Version 1.0

# Acquisition and the CMMI[SM] - An Update

A Presentation to the
4th Annual CMMI Technology Conference
and User Group
November 17, 2004

Track 6 – CMMI Extensions

**Mike Bloom**
mjbloom@MITRE.org

© Copyright 2004 The MITRE Corporation

[SM] CMMI is a service mark of Carnegie Mellon University

MITRE

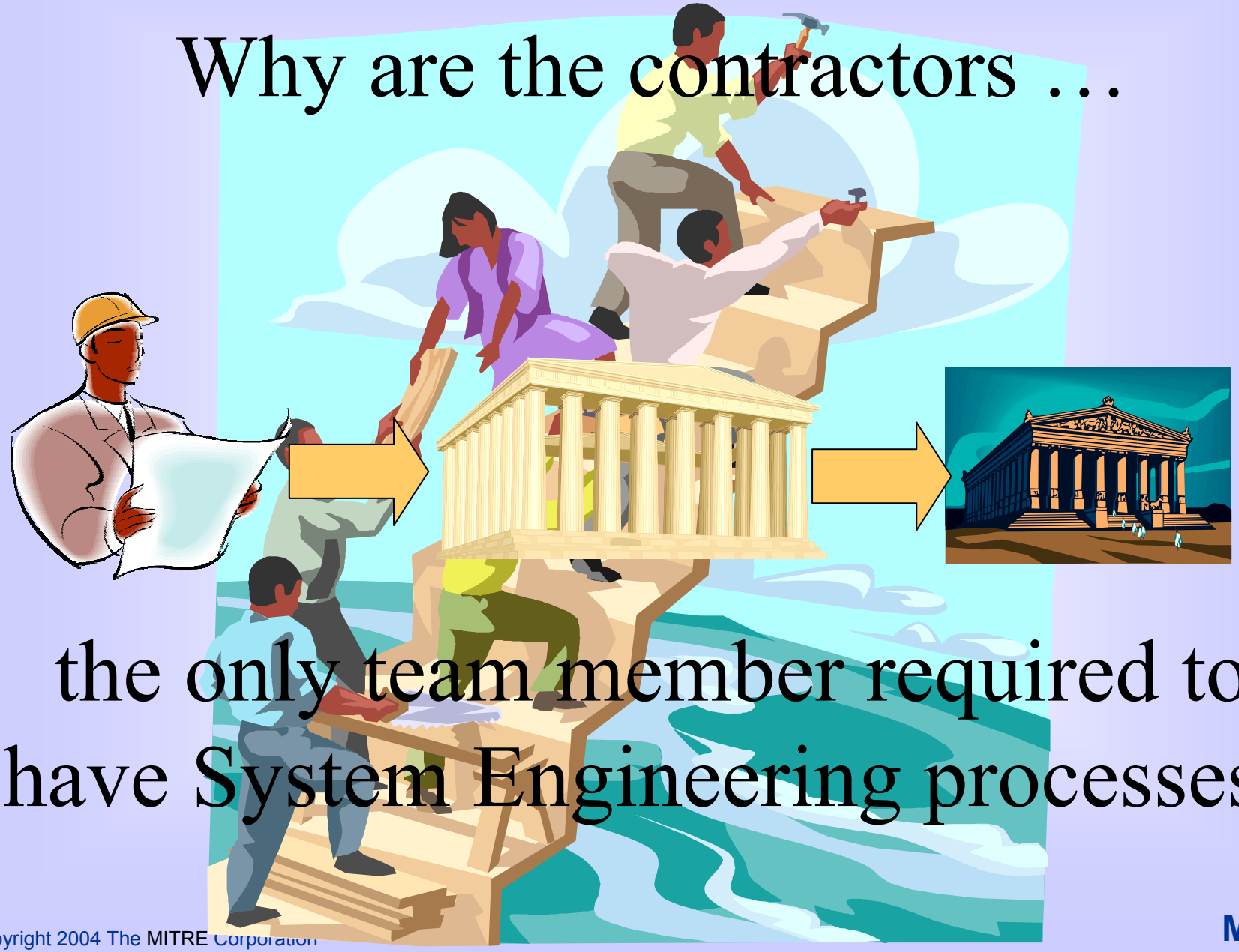
# System Engineering in Evolutionary Acquisition is a…

© Copyright 2004 The MITRE Corporation

# System Engineering in Evolutionary Acquisition needs…

© Copyright 2004 The MITRE Corporation

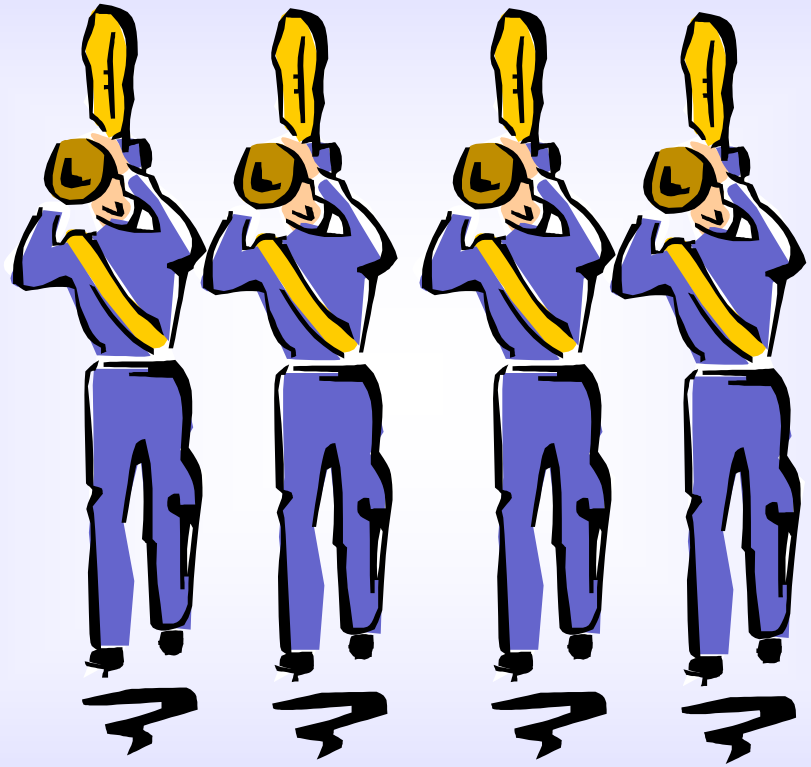
# Why are the contractors …



# the only team member required to have System Engineering processes?

© Copyright 2004 The MITRE Corporation

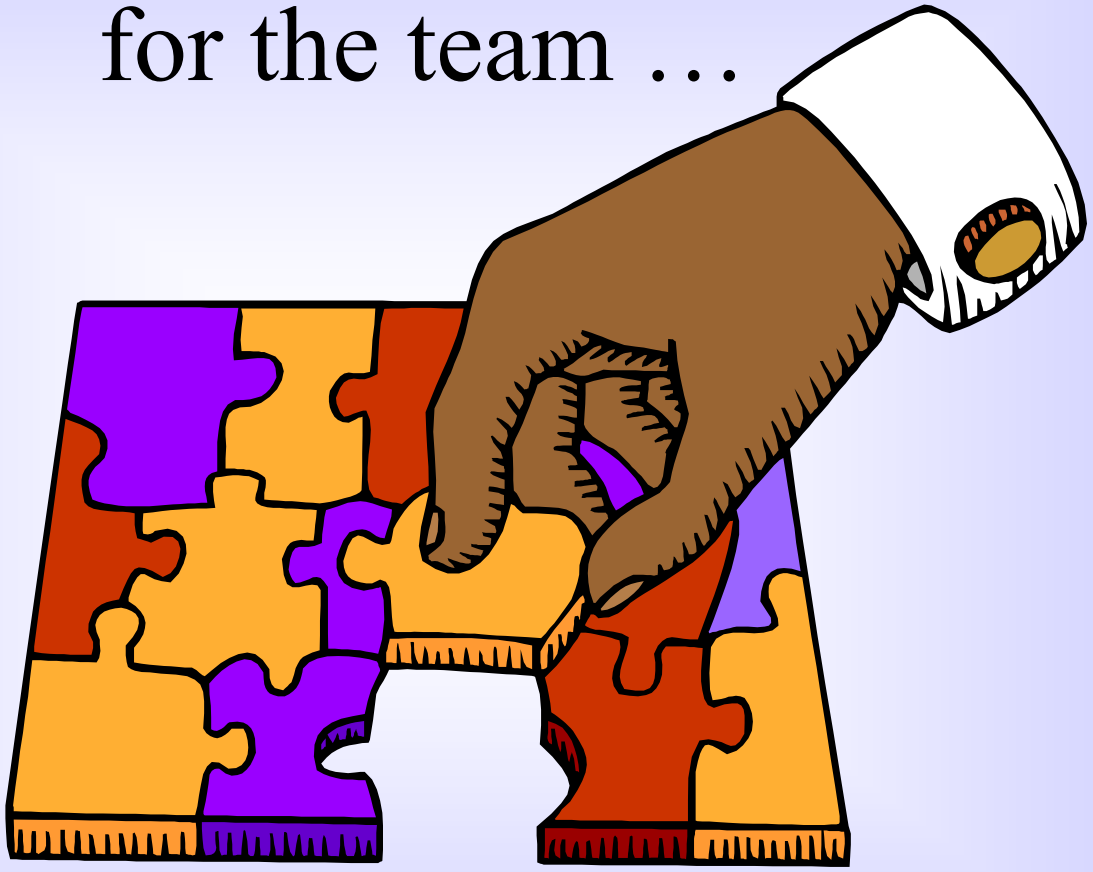
# This is a familiar industry tune…



# The rest of the players need system engineering processes too…

© Copyright 2004 The MITRE Corporation

# And an integrated set of processes for the team …



# Would be even better

© Copyright 2004 The MITRE Corporation

# At the first CMMI Conference in 2001…

## *Allocation of Process Responsibility*

Acquisition Strategy and / or Life Cycle Phase

Conscious Allocation

System Engineering Execution Process Allocation

Program Process Partnering and Integration

**Project Management**
- Project Planning (G)
- Project Monitoring and Control (S)
- Supplier Agreement Management (G)
- Integrated Project Management (S)
- Risk Management (S)

**Engineering**
- Requirements Management (S)
- Requirements Development (G)
- Technical Solution (S)
- Product Integration (S)
- Product Verification (S)
- Validation (G)

**Support**
- Configuration Management (S)
- Process and Product Quality Assurance (C)
- Measurement and Analysis (S)
- Causal Analysis and Resolution (S)
- Decision Analysis and Resolution (S)

**Organizational Process Management**
- Process Focus (S)
- Process Definition (S)
- Innovation and Deployment (S)
- Training (S)
- Process Performance (S)
- Quantitative Management (S)

Government (G) [User, SPO, Test]

Contractor (C)

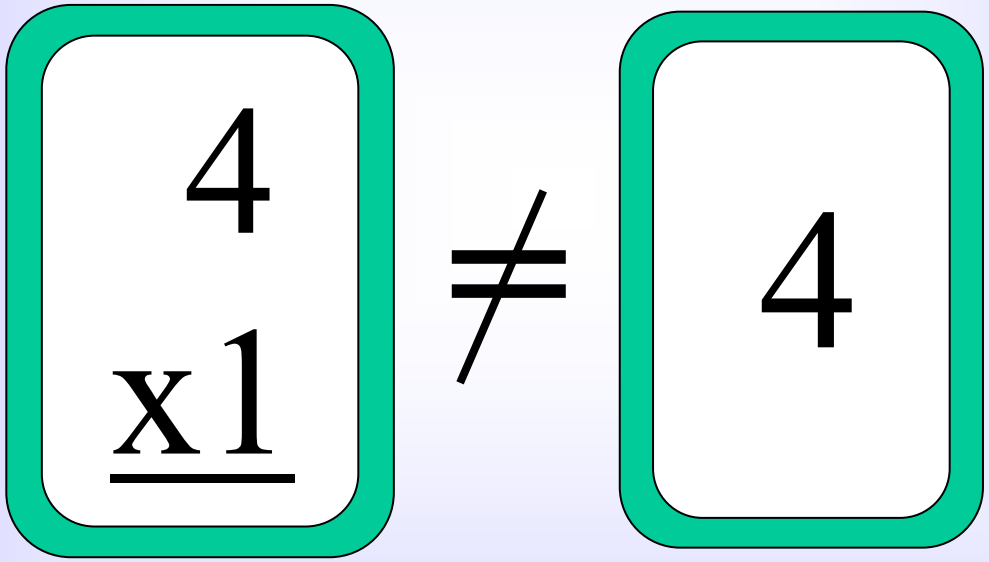
Shared (S)

# I recommended a process sharing concept for CMMI

© Copyright 2004 The MITRE Corporation

# At the second CMMI Conference in 2002…

# Jack Ferguson and M. Lynn Penn showed us their new math*




## Case 4 - Mature Developer and Immature Acquirer

***New CMM Math**

Jack Ferguson – SEI and M. Lynn Penn - Lockheed Martin M&DS
CMMI Conference 14 November, 2002

© Copyright 2004 The MITRE Corporation

# In March 2003, DoD Issued a memo stating…

"Section 804 of the Bob Stump National Defense Authorization Act for Fiscal Year 2003 requires the establishment of software acquisition process improvement programs by Military Departments and those Defense Acquisition Agencies that manage Major Defense Acquisition Programs (MDAPs) with a substantial software component…"

© Copyright 2004 The MITRE Corporation

# In February 2004, The CMMI-AM is published…

Carnegie Mellon
Software Engineering Institute
Pittsburgh, PA 15213-3890

**CMMI® Module for Acquisition**

CMU/SEI-2004-TR-001
ESC-TR-2004-001

Tom Bernard, USAF ASC/EN
Brian Gallagher, SEI
Roger Bate, SEI
Hal Wilson, Northrop Grumman

*February 2004*

Software Engineering Process Management

Unlimited distribution subject to the copyright.

® CMMI is registered in the U.S. Patent and Trademark Office by Carnegie Mellon University

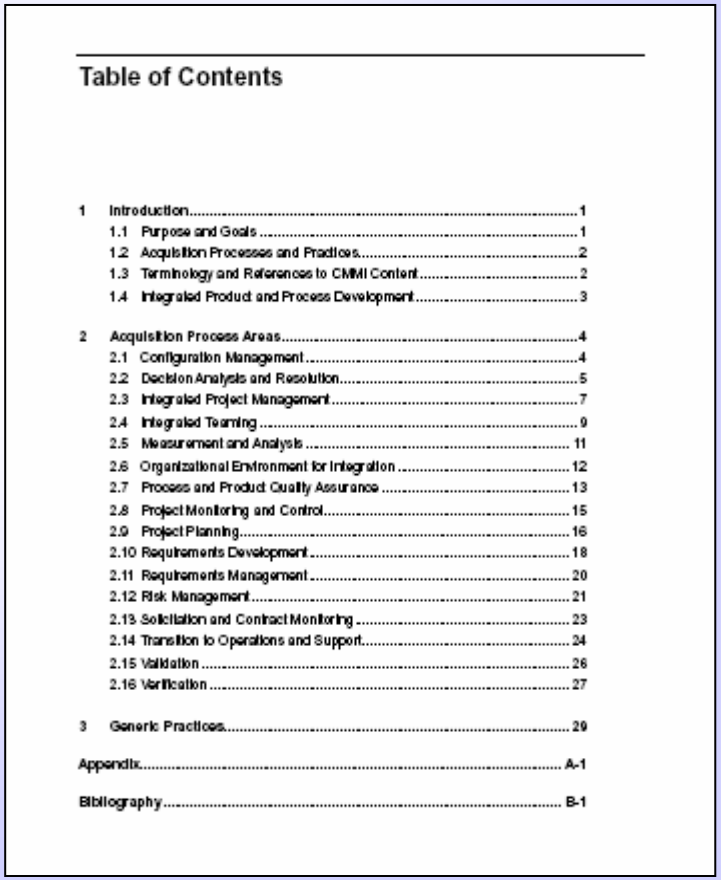


Table of Contents


1 Introduction ..... 1
1.1 Purpose and Goals ..... 1
1.2 Acquisition Processes and Practices ..... 2
1.3 Terminology and References to CMMI Content ..... 2
1.4 Integrated Product and Process Development ..... 3

2 Acquisition Process Areas ..... 4
2.1 Configuration Management ..... 4
2.2 Decision Analysis and Resolution ..... 5
2.3 Integrated Project Management ..... 7
2.4 Integrated Teaming ..... 9
2.5 Measurement and Analysis ..... 11
2.6 Organizational Environment for Integration ..... 12
2.7 Process and Product Quality Assurance ..... 13
2.8 Project Monitoring and Control ..... 15
2.9 Project Planning ..... 16
2.10 Requirements Development ..... 18
2.11 Requirements Management ..... 20
2.12 Risk Management ..... 21
2.13 Solicitation and Contract Monitoring ..... 23
2.14 Transition to Operations and Support ..... 24
2.15 Validation ..... 26
2.16 Verification ..... 27

3 Generic Practices ..... 29

Appendix ..... A-1

Bibliography ..... B-1

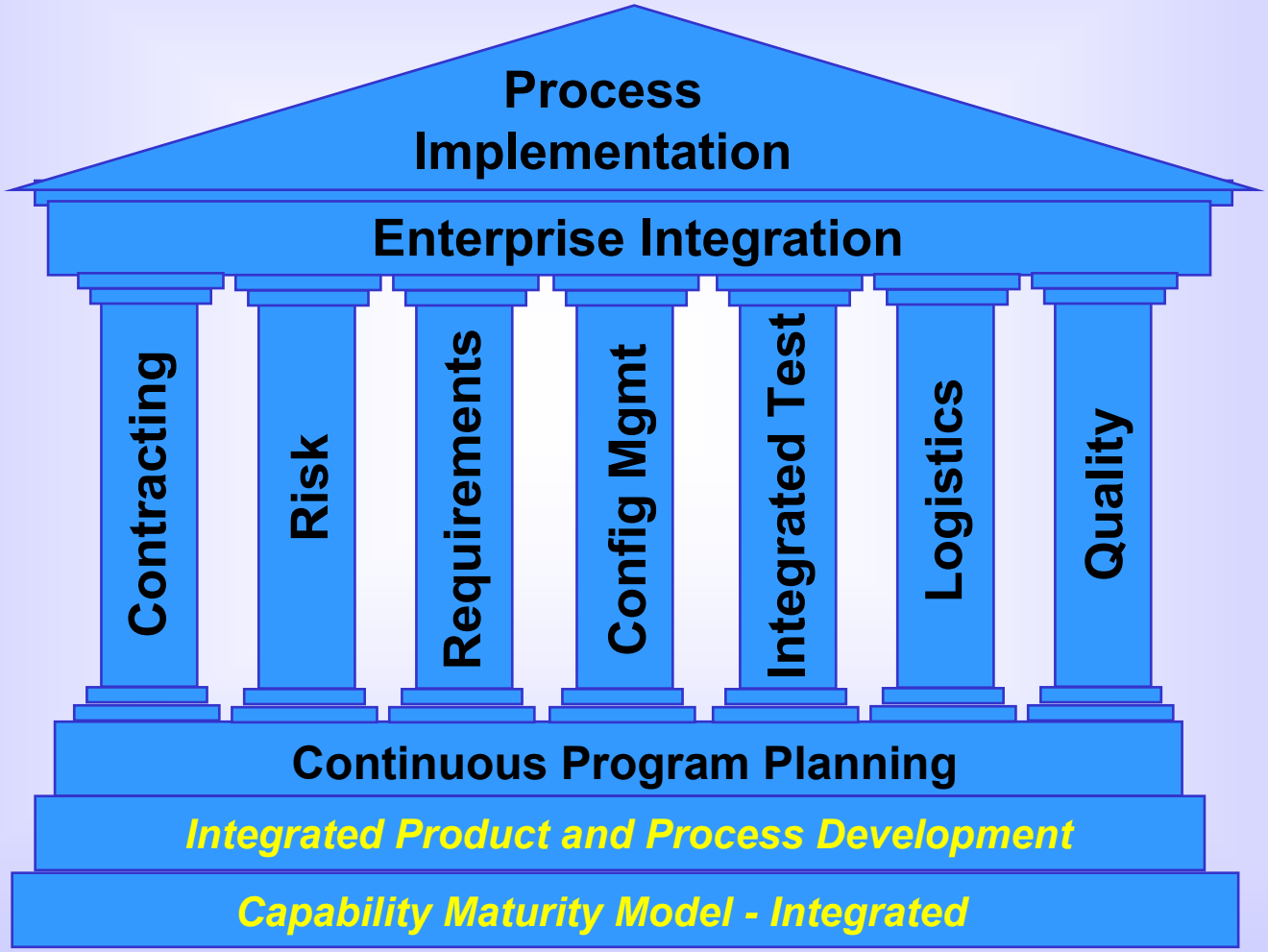

© Copyright 2004 The MITRE Corporation

# Over this period of time…

We have matured our System Engineering process approach for the Air Force Electronics Systems Center

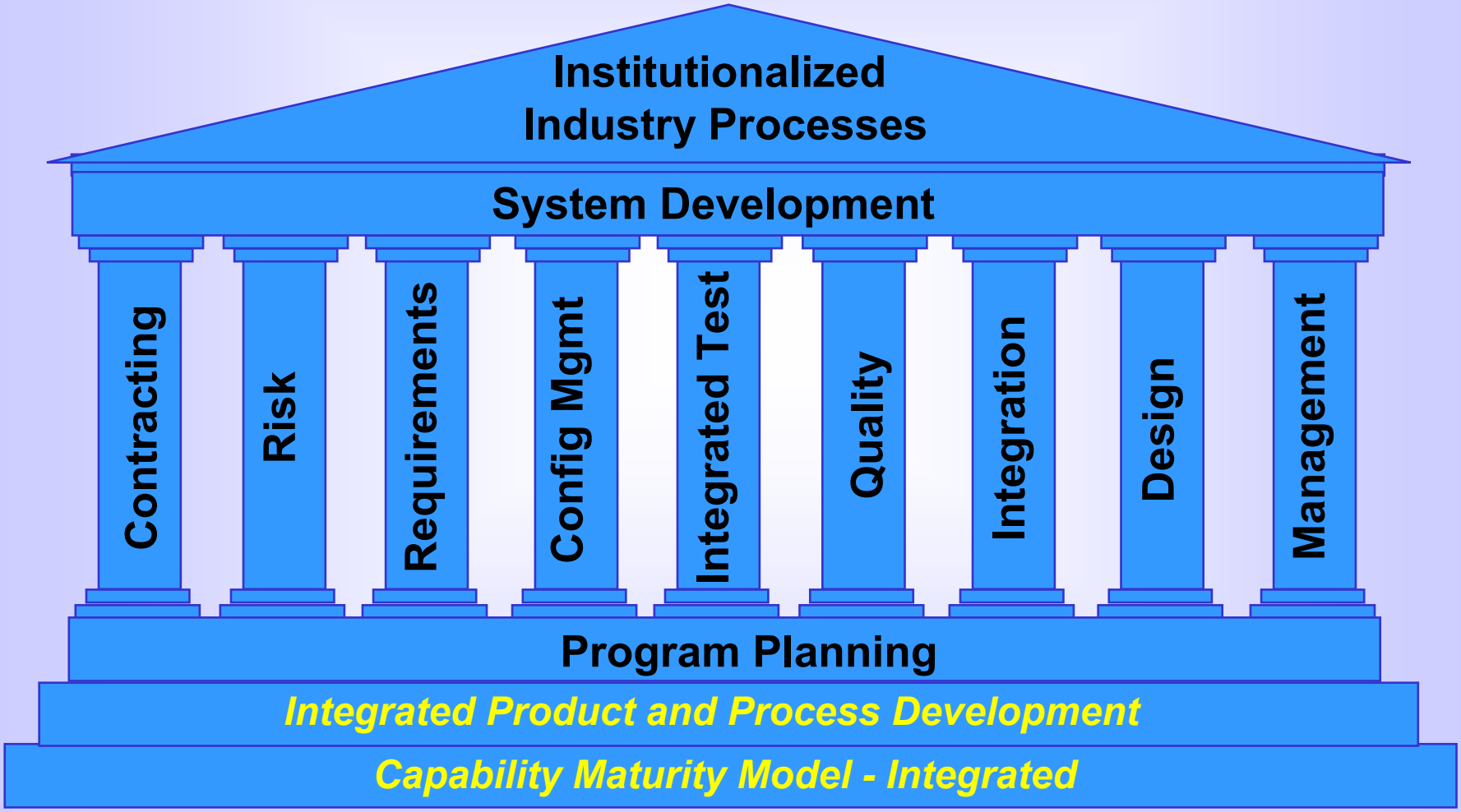
© Copyright 2004 The MITRE Corporation

# We are building a set of Government System Engineering Core processes based on the CMMI



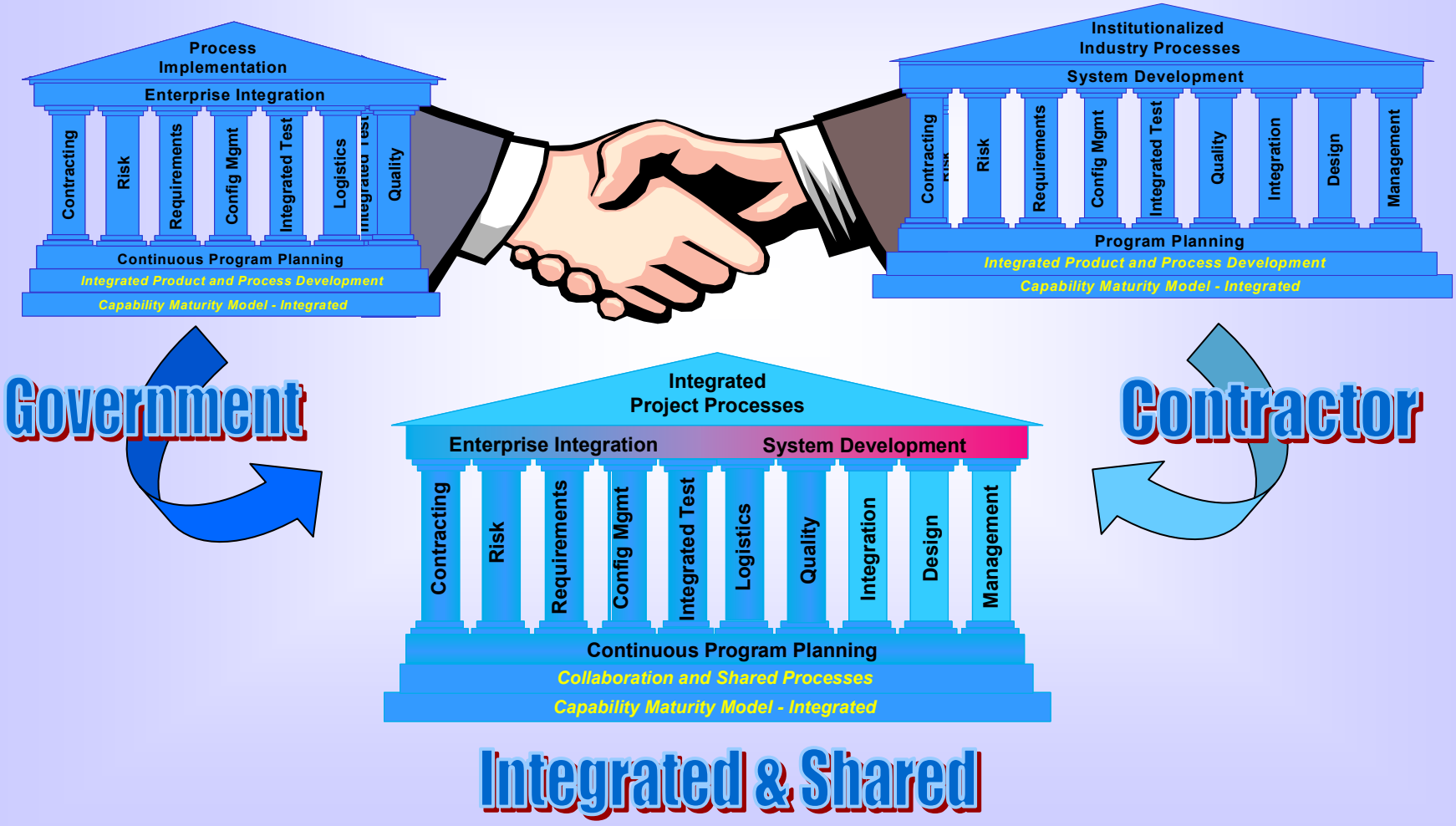

© Copyright 2004 The MITRE Corporation

# We expect our contractors to have mature System Engineering processes based on the CMMI




© Copyright 2004 The MITRE Corporation

# Post award we expect an integration of System Engineering processes based on the CMMI and IPPD



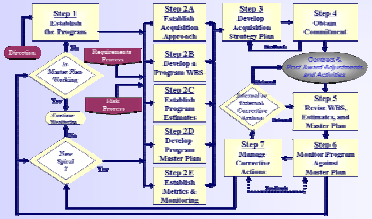

© Copyright 2004 The MITRE Corporation

# Over the System Life Cycle We Should Assess the Process Maturity of the Project Team

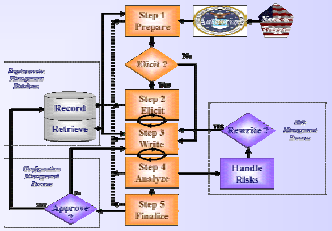
© Copyright 2004 The MITRE Corporation

# Processes Developed to date

Risk

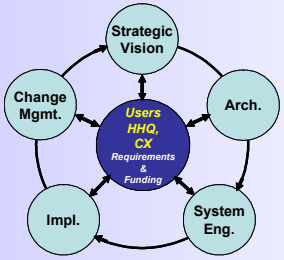


Program Planning

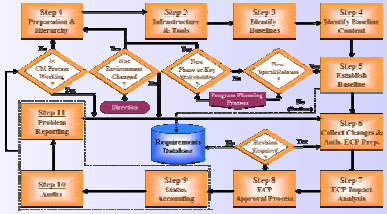


Requirements

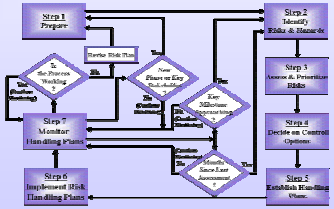
INTEGRATED PROCESSES



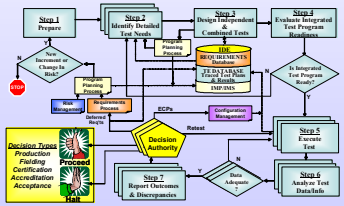

Enterprise Integration



Configuration Management



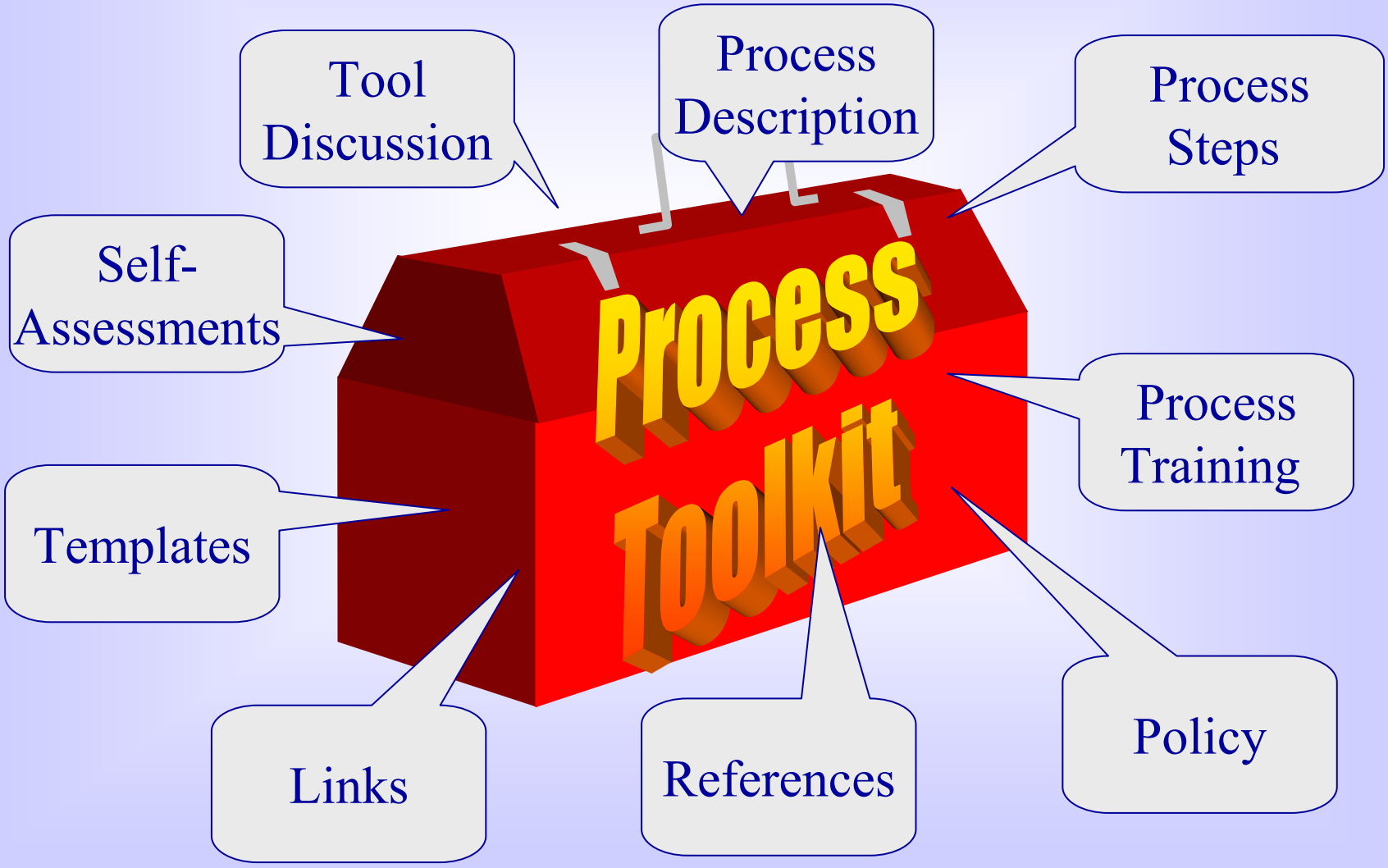
Partnering (IPPD)



Integrated Test

© Copyright 2004 The MITRE Corporation

# We have put our process assets in “toolboxes”



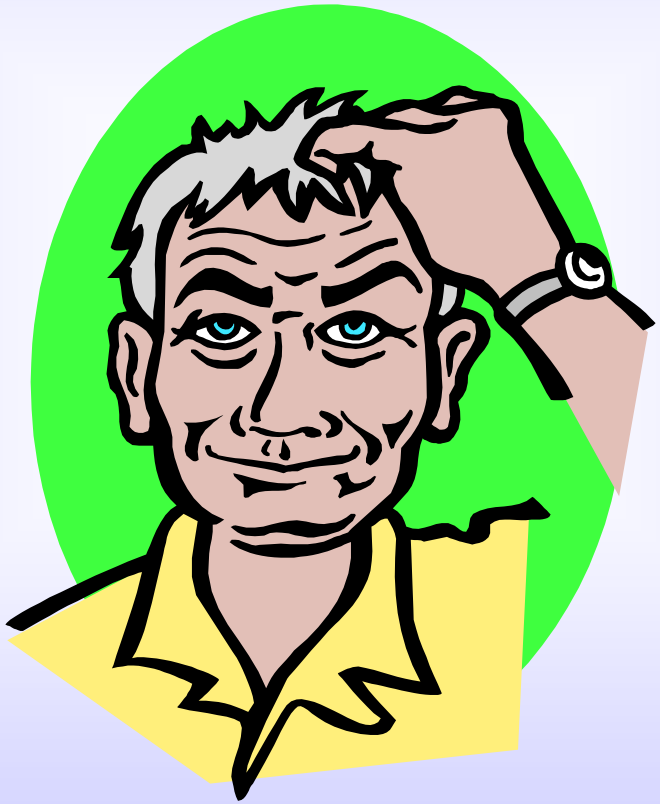

© Copyright 2004 The MITRE Corporation

# Web-based "toolkits" have been developed to support our integrated SE processes

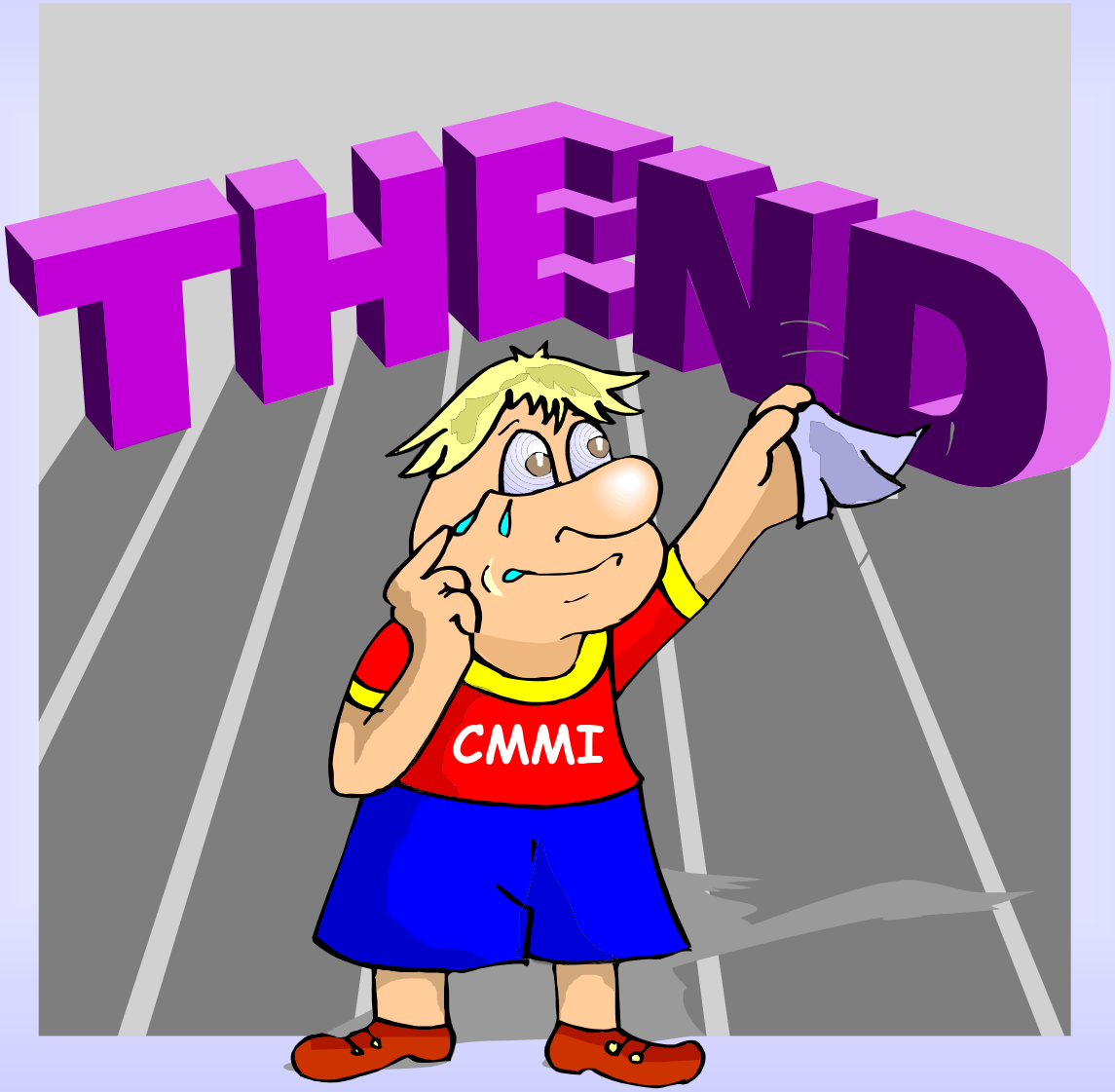
- Toolkits Developed:
  - Risk Management
  - Requirements D&M
  - Configuration Mgmt
  - Enterprise Integration
  - Integrated Testing
  - Mission Partnering (IPPD)
- Toolkits Under Construction:
  - Program Planning

© Copyright 2004 The MITRE Corporation

# Questions?



© Copyright 2004 The MITRE Corporation




© Copyright 2004 The MITRE Corporation