



# CMMI v1.3 WHAT'S NEW, WHAT'S NOT AND WHAT IT MEANS TO YOU

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# YOUR PRESENTER:



# TOPICS

- ▲ Assumptions
- ▲ Model changes
- ▲ Appraisal changes
- ▲ New professional path options

# ASSUMPTIONS

- ▲ You are already familiar with CMMI and its terminology, abbreviations and acronyms.
- ▲ You are probably concerned most about CMMI for Development.
- ▲ This presentation concentrates on CMMI-DEV.

# MODEL CHANGES

- ▲ Agile content added.
- ▲ Greatly expanded examples.
- ▲ More non-software examples.
- ▲ Most changes are in ML 4 & 5.
- ▲ CL 4 & 5 eliminated.

# MODEL CHANGES

## ▲ GP 3.2 simplified:

Collect process related experiences derived from planning and performing the process to support the future use and improvement of the organization's processes and process assets.

## ▲ IPPD "additions" eliminated from DEV

## ▲ Detailed "revisions ON" comparison documents can be found at:

<http://www.sei.cmu.edu/cmmi/tools/cmmiv1-3/>

- ▲ Excellent table added in MA to help better understand the practices.
  
- ▲ Focus is more active than passive – suggesting a more proactive use for the measures rather than merely collecting *something* to satisfy the practices. E.g., “obtain” measures, vice “gather”, “communicate” results, vice “report”.

**Table MA.1: Example Measurement Relationships**

Example Project, Organizational, or Business Objectives	Information Need	Measurement Objective	Measurement Information Categories	Example Base Measures	Example Derived Measures
Shorten time to delivery  Be first to market the product	What is the estimated delivery time?	Provide insight into schedule fluctuations and progress	Schedule and progress	Estimated and actual start and end dates by task	Milestone performance  Percentage of project on time  Schedule estimation accuracy
			Size and effort	Estimated and actual effort and size	Productivity
Increase market share by reducing costs of products and services	How accurate are the size and cost estimates?	Provide insight into actual size and costs compared to plan	Effort and cost	Estimated and actual cost	Cost performance  Cost variance
			Size and stability	Requirements count	Requirements volatility
Deliver specified functionality	Has scope or project size grown?	Provide insight into actual size compared to plan, identify unplanned growth		Function point count	Size estimation accuracy
				Lines of code count	Estimated vs. actual function points
					Amount of new, modified, and reused code
Reduce defects in products delivered to the customer by 10% without affecting cost	Where are defects being inserted and detected prior to delivery?	Evaluate the effectiveness of defect detection throughout the product lifecycle	Quality	Number of defects inserted and detected by lifecycle phase  Product size	Defect containment by lifecycle phase  Defect density
	What is the cost of rework?	Determine the cost of correcting defects	Cost	Number of defects inserted and detected by lifecycle phase  Effort hours to correct defects  Labor rates	Rework costs
Reduce information system vulnerabilities	What is the magnitude of open system vulnerabilities?	Evaluate the effectiveness of mitigating system vulnerabilities	Information Assurance	Number of system vulnerabilities identified and number of system vulnerabilities mitigated	Percentage of system vulnerabilities mitigated

Source:  
**CMU/SEI-2010-TR-033**  
 ESC-TR-2010-033  
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- ▲ Two practices eliminated from SG 2.
- ▲ Simplified and consolidated.
- ▲ SP 2.2 Ensure that the supplier agreement is satisfied before accepting the acquired product.
- ▲ SP 2.3 Ensure the transition of products acquired from the supplier.

- ▲ SP 1.7 Added (and expected) in lieu of IPPD addition
- ▲ SP 1.7 Establish and maintain organizational rules and guidelines for the structure, formation, and operation of teams.

- ▲ SP 1.6 inserted (and is expected) in lieu of IPPD addition
- ▲ Old SP 1.6 is now SP 1.7
- ▲ *SP 1.6 Establish and maintain teams.*

- ▲ Refocused onto integration strategy rather than 'sequence'.

- ▲ Reorganized
- ▲ More explicitly tied to business objectives
- ▲ The purpose of Organizational Process Performance (OPP) is to establish and maintain a quantitative understanding of the performance of selected processes in the organization's set of standard processes in support of achieving quality and process performance objectives, and to provide process performance data, baselines, and models to quantitatively manage the organization's projects.

- ▲ SP 1.1 Establish and maintain the organization's quantitative objectives for quality and process performance, which are traceable to business objectives.
- ▲ SP 1.2 Select processes or subprocesses in the organization's set of standard processes to be included in the organization's process performance analyses and maintain traceability to business objectives.

- ▲ SP 1.3 Establish and maintain definitions of measures to be included in the organization's process performance analyses.
- ▲ SP 1.4 Analyze the performance of the selected processes, and establish and maintain the process performance baselines.
- ▲ SP 1.5 Establish and maintain process performance models for the organization's set of standard processes.

- ▲ Revamped to reduce confusion and ambiguity.
- ▲ By making small sentence structure and edifying changes, practices are now actually aligned with intention of narrative.
- ▲ Significant increase in informative material (narrative, sub-practices, etc.) to support proper interpretation of practices.

▲ OID is now OPM

▲ ORGANIZATIONAL PERFORMANCE MANAGEMENT

▲ The purpose of Organizational Performance Management (OPM) is to proactively manage the organization's performance to meet its business objectives.

# SG 1 MANAGE BUSINESS PERFORMANCE

- ▲ SP 1.1 Maintain business objectives based on an understanding of business strategies and actual performance results.
- ▲ SP 1.2 Analyze process performance data to determine the organization's ability to meet identified business objectives.
- ▲ SP 1.3 Identify potential areas for improvement that could contribute to meeting business objectives.

# SG 2 SELECT IMPROVEMENTS

- ▲ SP 2.1 Elicit and categorize suggested improvements.
- ▲ SP 2.2 Analyze suggested improvements for their possible impact on achieving the organization's quality and process performance objectives.
- ▲ SP 2.3 Validate selected improvements.
- ▲ SP 2.4 Select and implement improvements for deployment throughout the organization based on an evaluation of costs, benefits, and other factors.

# SG 3 DEPLOY IMPROVEMENTS

- ▲ SP 3.1 Establish and maintain plans for deploying selected improvements.
- ▲ SP 3.2 Manage the deployment of selected improvements.
- ▲ SP 3.3 Evaluate the effects of deployed improvements on quality and process performance using statistical and other quantitative techniques.

## BEFORE

- ▲ The purpose of Causal Analysis and Resolution (CAR) is to identify causes of defects and other problems and take action to prevent them from occurring in the future.

## AFTER

- ▲ The purpose of Causal Analysis and Resolution (CAR) is to identify causes of selected outcomes and take action to improve process performance.

- Focus is on outcomes, not defects
- Sets expectations for addressing outcomes – of all kinds – not only defect-driven outcomes.

# SUMMARY OF CHANGES TO SVC

- ▲ “Work” replaces “Project” in most instances. E.g., “Work Planning” vice “Project Planning”, “Work Monitoring and Control”, “Integrated Work Management”, etc.
- ▲ Examples relevant to SVC as opposed to DEV.

# SCAMPI (APPRAISAL) CHANGES

# SCAMPI CHANGES

- ▲ Sampling
- ▲ Data coverage
- ▲ Required data strategy and planning
- ▲ Required team conflict of interest analysis
- ▲ Required team training

# “INSTANTIATIONS” NOW:

## ▲ “Basic Units”

- ▼ typically discrete, distinct, independent sets of work that can demonstrate the existence of CMMI practices

## ▲ “Support Functions”

- ▼ Support basic units but not necessarily \*in\* any one basic unit.

▲ Sampling is based on Basic Units’ sampling factors.

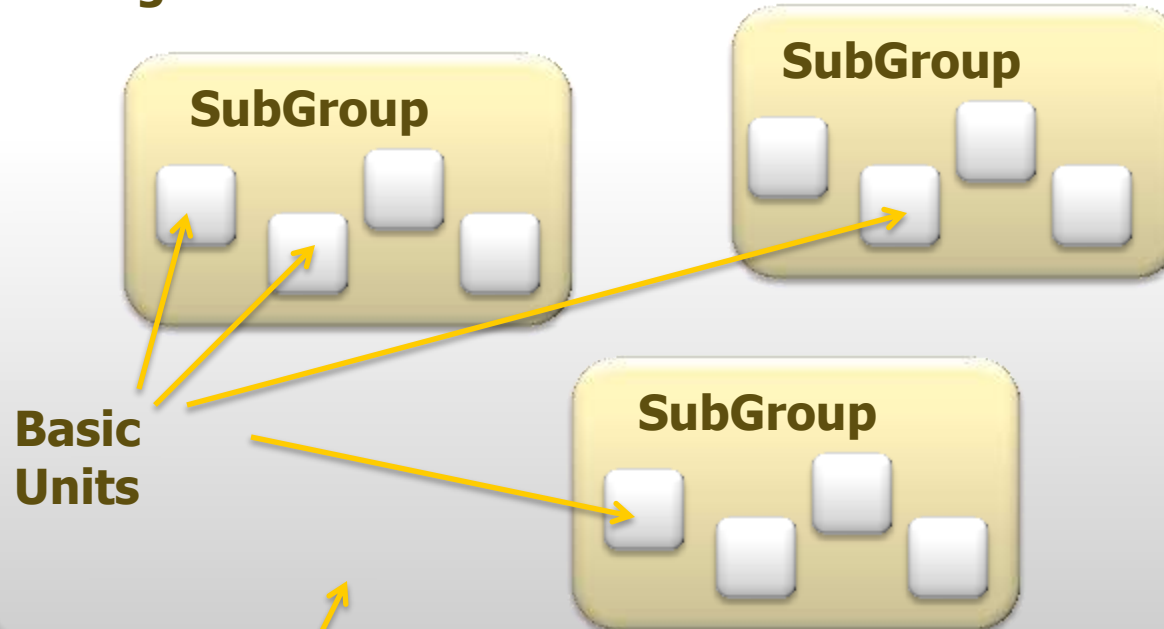
▲ Eliminates the “how do *projects* show that?” conundrum.

# MINIMUM SAMPLING FACTORS

- ▲ **Location:** if work is performed in more than one location
- ▲ **Customer:** if different customers are served by different basic units
- ▲ **Funding Source:** if different sources of funding support the work of different basic units
- ▲ **Management Structure:** if oversight of the work in the organization is accomplished through different lines of management.
- ▲ **Type of work:** if there is more than one distinct type of work done in the organization.

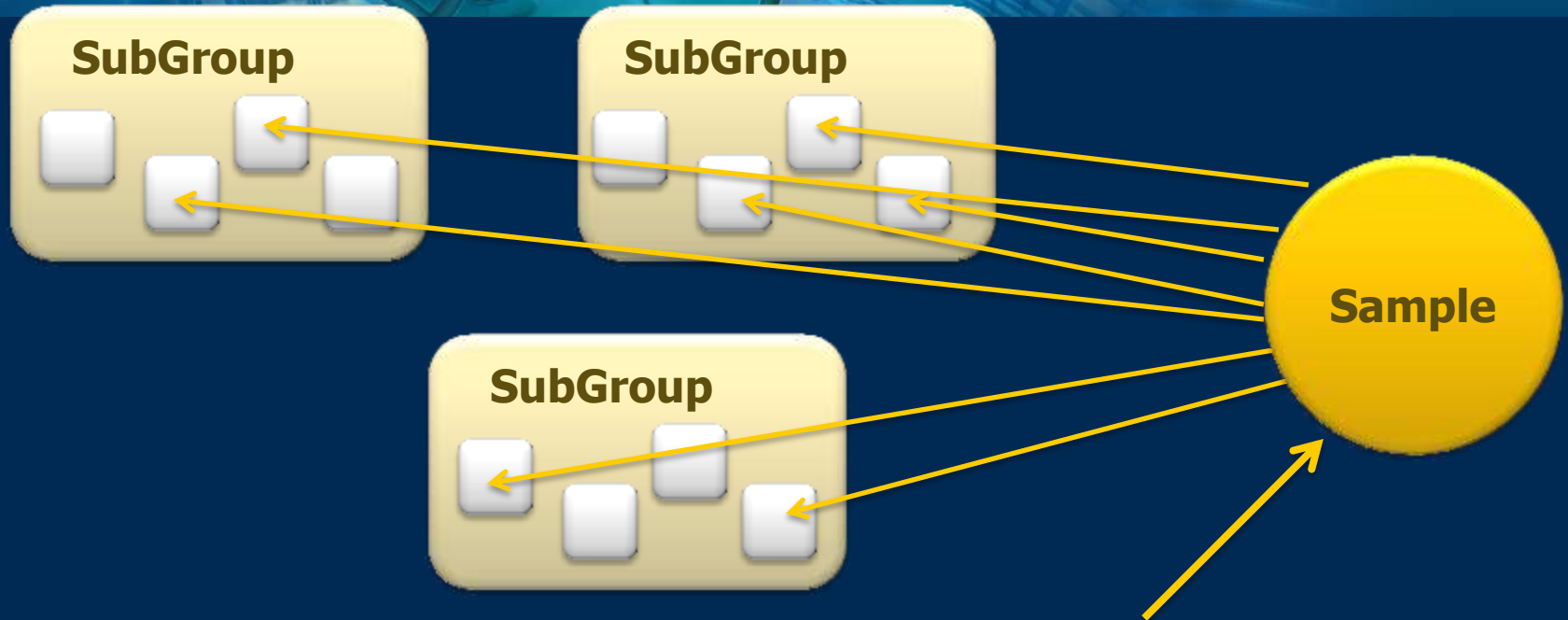
## Organization

### Organizational Unit



Results apply to the organizational unit.

# SAMPLE FROM THE BASIC UNITS



**This is what is in the appraisal.**

$$\text{Minimum \# of sampled BUs from a SubGroup} = \frac{(\# \text{ subgroups}) \cdot (\# \text{ BUs in a given SubGroup})}{\text{Total \# BUs in OU}}$$

# EXAMPLE

- ▲ You're an aerospace and defense contractor.  
(Organization)
- ▲ You have the following Subgroups:
  - ▼ Aircraft airframes.
  - ▼ Electro-optical sensor systems
  - ▼ Flight control avionics
  - ▼ Ground systems
  - ▼ **PLUS** QA, CM, IT and Business support functions
- ▲ Although any one project may (likely) cut across each subgroup, not all do, and, some projects support fielded systems only.

# EXAMPLE, CONTINUED

## ▲ Basic units:

- ▼ Aircraft airframes : 4 BUs
- ▼ Electro-optical : 11 Bus
- ▼ Flight control avionics : 5 BUs
- ▼ Ground systems : 3 BUs
- ▼ QA, CM, IT and Business support functions

▲ # subgroups: 4

▲ Total basic units (BUs): 23

# EXAMPLE, EVEN MORE CONT'D

Subgroup	# Subgroups	Basic Units	# BUs in OU	Sample Size
Aircraft airframes	4	4	23	16/23 ↻ 1
Electro-optical Sensor systems	4	11	23	44/23 ↻ 2
Flight control avionics	4	5	23	20/23 ↻ 1
Ground systems	4	3	23	12/23 ↻ 1

$$\frac{(\# \text{ subgroups}) \cdot (\# \text{ BUs in a given SubGroup})}{\text{Total \# BUs in OU}}$$

# DATA ADEQUACY RULES

- ▲ **Artifacts:** For an artifact to be accepted as evidence of practice implementation, it must be a product or by-product of the practice being examined by the appraisal team.
- ▲ **Affirmations:** For an affirmation to be accepted as evidence of practice implementation, it must be supplied by an individual who participated in the implementation of the practice being examined by the appraisal team.

# COVERAGE RULES FOR PROCESS AREAS

- ▲ **Coverage:** For each process area, data (artifacts and/or affirmations) must be examined for all practices included in the process area – including generic practices, depending on the model and scope of the appraisal.

# DATA SUFFICIENCY FOR BASIC UNITS

- ▲ **Sufficiency-1:** For each subgroup, at least one basic unit shall provide both artifacts and affirmations for every process area implemented by basic units within that subgroup.
  
- ▲ **Sufficiency-2:** For each subgroup, at least 50 percent of the basic units shall provide both artifacts and affirmations for at least one process area implemented by basic units within that subgroup.
  
- ▲ **Sufficiency-3:** For each subgroup, all sampled basic units shall provide -- at a minimum-- either artifacts or affirmations for one process area implemented by basic units within that subgroup.
  - ▼ [note: for a subgroup with only one basic unit, satisfaction of the first sufficiency rule will automatically satisfy the other two sufficiency rules.]



# ENTINEX DATA SUFFICIENCY FOR SUPPORT FUNCTIONS

- ▲ **Sufficiency-1:** Each support function shall provide both artifacts and affirmations for all process areas relating to the work performed by that support function.
- ▲ **Sufficiency-2:** Support functions that support work performed in basic units shall provide artifacts and affirmations that relate to all sampled basic units -- for each process area.
- ▲ **Sufficiency-3:** In cases where multiple support functions exist within the Organizational Unit, all instances of the support function shall be included in the appraisal scope. For example, if division-specific Configuration Management groups exist, every group in each division included in the Organizational Unit must participate.

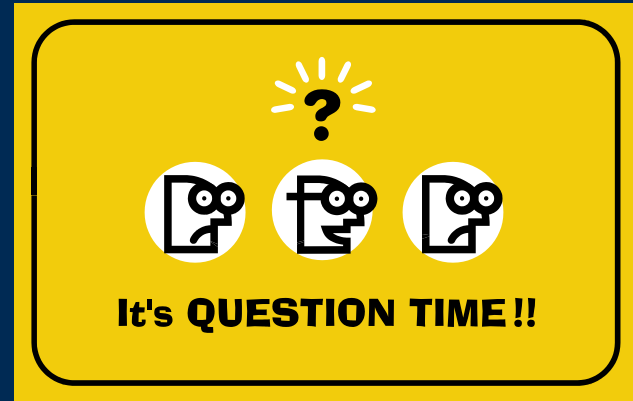
# APPRAISAL TEAM

- ▲ Must include a confirmation/disclosure of appraisal team member conflict of interest (CoI) and how CoI will be managed.
- ▲ Must provide at least a team brief before the appraisal if not outright appraisal team training.
- ▲ Appraisal team leader may determine whether v1.3 training is required for ML2&3.
- ▲ V1.3 Upgrade training **is required** for ML4&5 appraisal team members.

# PROFESSIONAL PATHS

# AT THE MOMENT, NOT MUCH

- ▲ Other than “high maturity”, upgrade training to v1.3 will not be required, although it will be available.
- ▲ CMMI for Practitioners Instructor now available.
- ▲ CMMI for Services Instructor and Appraiser.
- ▲ New options for taking courses also available. (See me later.)



Questions?

**THANKS FOR YOUR  
ATTENTION!**



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