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Customer Success Is Our Mission

Do you understand why Level 3 comes before Level 4 which comes before Level 5?

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Introduction

- This presentation describes key items that help in the understanding and communication of the relationships between CMMI® Levels 3, 4, and 5, including
  - how Quantitative Project Management (QPM) activities build on the Measurement and Analysis (MA) activities
  - how Organizational Process Performance (OPP) feeds QPM and QPM feeds OPP
  - how Organizational Innovation and Deployment (OID) activities build on the Organizational Process Focus (OPF) activities
  - how QPM is tied to both the OID and Causal Analysis and Resolution (CAR) activities
  - how the Raytheon Six Sigma™ process relates to the CAR process area
  - the Level 4 and 5 inter-relationships from the program and organization perspectives

Raytheon Six Sigma is a trademark of Raytheon Company.

Importance of Understanding the Relationships

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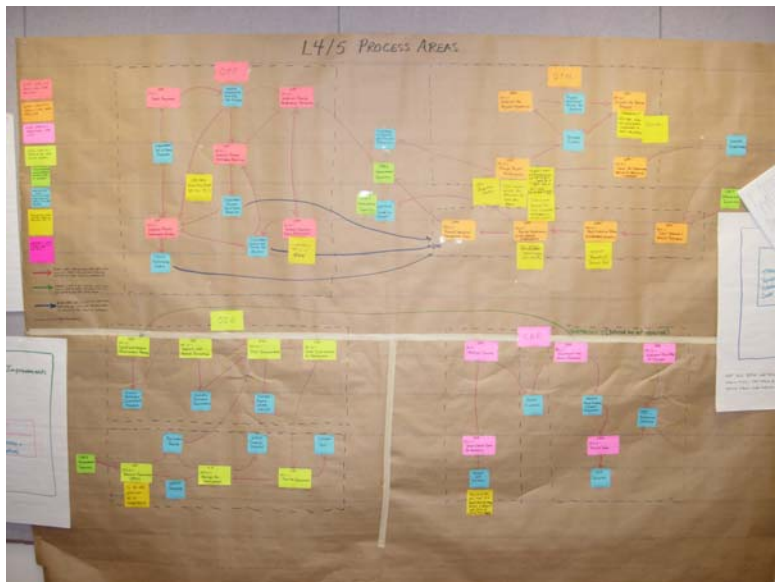
- Consistency in CMMI interpretation is essential to a successful appraisal
- The organization focus should be on "Does it make good business sense and does it meet the intent of the CMMI model?"
- Understanding the Level 4 and 5 relationships within the CMMI model helps clarify how the business meets the intent of the model

Process to gain understanding

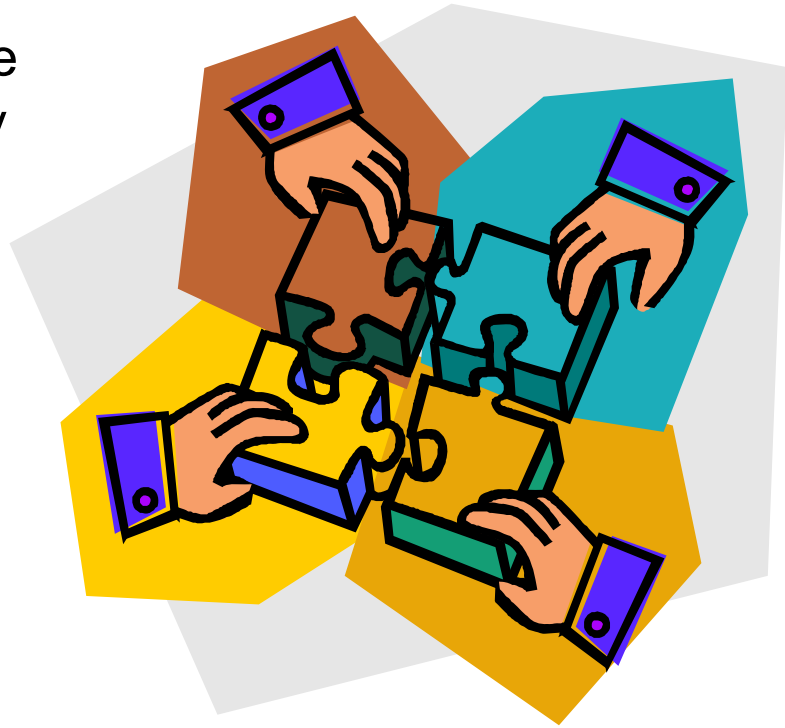
- After Class C SCAMPIs it was clear there was:
  - Misunderstanding and miscommunication about the Level 4 and 5 **interpretation and expectations**

- To address the issue, our organization held an **in-depth model review** of the CMMI Level 4 and 5 process areas **with key members** of both the **appraisal team and the Enterprise Process Group (EPG)**
  - Performed an in-depth model review
  - Documented our understanding
  - Mapped our processes to the model



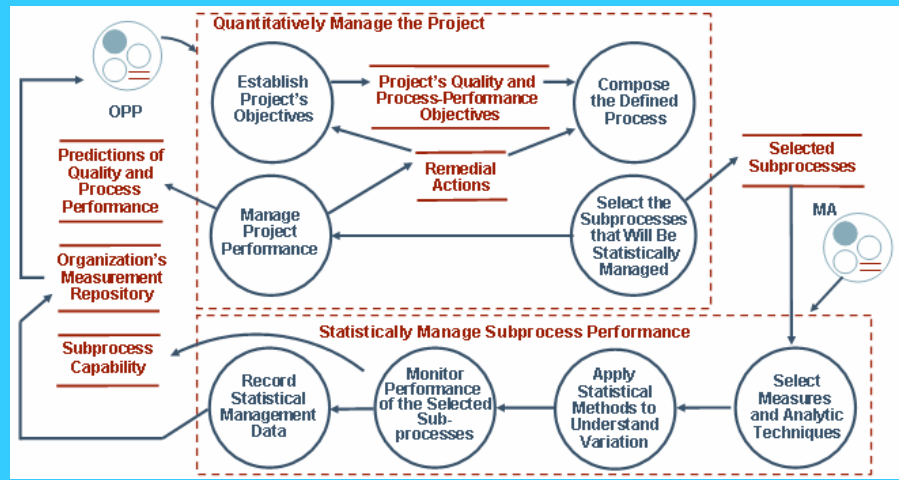
Results of the Meetings

- The time spent in coming to a common understanding of the model helped:
  - Clarify the key interfaces amongst the Level 4 and 5 practices and how they build on a Level 3 organization
  - Reveal how our organization is meeting the intent of the practices
  - Increase the programs' understanding of the information needed to provide evidence of their Level 4 and 5 activities.



Discussions

- The CMMI context diagrams were used as the starting point for discussion
- Discussions included
  - The relationships of the specific practices within a process area
  - The interfaces between specific practices of each process area to other process areas
  - Types of evidence expected for both the specific and generic practices



- The following slides address some of the key items that help in the understanding and communication of the relationships

Organizational Process Performance (OPP)

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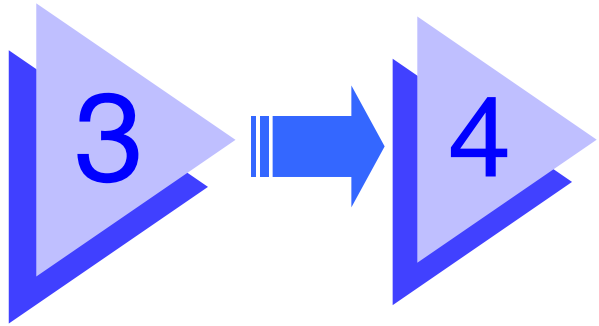
- The organization needs to be operating at Level 3 in order to perform the OPP activities



- For Level 4, the organization adds
  - Statistical analysis of its process capability based on historic data
    - Generation of process performance baselines
    - Development of process performance predictive models
  - Definition of the organization's **quantitative** quality and process performance goals and objectives
  - Direction and support to the programs on the use of the organization's defined goals and objectives

4 Quantitative Project Management (QPM)

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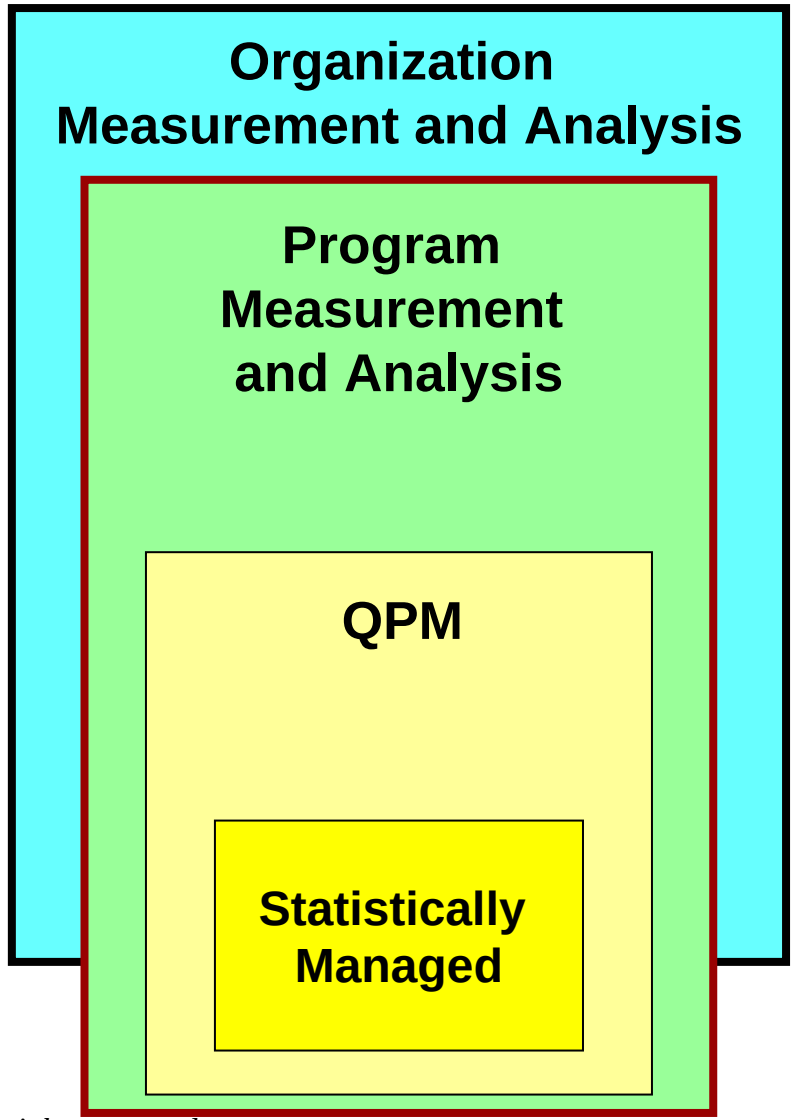
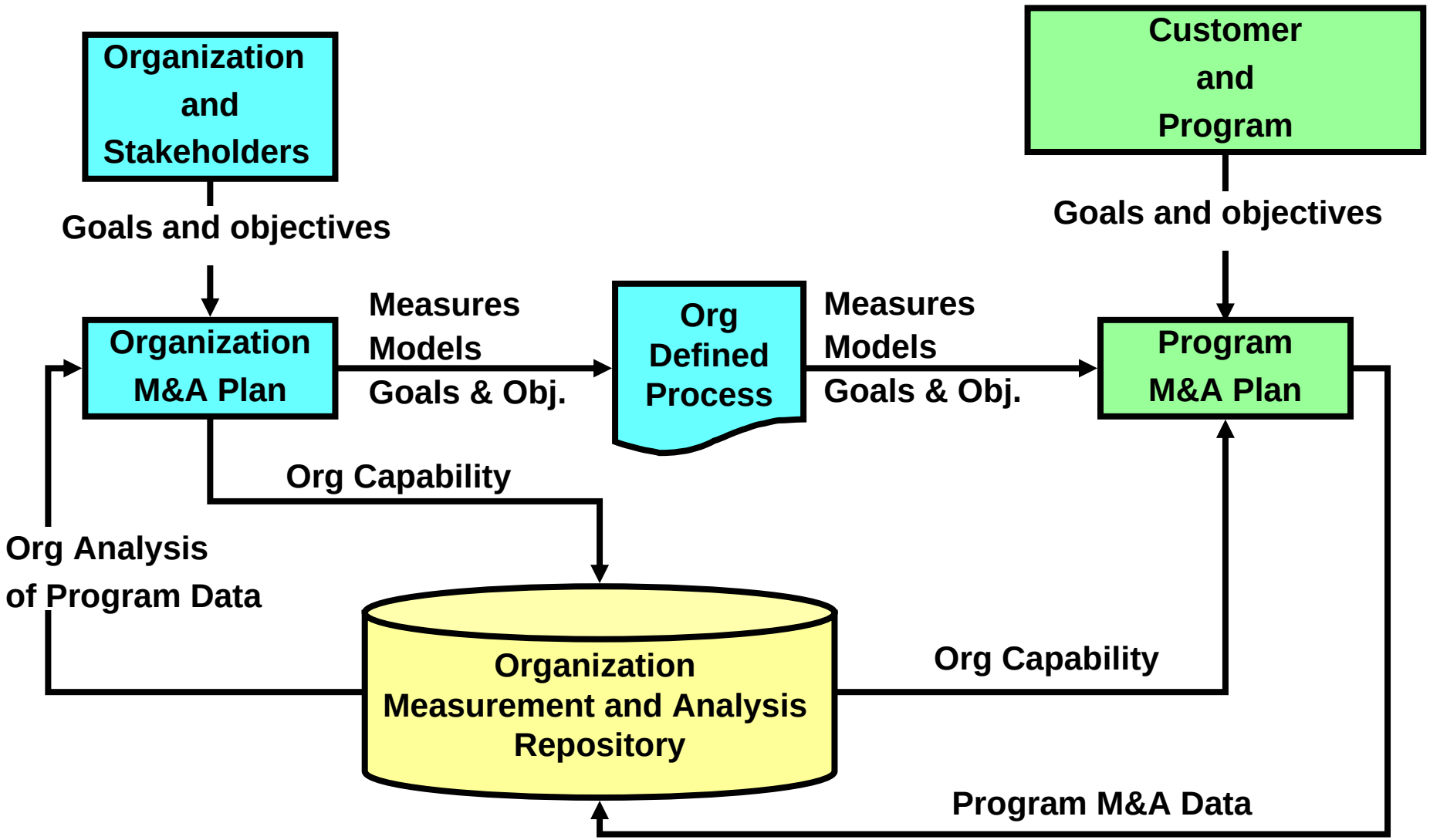
- Builds on Measurement and Analysis foundation
- Includes quality and process-performance objectives (program, customer and organization)
- QPM measures are typically a subset of the program's measures
- Not all QPM measures are statistically managed

Key to understand the difference between quantitatively and statistically managed measures.



OPP and QPM Interaction



5 Organizational Innovation and Deployment (OID)

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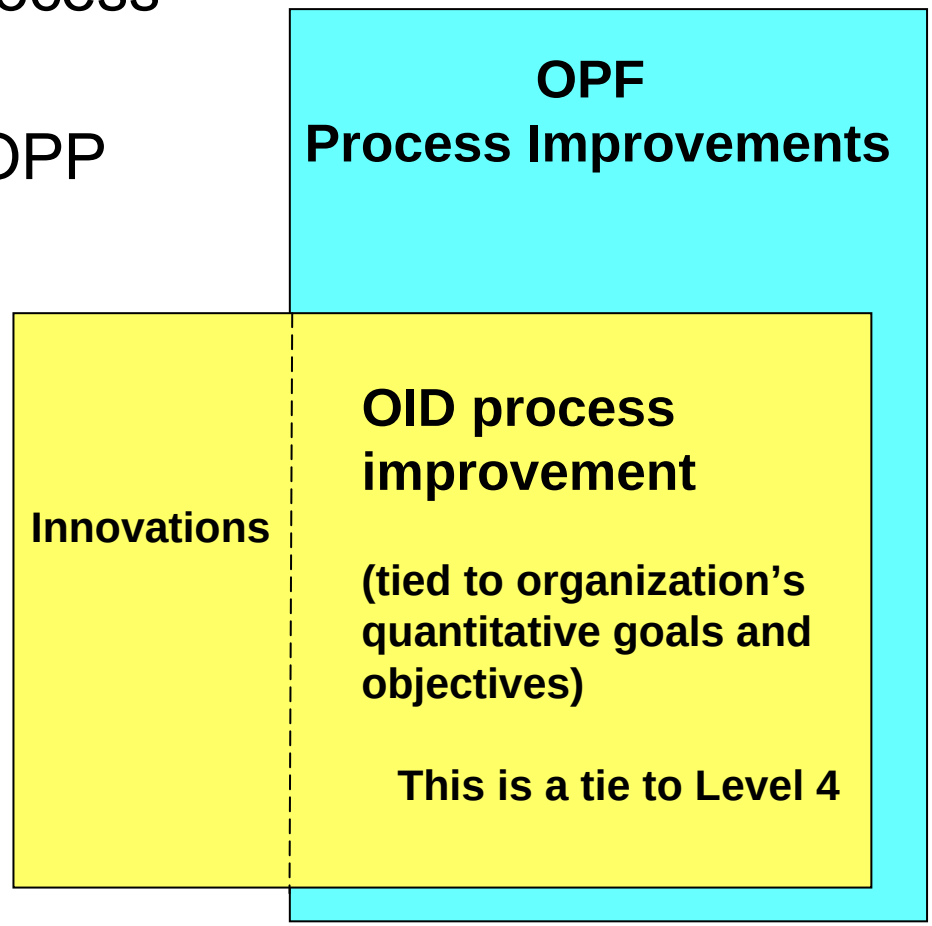
- Builds on the Organization Process Focus (OPF) foundation
- Improvements are driven by OPP and QPM activities (org and program)
- Effect on the organization's quantitative goals and objectives are measured
- A Level 5 organization is a learning organization



Link to the organization's quantitative goals and objectives is key.

5 Causal Analysis and Resolution (CAR)

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- CAR process can be applied regardless of the organization's maturity level
- CAR process maps well to the Raytheon Six Sigma™ process
- Not all R6σ® projects meet the CMMI Level 5 model
- Level 5 R6σ® projects are driven by the program's quantitative goals and objectives

Link to the program's quantitative goals and objectives is key to Level 5.

R6σ® Projects/Process

R6σ® Raytheon Six Sigma

R6σ® for QPM
(not necessarily Statistically Managed)

Tied to the program's quantitative goals and objectives

This is a tie to Level 4

SAS Program Representation of Level 4 and 5

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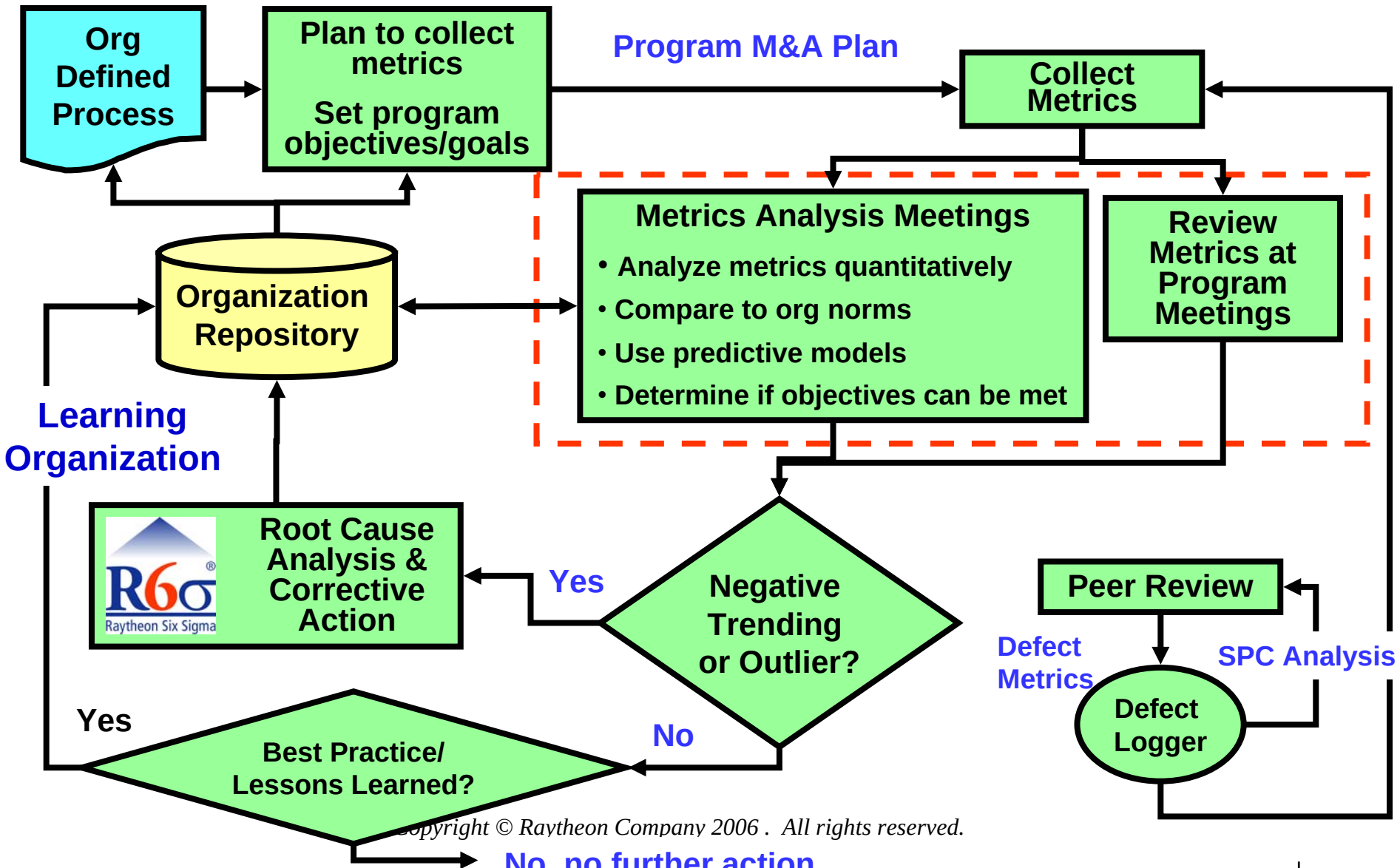

Using the information from the Level 4 and 5 model review

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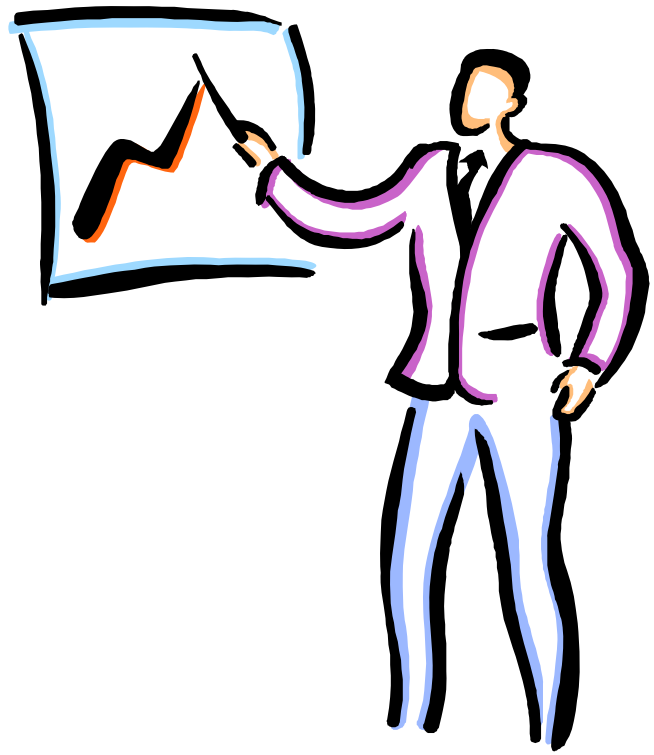
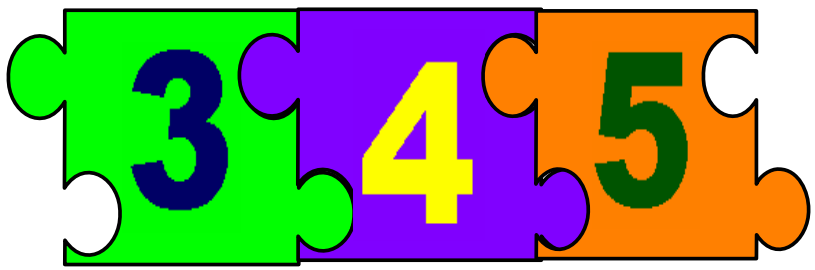
Use the documented understanding of Levels 4 and 5

- To educate and inform
  - EPG members
  - Persons collecting evidence for a SCAMPI
  - Program personnel involved in the Level 4 and 5 activities
- To relay the organization's Level 4 and 5 processes to the appraisal team members
  - Through meetings and discussions
  - Through organization and program demonstrations of the Level 4 and 5 activities



Summary

- A Level 4 or 5 organization must be built on an established Level 3 foundation
- Consistency in CMMI interpretation is essential to a successful appraisal
- The organization must understand and be able to present how it is meeting the intent of the practices
- Show how you make the pieces fit together!



Questions

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Biography

- Nancy Raymond is the Deployment Support Cross Product Team Lead in the Space and Airborne Systems Enterprise Process Group. Nancy has been with the company for 28 years. For most of her time at Raytheon, Nancy has been a software and process engineer on programs and within the organization. Nancy's specialties include software planning, estimation and metrics. Nancy has been involved with the development and deployment of CMM/CMMI compliant processes for more than 10 years. Nancy has a Masters Degree in Mathematics from Carnegie-Mellon University.

- Linda Kovar is a Senior Manager of Programs at Raytheon Space and Airborne Systems in El Segundo, California. She is the Enterprise Process Group (EPG) lead for their process improvement activities. In August 2005, she successfully led the activities in achieving a combined Systems, Software and Hardware CMMI Level 3 for the business unit which encompasses 7000 engineers in several states. She is currently leading the Enterprise Process Integration activities to focus on a CMMI Level 5 maturity across all of SAS Engineering. Linda has 25 years with Raytheon where she has held positions in Program Management, Functional Management, Technical Staff, Test Program development and software engineering. She is a certified Raytheon Six Sigma expert, has a BS degree in Computer Engineering from the University of California Los Angeles and is a graduate of the Anderson School of Executive Management.