

# **Experiences with Indicator-Based CMMI Appraisals at Raytheon**

*Use and benefits/drawbacks of identifying PIs in  
preparing and conducting appraisals*

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# Preparation for Appraisals

## *Each project, in maintaining its processes and preparing for an appraisal*

- **Projects use Practice Implementation Indicators (PIIs)**
  - Identify each item of documentation as direct or indirect
  - Require projects to understand and consider their level of compliance with CMMI practices
  - Serve as a basis for understanding what CMMI really means
  - Ensure adequacy of appraisal preparation
  
- **“PA mapping tool” provides mechanism for identifying CMMI compliance**
  - Used in preparation for appraisals, by projects and the organization
  - Internally developed, Access-based (sometimes adapted for web-based use)
  
- **Workshops provide understanding**
  - Define self-assessment and preparation process
  - Provide added insights into intent and content of model and individual practices
  - Review gap analysis between CMMI and current practices
  - Mechanism for organization’s process group to assist projects

# Conduct of Appraisals

## Each appraisal team

- **Uses Practice Implementation Indicators (PIIs)**
  - Data provided by organization/projects in PA mapping tool, indicates their CMMI compliance
  - Team identifies 'real' PII for each practice in conducting the appraisal, based on SCAMPI definition: direct, indirect, affirmations
- **Appraisal team's process identifies practice and goal implementation**
  - Team uses team tool and summary method
  - For each practice, across entire organization, team identifies PII (i.e., fully implemented, largely implemented, partially implemented, or not implemented), and PII information helps identify goal satisfaction
  - In appraisals, differences between appraisal team evaluation and organization's self-evaluation are used to provide lessons learned feedback



# CMMI-Based Appraisals Used at Raytheon

**Raytheon**

*(Sheet 1 of 2)*

## (1) Verification Approach

- Class C appraisal
- Limited scope, on per-project basis
- Provides feedback to assist internal improvements
- Typically used by organizational process group for individual projects
- Uses either PA mapping workshops or ICPA

### **Benefits:**

- *Project status review and feedback*
- *PA workshops emphasize identifying PIs, collecting direct/indirect artifacts and mentoring*

## (2) CMMI Focus Review

- Class B appraisal, in-depth
- Limited scope, typically per-project basis
- Provides strengths and weaknesses, but no rating
- Typically used for initial appraisals in organization
- Provides lessons learned for preparation for future

### **PII for each practice**

### **Benefits:**

- *Organization/project gets feedback*
- *Emphasizes direct/indirect*



# CMMI-Based Appraisals Used at Raytheon

**Raytheon**

*(Sheet 2 of 2)*

## **(3) CMMI “PBA” Process Baseline Appraisal**

- Class B appraisal
- In-depth, thorough appraisal, may limit scope
- Provides strengths and weaknesses, but no rating
- Typically used for intermediate appraisals in organization

*PII for each practice*

*Benefits:*

- *Organization & projects indicate their level of CMMI compliance*
- *Org/project understanding*

## **(4) Standard CMMI Appraisal Method for Process Improvement (SCAMPI)**

- Class A appraisal
- Most in-depth, thorough appraisal, with broad coverage
- Provides a rating (e.g., CMMI maturity level 1 through 5)

*PII for each practice*

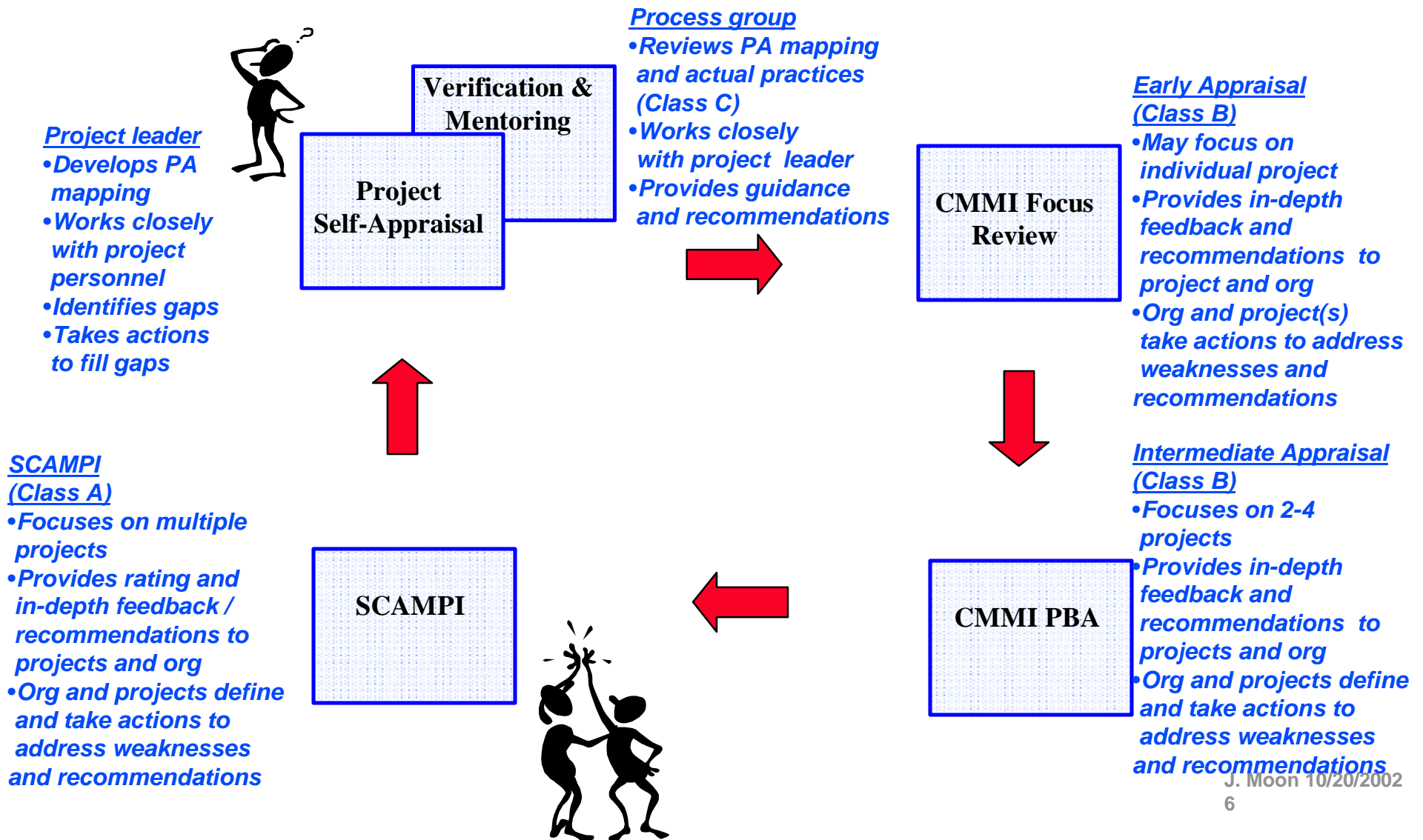
*Benefits:*

- *Completeness, understanding*



# Appraisal Cycle

Approach that facilitates evolving improvements



# Benefits and Drawbacks

## Benefits

- **Use of PIIs in preparation**
  - Assists organizations and projects in understanding their level of compliance
  - Provides added knowledge of CMMI that helps interviewees understand appraisal team questions
  - Builds database for individual projects, that can be updated and maintained (helps evolve model knowledge and appraisal preparations)
- **Use of PIIs in appraisal**
  - Assists team in evidence review and correlating affirmations
  - Provides insights, based on similarities or differences in organization's self-evaluation versus appraisal team evaluation
  - Can provide lessons learned to organization, helps future understanding and improvements
  - For mature organizations, saves appraisal time



## Drawbacks

- **Use of PIIs in preparation**
  - Takes added time and effort for organizations and projects to prepare

# Significant Lessons

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## Preparing for a CMMI appraisal

- Major preparation effort for organization and projects
  - Must collect, organize, and review the evidence
  - Provides needed understanding
- Significant preparation and effort for appraisal team

## Evolving through multiple phased appraisals

- Early use of PIs and mentoring with Class C method helps provide useful project insights
- Participation in Class B appraisals essential before Class A SCAMPI

*Most important – must retain focus on **value** of the improvements, not just the evidence or achieving success in assessments*