

# CMMI Measurement Workshop

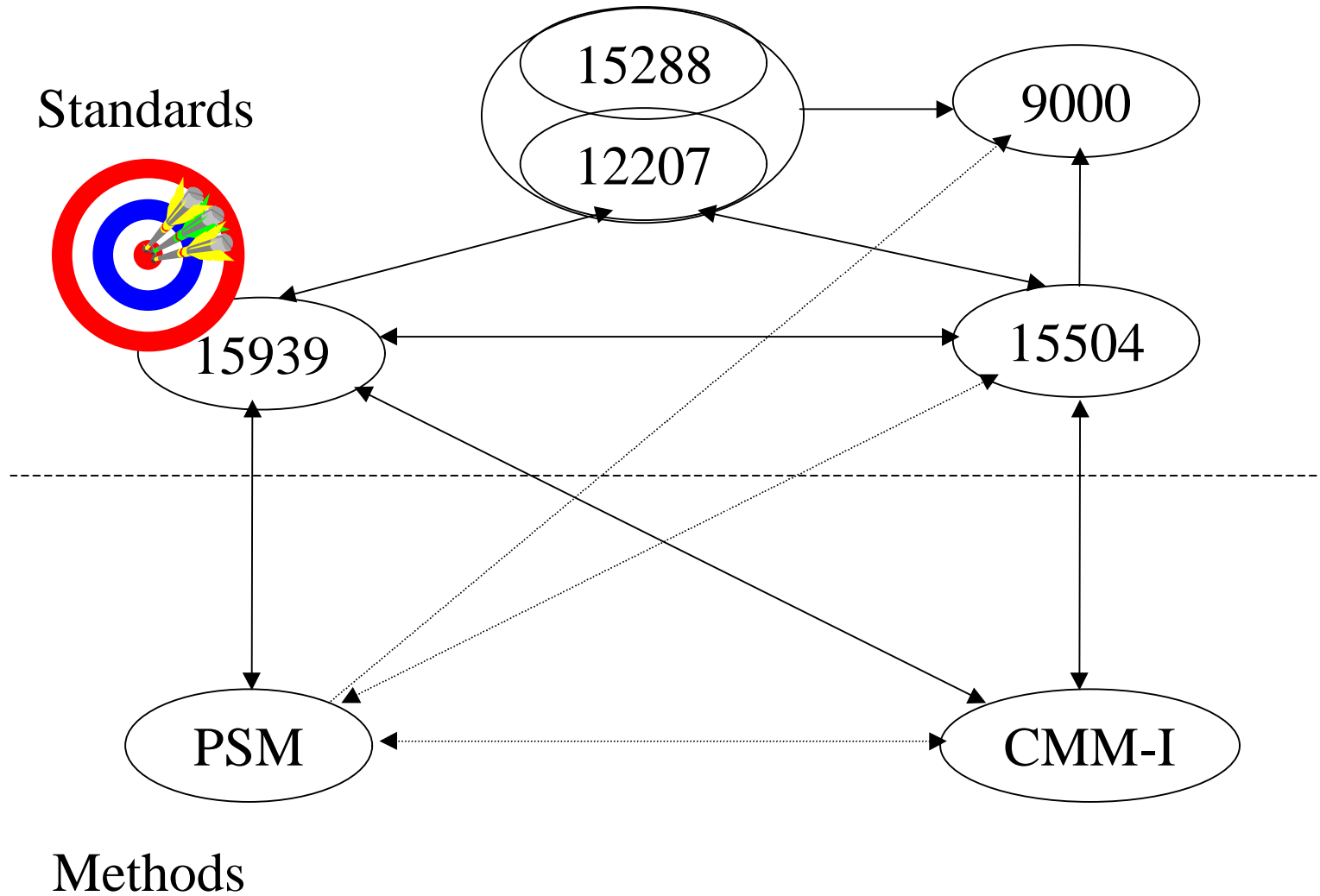
## PSM Workshop Purpose:

- Develop a draft Measurement Plan Template that can serve as a basis to guide an organization in implementing a Measurement Program compatible with ISO/IEC 15939, PSM and the Capability Maturity Model Integration (CMMI)

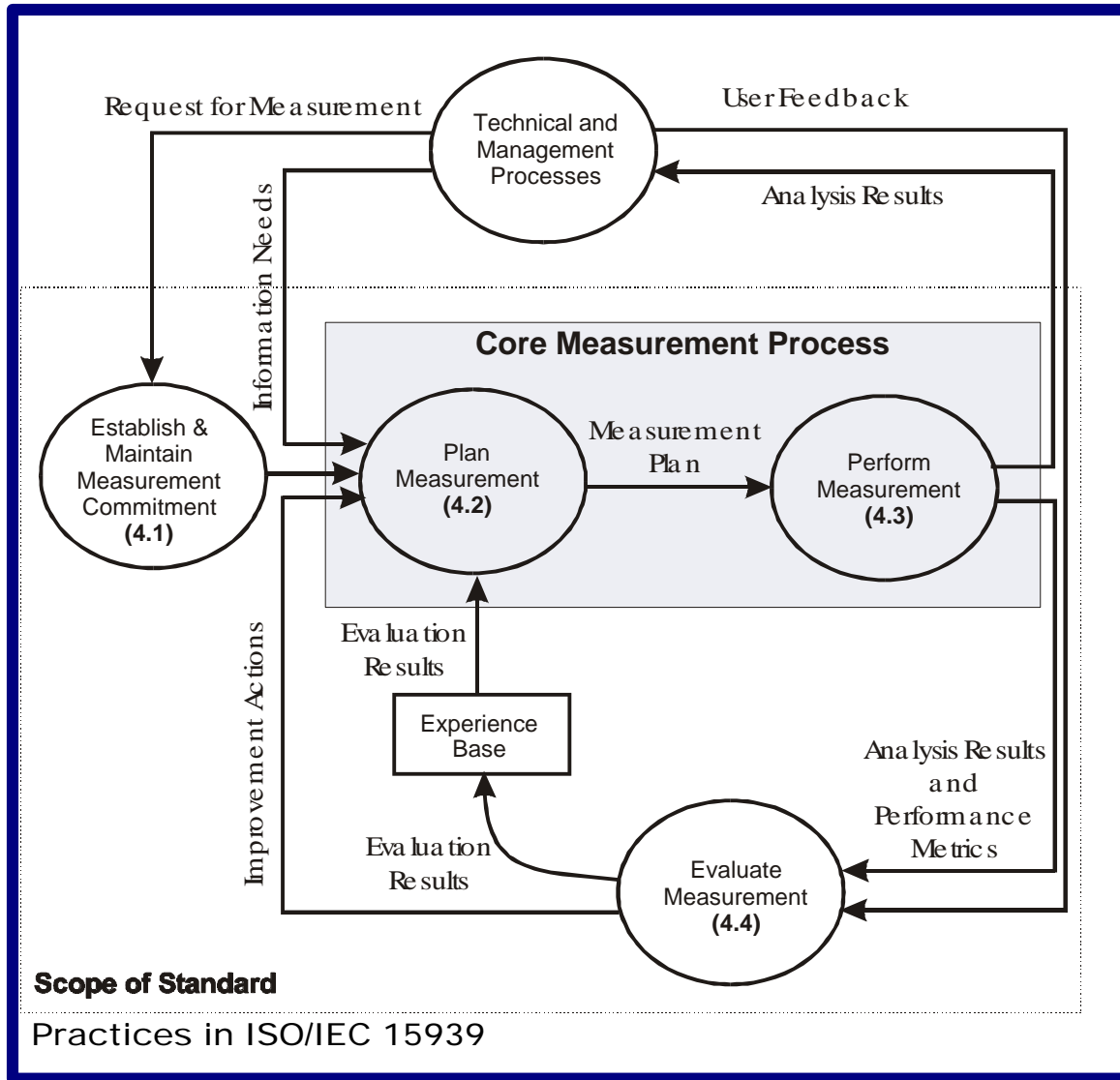
## PSM Workshop Process:

1. Review CMMI measurement-related practices in Process Areas and Generic Practices relative to ISO/IEC 15939
2. Recommend structure and content of a Measurement Plan template that addresses all CMMI-measurement related practices

# A Consistent Framework for Measurement



# ISO/EIC CD 15939 INFORMATION TECHNOLOGY - SOFTWARE MEASUREMENT PROCESS



Intent:

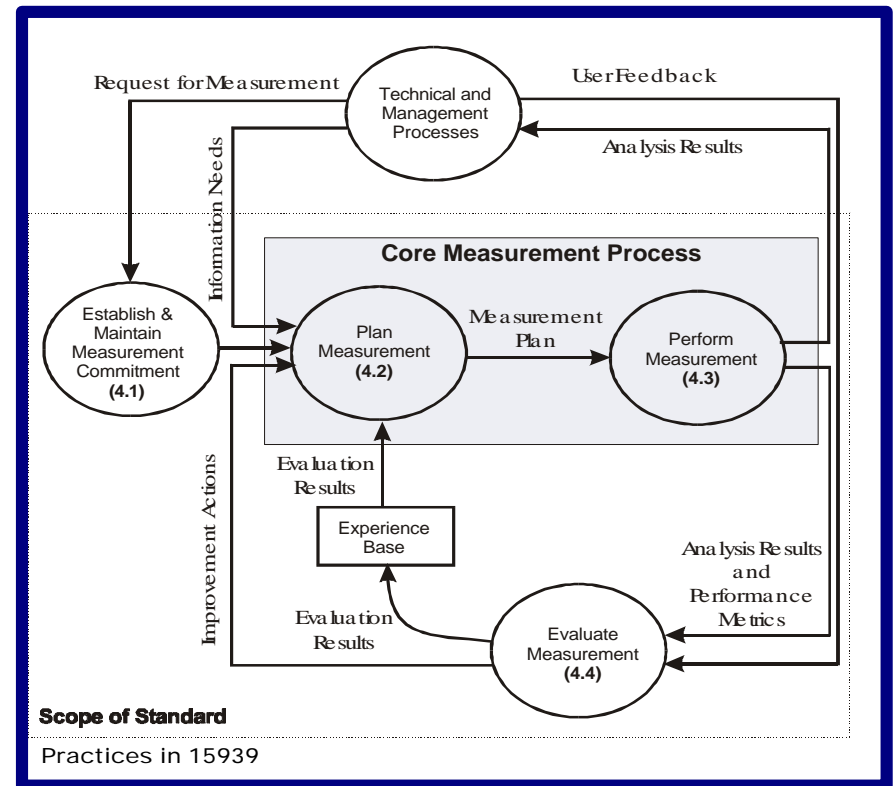
Assure compatibility between 15939 and the measurement-related practices in CMMI

# CMMI M&A Process Area (PA) Purpose:

The purpose of Measurement and Analysis is to develop and sustain a measurement capability in support of management information needs.

## Measurement involves:

- identifying the goals and issues regarding the scope of M&A such that it is aligned to the business goals of the organizational unit
- defining the measures to be used, the collection process, the storage mechanism, the analysis process, the reporting process and the feedback process
- collecting and storing data
- analyzing the data
- presenting the data



CMMI M&A PA, coupled with CMMI Generic Practices, is to be compatible with ISO/IEC 15939

## CMMI M&A Goal 1:

**Measurement components are established in alignment with information needs and objectives.**

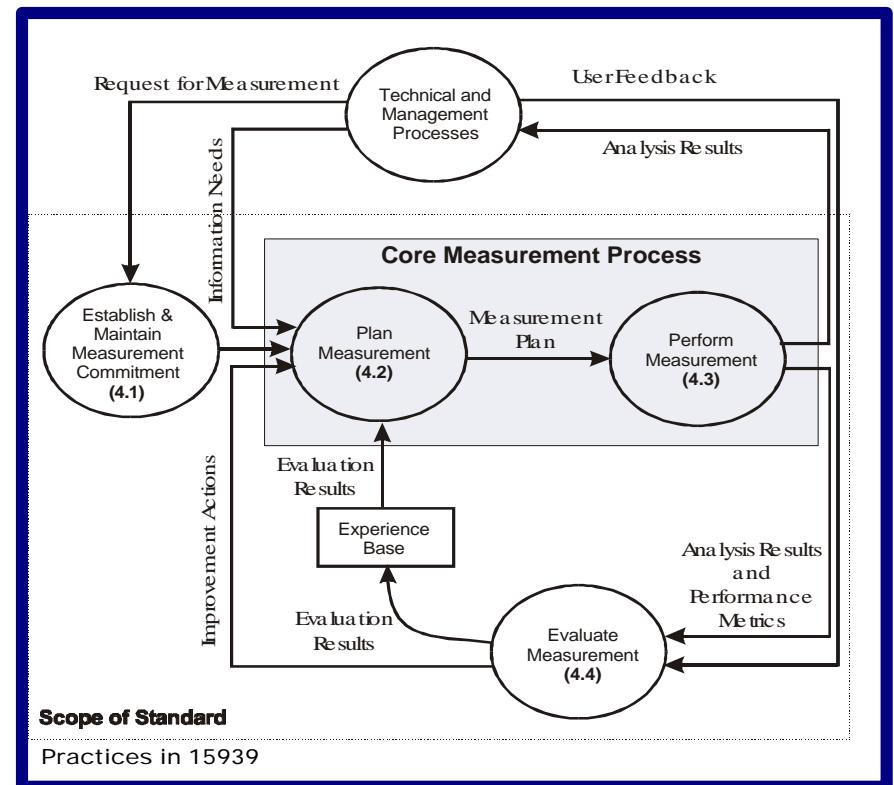
### M&A Specific Practices:

SP 1.1. Establish and maintain measurement objectives.

SP 1.2. Identify and define measures.

SP 1.3. Define how primitive and derived measures will be produced, collected, and stored.

SP 1.4. Define how measures will be analyzed and reported.



# CMMI M&A Goal 2: Measurement results that fulfill information needs are available.

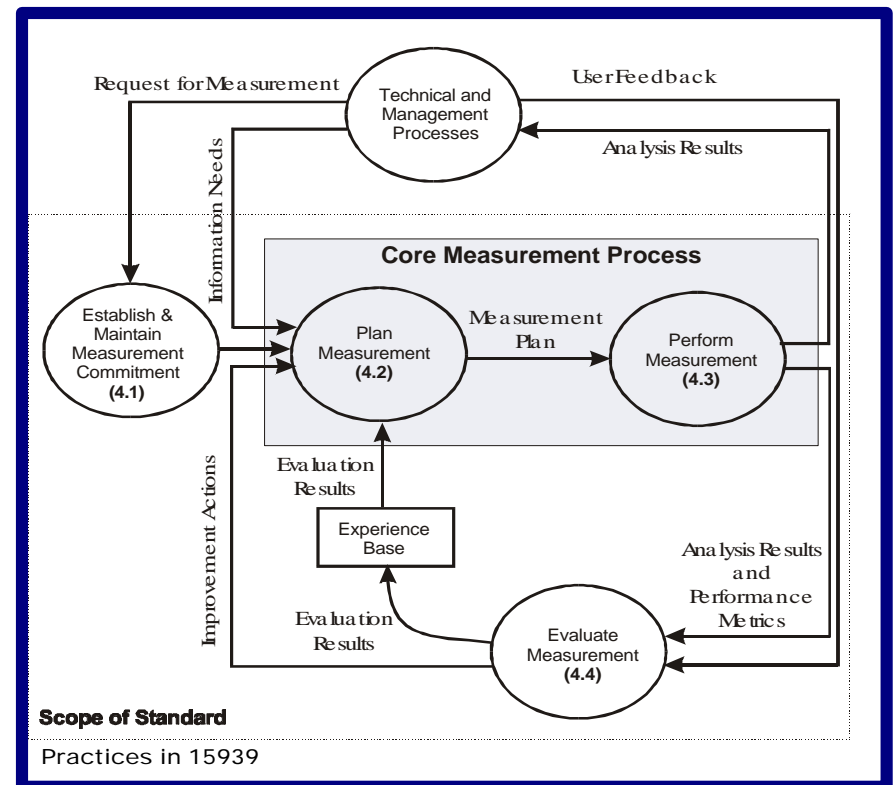
## M&A Specific Practices:

SP 2.1. Obtain measurement data.

SP 2.2. Analyze and interpret measurement data.

SP 2.3. Manage and store data, indicators, and results.

SP 2.4. Report results of measurement and analysis activities to appropriate users.



# Maturing the M&A Process Area

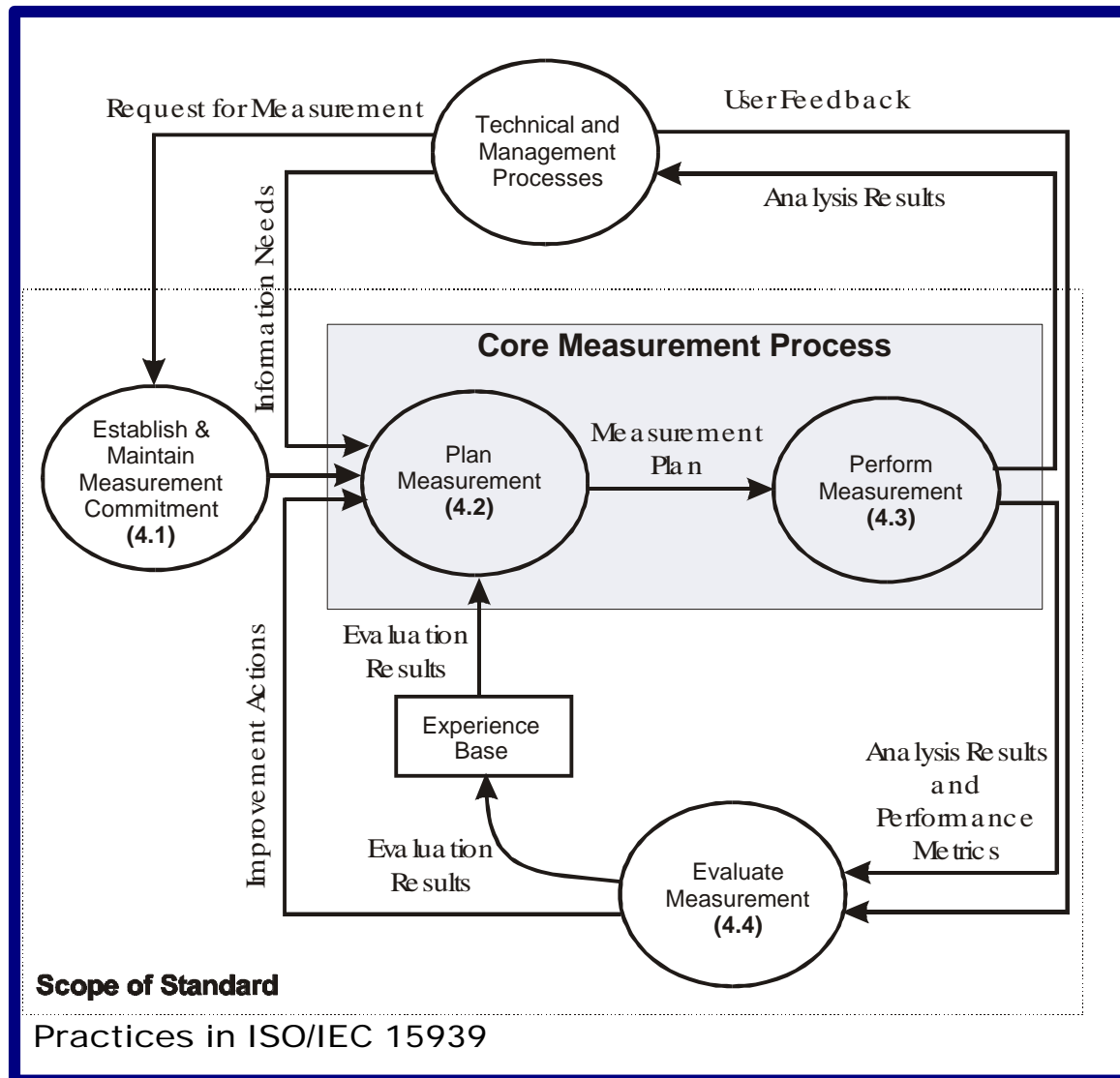
- Capability Level 1 Generic Goal:  
**(Level 1 PcM-GG 1.1) (Achieve Specific Goals) The in-use process achieves the specific goals of the process area.**
- Capability Level 1 Generic Practices:  
**PcM-GP 1.1 Perform Basic Activities**
- Capability Level 2 Generic Goal:  
**(Level 2 PcM-GG 2.1) (Institutionalize a Managed Process)  
The process is institutionalized as a *managed* process.**

# Capability Level 2 Generic Practices:

- **PcM-GP 2.1 Establish Organizational Policy**
- **PcM-GP 2.2 Plan the Process**
- **PcM-GP 2.3 Provide Resources**
- **PcM-GP 2.4 Assign Responsibility**
- **PcM-GP 2.5 Train people**
- **PcM-GP 2.6 Perform Managed Process**
- **PcM-GP 2.7 Monitor and Control the Process**
- **PcM-GP 2.8 Manage Configurations**
- **PcM-GP 2.9 Objectively Verify Adherence**
- **PcM-GP 2.10 Review Activities & Results with Management**



# Maturing the M&A Process Area



CMMI M&A PA specific practices & sub-practices, coupled with the generic practices at level 2, provide the compatibility with ISO/IEC 15939.

M&A institutionalized as a:

- *managed* process with level 2 generic practices
- *defined* process with level 3 generic practices
- *quantitatively managed* process with level 4 generic practices
- *optimizing* process with level 5 generic practices

# TEMPLATE FOR MEASUREMENT IMPLEMENTATION PROJECT PLAN

- Intended as a “Jump Start” for implementing a measurement project consistent with CMMI:
  - Address M&A process area (PA)
  - Address Quantitative Process & Quality Management (QPQM) PA
  - Address other CMMI PA measurement-related practices
- Source documents:
  - CMMI SW/SE Continuous Representation, M&A PA, v0.1
  - Practical Software Measures (PSM) Guidebook v3.1
  - SW Eng Institute (SEI) Guide to Practical Software Measurement
  - Software Technology Support Center (STSC), Measurement Implementation Guide v2.0

# TEMPLATE FOR MEASUREMENT IMPLEMENTATION PROJECT PLAN

1. Executive Summary
2. Background / Context
3. Expected Benefits Summary
4. Scope / Boundaries
5. Dependencies / Relationships
6. Implementation Strategy
7. Training
8. Derived Measures Summary

## 6. Implementation Strategy

- 6.1 Approach
  - » Pilot – Rollout
  - » Incremental
- 6.2 Risk Mitigation
- 6.3 WBS
- 6.4 Investment
- 6.5 Schedule

# APPENDIX A(0)

## Derived Measure Template

- Title:
- Description:
- Information Need
  - Description:
  - User(s):
- Source Goal / Objective / Issue
- Stakeholder(s)
- Primitive Measure(s)
  - Name (What)
  - Collector (Who)
  - Collection Point (Where / process step)
  - Collection Frequency (When)
  - Verification & Validation Method(s)

# APPENDIX A(0)

## Derived Measure Template

- Aggregation Algorithm(s)
- Analysis Method(s)
- Display Format (s)
- Reporting
  - Format
  - Frequency
- Related Derived Measure(s)
- Risk(s)
  - Presumptions
  - Impact/Probability results
  - Mitigation (if required)

# APPENDICIES

- **APPENDIX A(n)**
  - Derived Measure(n): Name
  - PSM's Issues/Categories/Measures
    - Desire to link Issues/Categories to capability levels
- **APPENDIX B(1)**
  - CMMI Measurement Implementation General Guidance
- **APPENDIX B(2)**
  - CMMI Capability Level II Compliance Guide
- **APPENDIX B(3)**
  - CMMI Capability Level III Compliance Guide
- **APPENDIX - B(4-5)**
  - CMMI Capability Level IV - V Compliance Guides

# Schedule

- July 99 - Present concept and draft to PSM Workshop
- Sep 99 - Present concept and draft that reflects CMMI ver 0.2 at SEI Symposium
- Oct 99 - Provide status update to PSM Tech Working Gp
- Nov 99 - Present concept and draft to Australian Software Engineering Conference
- Feb 00 - Present update to PSM Tech Working Group
- Mar 00 - Present concept and update at SEPG 2000
- May 00 - Present concept and update at STC 2000
- July 00 - Present update at INCOSE Measurement WG
- July 00 - Present final update at PSM Users' Group
- Aug 00 - Provide with release of CMMI-SW/SE