# Measurement Mapping to the CMMI®

## PSM User's Group - July 2005

# Overview

- Impact analysis of measurement on CMMI®
- Measurement mapping to CMMI®
- Top 10 barriers to effective measurement
- 8 steps to increase measurement effectiveness
- Summary
- Questions

# Impact analysis of measurement

- Observations:
  - Evidence from CMMI® appraisals indicates measurement being conducted poorly / inconsistently
  - Adverse consequences on other processes due to poor measurement practices
  - Several root causes identified – most due to process shortcomings
- Mapping of Measurement and Analysis (MA) to the rest of CMMI®
  - Intent is to identify impact of MA onto other processes

# Measurement mapping

- Mapping identifies one of three relationships between MA and practices / goals in the CMMI®:
  - Explicit reference
  - Implicit link / enabler (where MA or outputs of MA can affect practice implementation)
  - No explicit reference
- Method Used:
  - Desktop review of CMMI® (normative and informative)
  - Experience gained from appraisals and process improvement programs

# Explicit reference example

- CMMI® Reference:
  - Project Monitoring and Control Specific Practice 1.6-1
- Description:
  - Conduct Progress Reviews
- Practice implementation indicators:
  - Documented project review results
  - Review results from collecting and analysing project measurement results

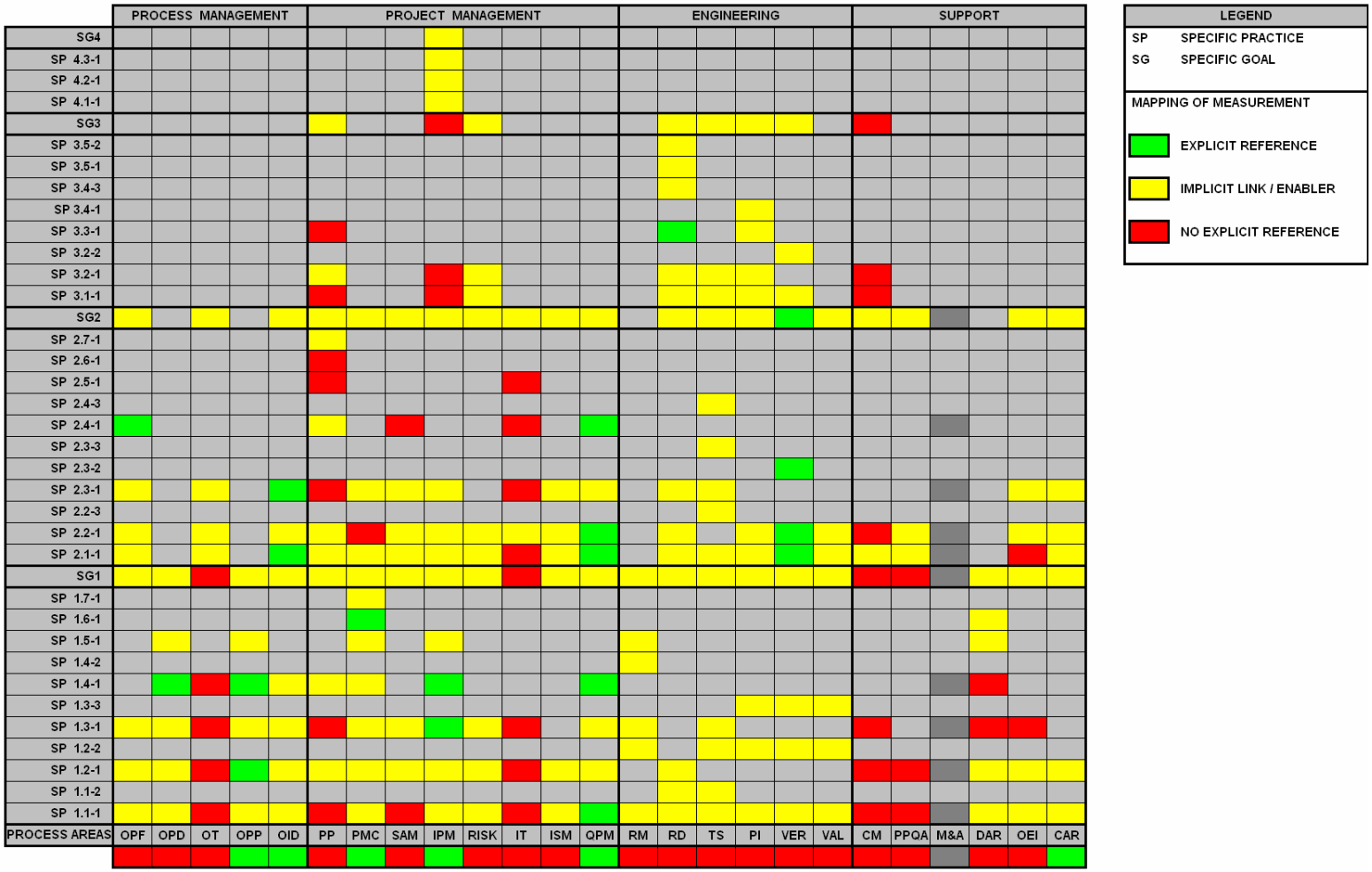
# Implicit link example

- CMMI® Reference:
  - Project Planning Specific Practice 1.2-1
- Description:
  - Establish Estimates of Work Product and Task Attributes
- Practice implementation indicators:
  - Size and complexity of tasks and work products
  - Estimating models
  - Attribute estimates

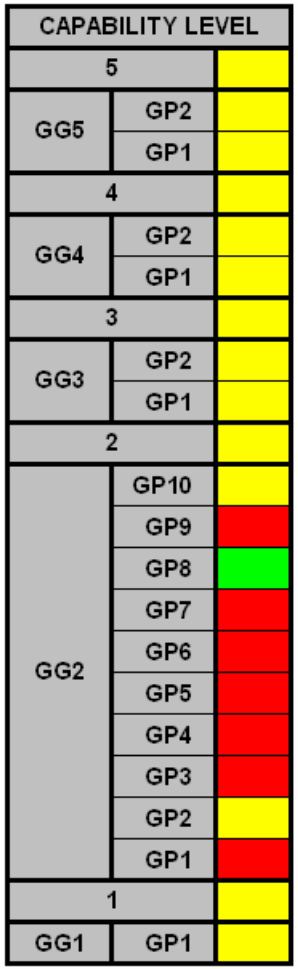
# Enabler example

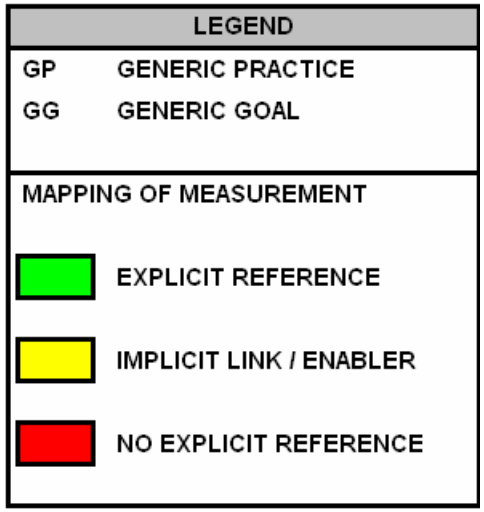
- CMMI® Reference:
  - Requirements Management Specific Practice 1.3-1
- Description:
  - Manage Requirements Changes
- Practice implementation indicators:
  - Requirements status
  - Requirements database
  - Change history to track requirements volatility

# Mapping to Specific Goals / Practices



# Mapping to Generic Goals / Practices



# Top 10 barriers observed

- No commitment to measurement
  - Resources, responsibility, time, training
- Incomplete measurement objectives
  - Information requirements not defined
- Quantity = quality approach
  - Number of specified measures
  - ‘Actuals’ data
- No baselines set
  - Planned, target, threshold

# Top 10 barriers observed

- Measures incompletely specified
  - Inconsistent measurement application
- Analysis models not specified
  - Inconsistent analysis
- Measurement results not used for decision making
  - Why bother?

# Top 10 barriers observed

- ‘One size fits all’ approach
  - ‘That’s how we always do it’
- Measurement program effectiveness not evaluated / assessed
  - Process and measures
- Ineffective storage of historical measurement data
  - Affects estimation and effective attainment of higher maturity levels (ML 3 onwards)

# 8 steps to increase effectiveness

- Establish commitment to measurement
  - Like all process improvement initiatives, this needs to come from senior management
- Capture information requirements
  - Use to derive measurement objectives
- Start small
  - Better to have a single measure that is used well than a raft of measures that are not used at all

# 8 steps to increase effectiveness

- Specify measures:
  - Base and derived measures
  - Baselines
  - Indicators
  - Analysis models
  - Decision Criteria
  - Data storage procedures
- Consider lifecycle impact on selected measures
- Use analysis results in decision making

# 8 steps to increase effectiveness

- Assess measurement program effectiveness
  - Process and measures
- Plan storage of measurement results to facilitate ease of future use
  - Estimation
  - Foundations for higher maturity levels

# Summary

- MA when used effectively can assist the implementation of many other aspects covered by the CMMI®
- Effective MA does not imply quantity of measures and vice versa
- Mapping shows the highly integrated nature of the CMMI®

# Questions