

# Efficient Satisfaction of CMMI® M&A Requirements at Level 2

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# Topics

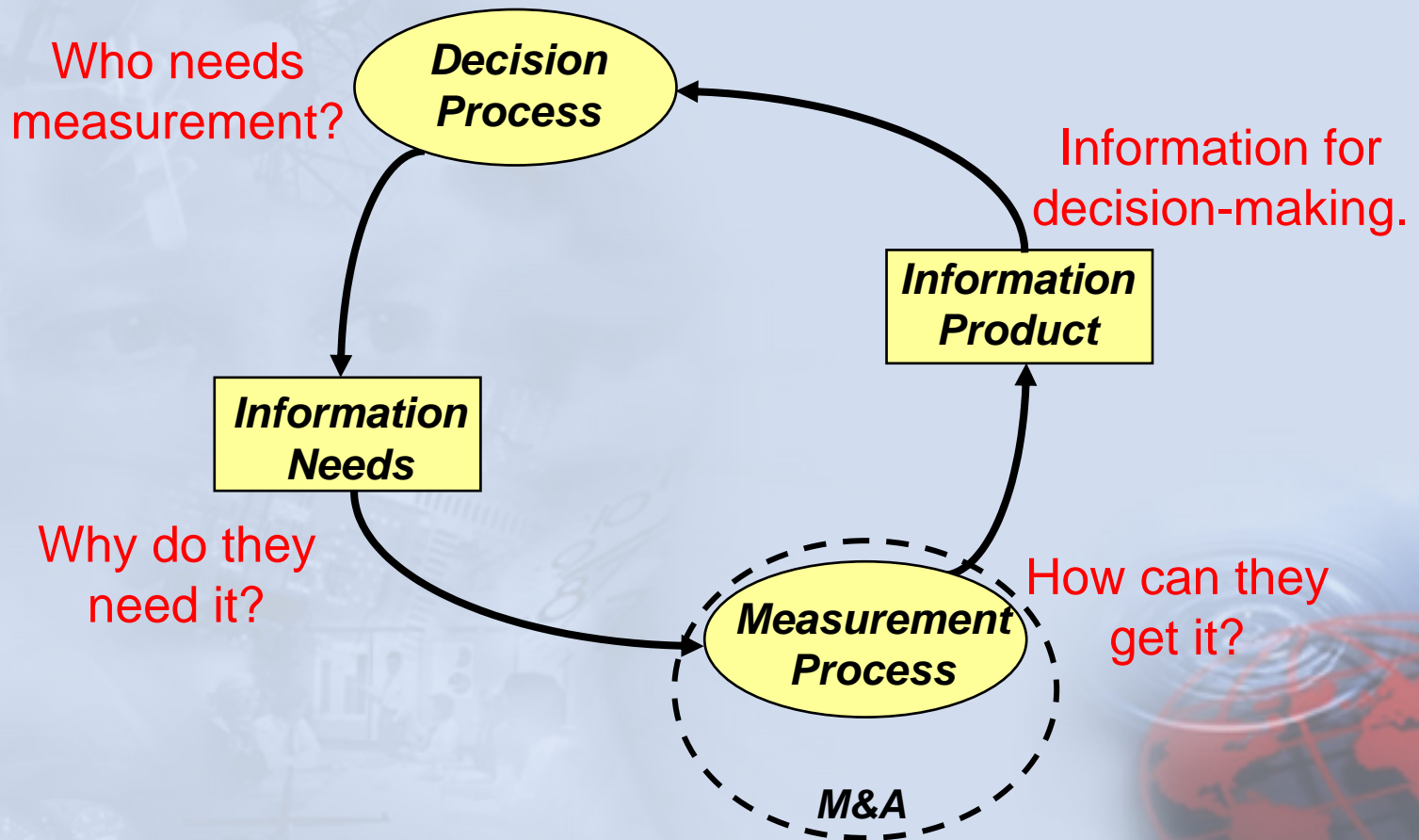
- Technical Background
- Problem Statement
- Efficient Satisfaction
- Measurement Objectives
- M&A Process Area Requirements and Solution
- Summary



# Technical Background

- ISO/IEC Standard 15939 is the basis for the Measurement and Analysis (M&A) Process Area of the CMMI<sup>sm</sup>
- ISO/IEC Standard 15939 is based on earlier ISO guidance such as the International Vocabulary and Glossary of Terms in Metrology
- Practical Software Measurement (J. McGarry, D. Card, et al., Addison Wesley 2002) is an implementation guide for ISO/IEC Standard 15939 and M&A at CMMI Level 2/3

# Measurement Context



# Problem Statement

- The Measurement & Analysis (M&A) Process Area describes “generic” requirements
- Specific measurement requirements appear in many process areas
- New measurement requirements are introduced at every level
- Considering each requirement separately often leads to overly ambitious and unwieldy measurement programs
- Is there an efficient approach to satisfying the CMMI M&A requirements?

# Efficient Satisfaction Means...

- Meets the requirements of the M&A process area
- Enables effective project management (focus of Level 2)
- Minimizes the amount of data collection and analysis required
- Facilitates transition to higher levels of maturity



# Recommended Approach

- Take a Level 3 perspective at the start
- Consider all measurement requirements together
- Focus on the intended use (objectives) of measurement, not the minimum set required by the CMMI



## Level 3 Perspective

- Level 2 allows every project to follow a different measurement process, don't!
  - Common process definitions
  - Common tools and databases
  - Common reporting and oversight
- Consider the project management related measurement objectives of Level 3 along with those of Level 2

# Measurement Objectives

- Measurement objectives are derived from information needs of “users”
- M&A does not require any measures (except GP 2.8)
- M&A describes how measurement objectives (if any) are defined and satisfied
- Information needs come from:
  - Other CMMI process areas
  - Sources external to the process



## Key Level 2 Requirements

- PP SP 1.2, Establish estimates of the work product and task attributes
- PP SP 1.4, Determine estimates of effort and cost
- PMC SP 1.1, Monitor project planning parameters
- GP 2.8, Monitor and control the process (for each process area)

## Key Level 3 Requirements

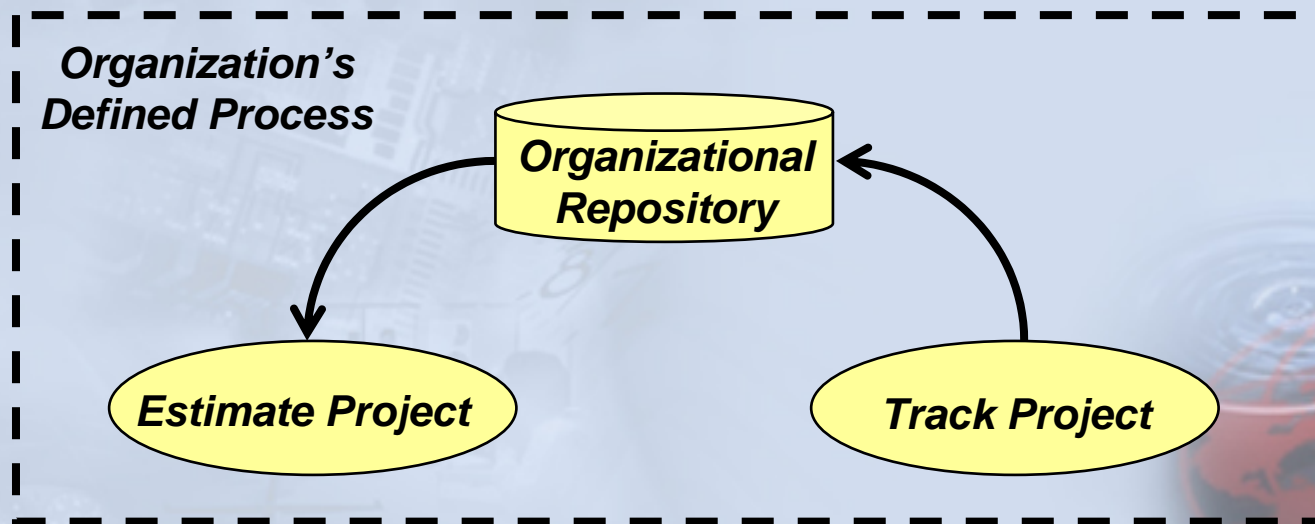
- OPD SP 1.4, Establish the organization's measurement repository
- IPM SP 1.2, Use process assets (measurement repository) for planning project activities

## More on GP 2.8

- Why? Ensure each process area gets executed.
- How?
  - Planned versus actual effort
  - Accomplishment of milestones and tasks
  - Review status and take action
- Note: a unique measure is not needed for every process area

# Project Measurement Concept

- Track what you estimate! Estimate what you track!
- Requires both project and organizational measurement functions



# Simple Project Data Set

- Size Measure (Planned versus Actual)
- Effort (Planned versus Actual)
  - Technical Activities
    - Development (RD, TS)
    - Testing (VER, VAL ,PI)
  - Project Management (PP, PMC, M&A, SAM)
  - Quality Assurance (PPQA)
  - Configuration Management (CM, RM)

# SG 1 – Specific Practices

- Align Measurement and Analysis Activities
  - 1.1 Establish Measurement Objectives
  - 1.2 Specify Measures
  - 1.3 Specify Data Collection and Storage Procedures
  - 1.4 Specify Data Analysis Procedures
- This is about planning the measurement process (resulting in a “project” measurement plan)

## SG 2 – Specific Practices

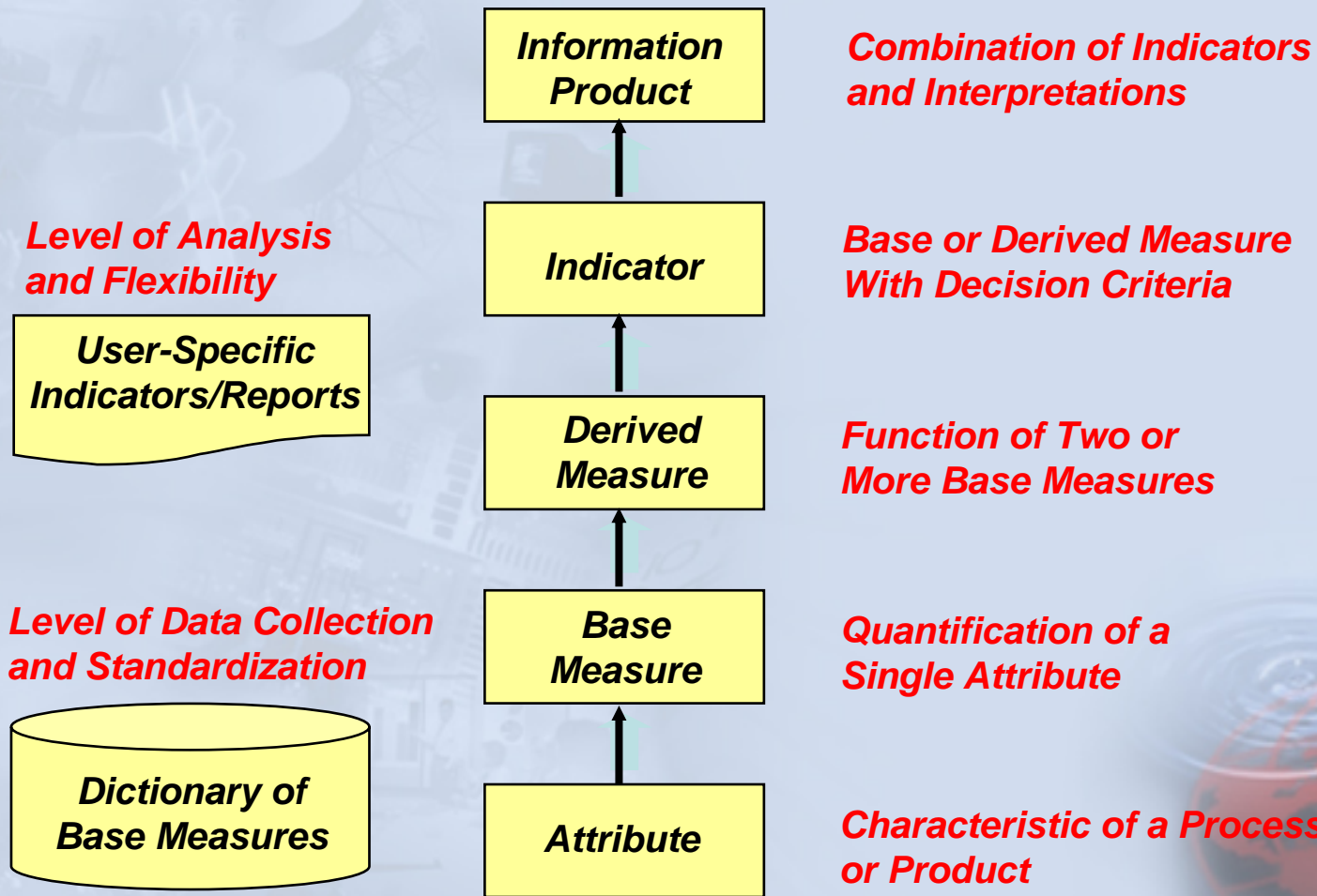
- Provide Measurement Results
  - 2.1 Collect Measurement Data
  - 2.2 Analyze Measurement Data
  - 2.3 Store Data and Results
  - 2.4 Communicate Data and Results
- This is about executing the previously defined measurement process



# Generic Practices

- GP 2.2 – Plan the Process
  - This is the management plan, not the measurement process (budget and schedule)
- GP 2.8 – Monitor and Control the Process
  - This is tracking against the management plan, accomplishment of measurement work
- GP 3.1 – Establish a Defined Process
  - Addresses satisfaction of the SPs
  - Many elements can be addressed with templates
- Level 2 GPs usually satisfied in other PAs, i.e., PP, PMC, CM, PPQA

# Measurement Terminology



# Summary

- M&A requirements apply whenever measurement is performed for any purpose.
- M&A does not require any specific measures
- Addressing all project management measurement requirements together minimizes rework at Level 3

# About Q-Labs

- Consulting, Training and Appraisals in:
  - Software Measurement
  - CMM/CMMI
  - Lean/Six Sigma
  - ISO 15504/SPICE
  - ISO 9001
- 150 employees
- ISO 9001 Certified
- A broad international client base, e.g.
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  - AXA, BNP Paribas, Banques Populaires
  - ABB, R. Bosch, EDF, IBM, Siemens, Schneider Electric, Thomson Detexis, Volvo, Sony
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