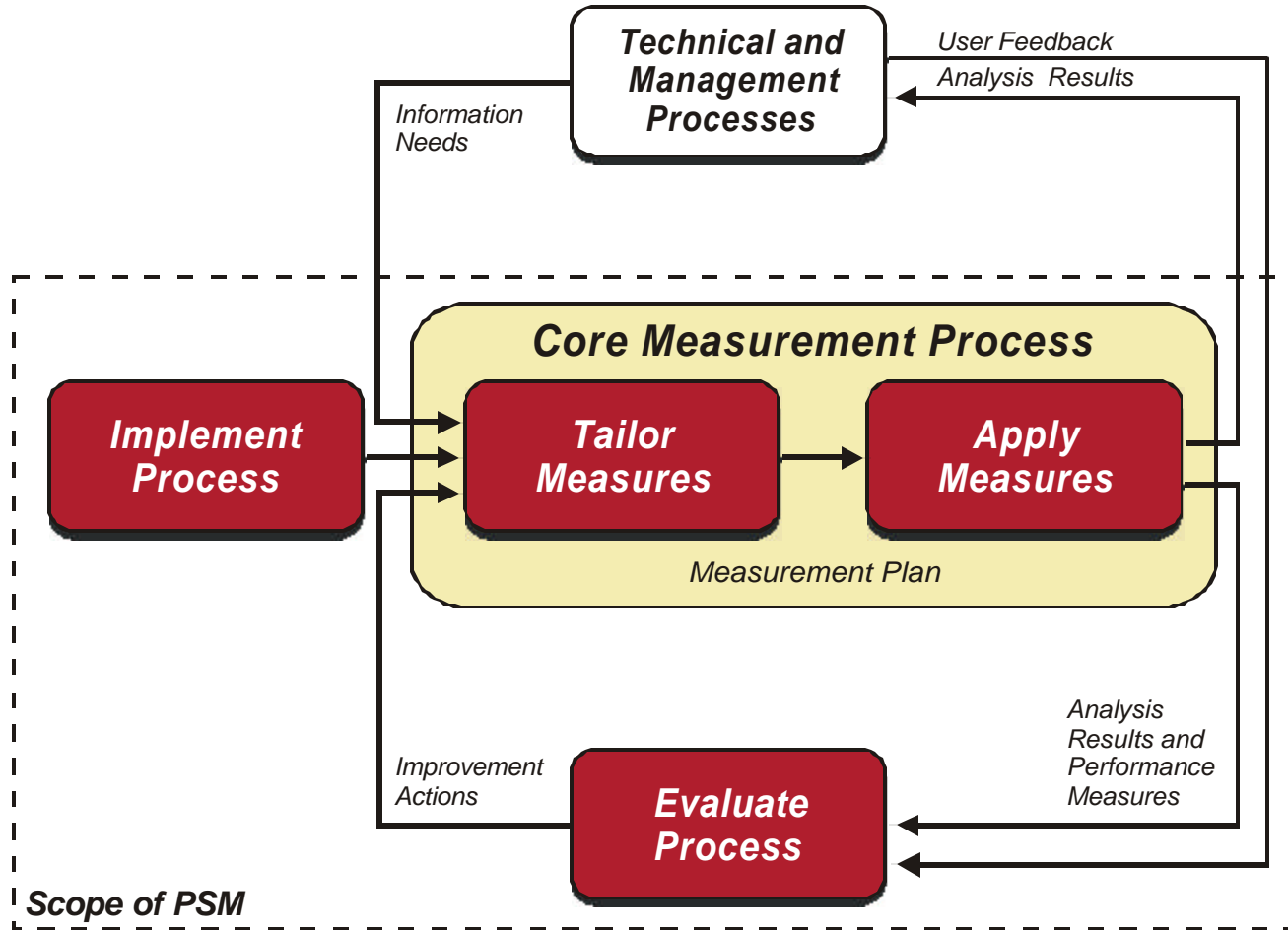
Measurement and Analysis Policy

- ***Measurement Activities Will Be Planned and Documented in a Project Measurement Plan***
- ***Required Data Will Be Collected, Stored, Analyzed, and Results Interpreted***
- ***Report Analysis Results to Management at Defined Points to Support Decisions***
- ***Project Team Will Implement the Measurement Process IAW Project Measurement Plan and Procedures***

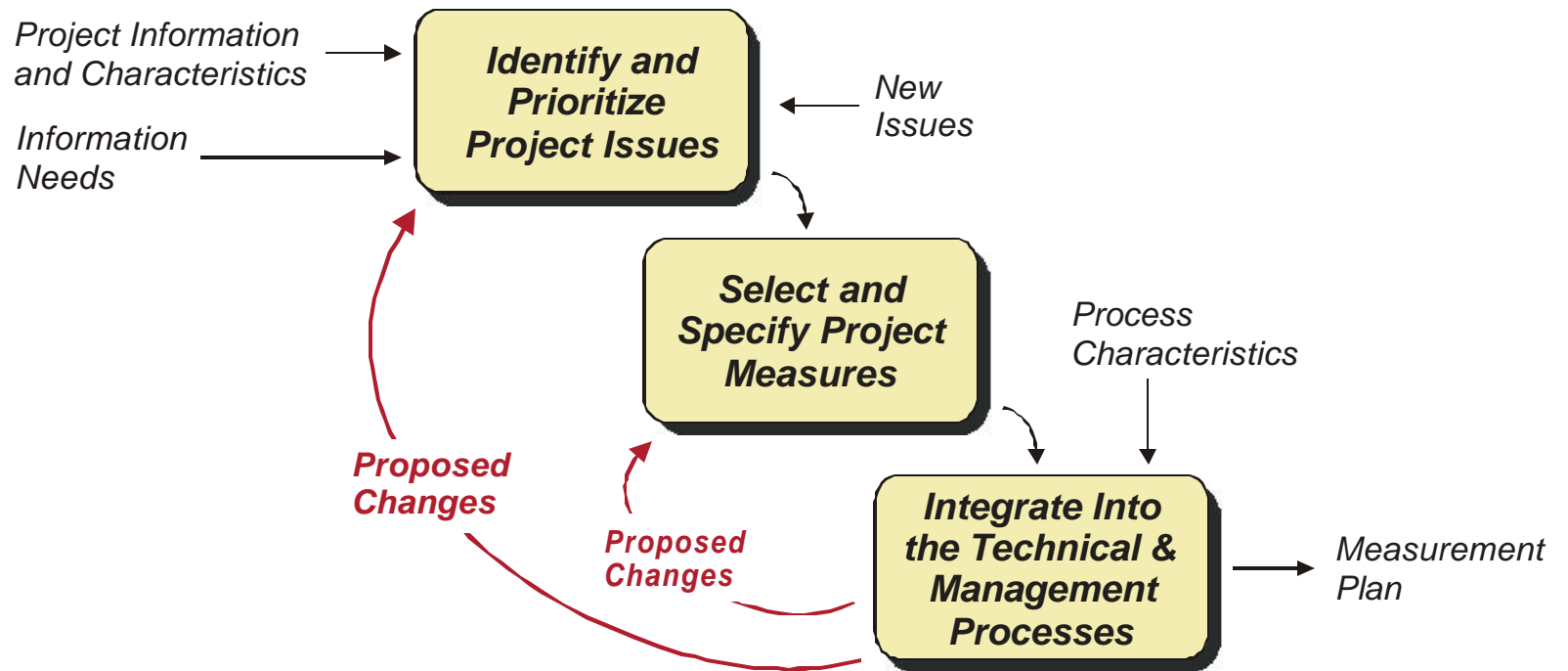
Measurement and Analysis Policy

- ***Measurement Process and Measures Will Be Evaluated and Improvements Noted***
- ***Integrate Measurement Policy With Other Policies***
- ***Resources Shall Be Allocated, Responsibility and Authority Assigned***
- ***Measurement Procedures May Be Tailored***
 - ***Don't Tailor Policy***

Measurement Activities

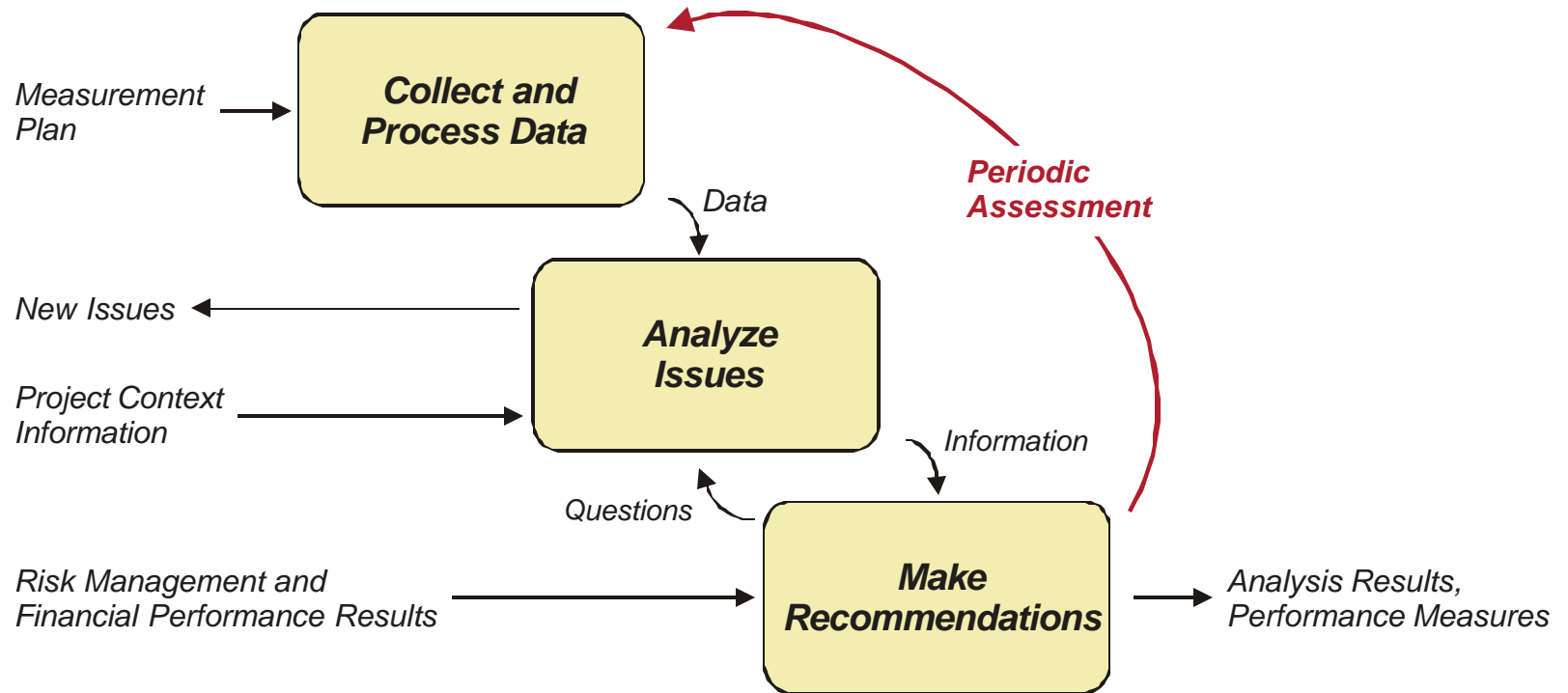


Tailoring Measures



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Applying Measures



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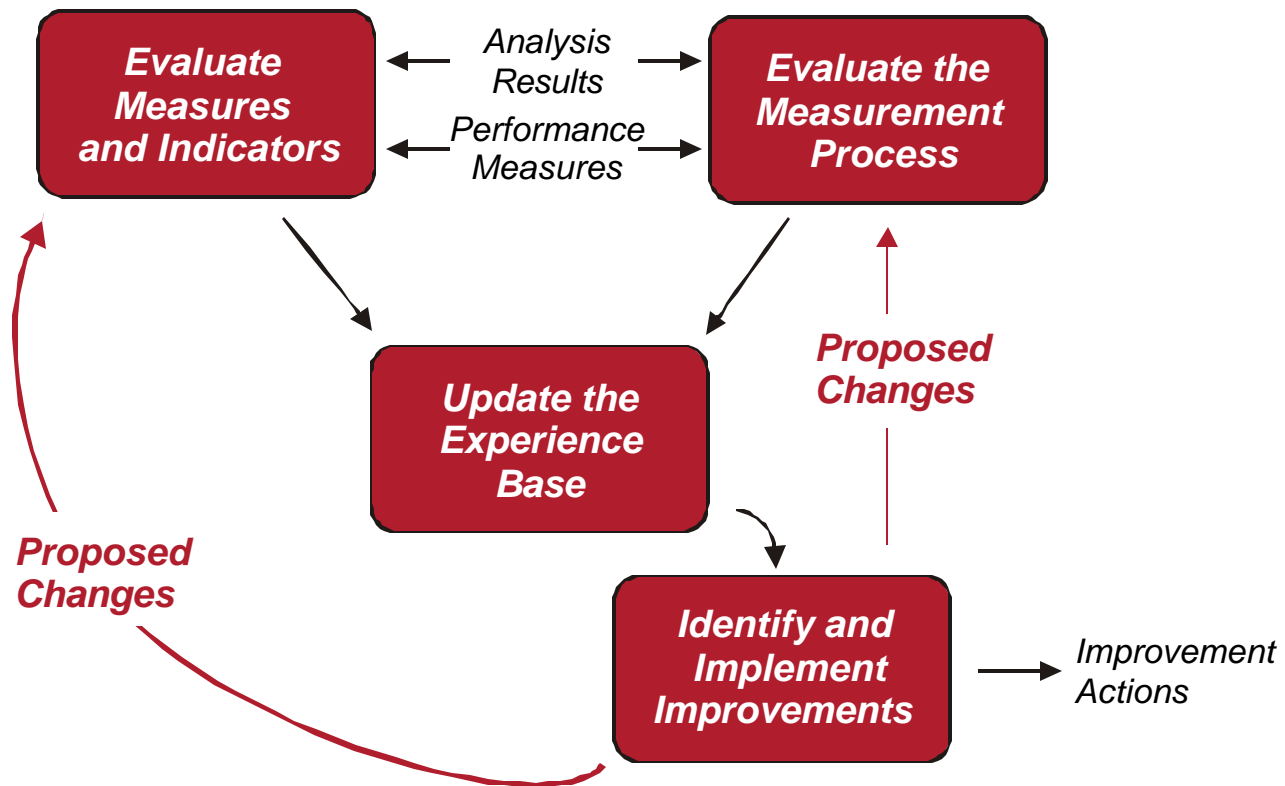
Implementing a Measurement Process

*Obtain
Organizational
Support*

*Define
Responsibilities*

*Provide
Resources*

Evaluating a Measurement Program



Measurement and Analysis Procedure

- *Activity*
- *Task*
- *Step*
- *Responsible Parties*
- *Product Produced/Output*
- *Documented In*
- *Link to CMMI*

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Measurement and Analysis Procedure (cont)

CMMI	Activity	Task	Step	Responsible Parties	
Goal 1, Activity 2, SP 1.2		Select and Specify Project Measures	Identify Measurement Category	PL, IPT	7
Goal 1, Activity 2, SP 1.2			Select Applicable Measures	PL, IPT	8
Goal 1, Activity 2, SP 1.2			Specify Data Requirements	IPT	9

Measurement and Analysis Procedure (cont)

		Product Produced/Output	Documented in
7	For each common issue area, identify candidate measurement categories to identify the type of information required. This can be done by comparing the Project Manager's questions to the questions identified in the measurement categories in Practical Softwa	Measurement Categories, Questions Addressed	Project Measurement Plan, Project Measurement Database (PSM Insight)
8	Select appropriate measures that report back on each information need and common issue area. Practical Software Measurement, Part 3, Measurement Selection and Specification Tables, and Part 5, Measurement Analysis and Indicator Examples, provide examples.	Selected Measures	Project Measurement Plan, Project Measurement Database (PSM Insight)
9	Develop the Measurement specification for each measure. Guidance is provided in Practical Software Measurement, Part 3, Measurement Selection and Specification Tables. Follow the template in Appendix B.	General Measurement Specification and Specific Data Specification	Project Measurement Plan, Project Measurement Database (PSM Insight)

Measurement Plan Template

- ***Introduction***
- ***Project Description***
- ***Measurement Approach***
- ***Project Software Information Needs***
- ***Software Measurement Specifications***
- ***Project Aggregation Structures***
- ***Project Reporting Approach***

Project Measurement Specification

- ***Information Need***
 - ***Information Need Name***
 - ***Information Need Description***
 - ***Reporting Mechanism***
- ***Indicators***
 - ***Indicator Name***
 - ***Indicator Description***
 - ***Analysis Methods***
 - ***Decision Criteria***
- ***Derived Measures***
 - ***Derived Measure Name***
 - ***Derived Measure Description***
 - ***Aggregation Structure***

Project Measurement Specification (cont)

- ***Base Measures***
 - ***Base Measure Name***
 - ***Base Measure Definition***
 - ***Aggregation Structure***
 - ***Attributes***
 - ***Criteria for Counting Actual***
 - ***Collection Mechanisms***
 - ***Collection Periodicity***

Available SWISE Measurement Support

- ***Recommendations on Project Plans***
- ***Review of Completed Project Plans***
- ***Facilitation of Measurement Planning Workshops***
- ***Support on Project Measurement Planning and Implementation***
- ***Measurement Analysis***

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For More Information

SWISE - PSM Support Center

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