



Experiences with Indicator-Based Appraisals

Lockheed Martin Continuous Appraisal Method (CAM)

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Agenda

- **CAM Background**
- **Use of Process Improvement Indicators (PII) in CAM**

CAM Background



- **Initially developed by Lockheed Martin — Systems and Software Resource Center for appraising EIA/IS 731-1 Systems Engineering Capability Maturity model**
- **Extended to be an ARC V1.1 (Appraisal Requirements for CMMI®) Class-A compliant appraisal method**
- **Appraisals**
 - **7 CMMI® appraisals in the past year**
 - **16 total appraisals**

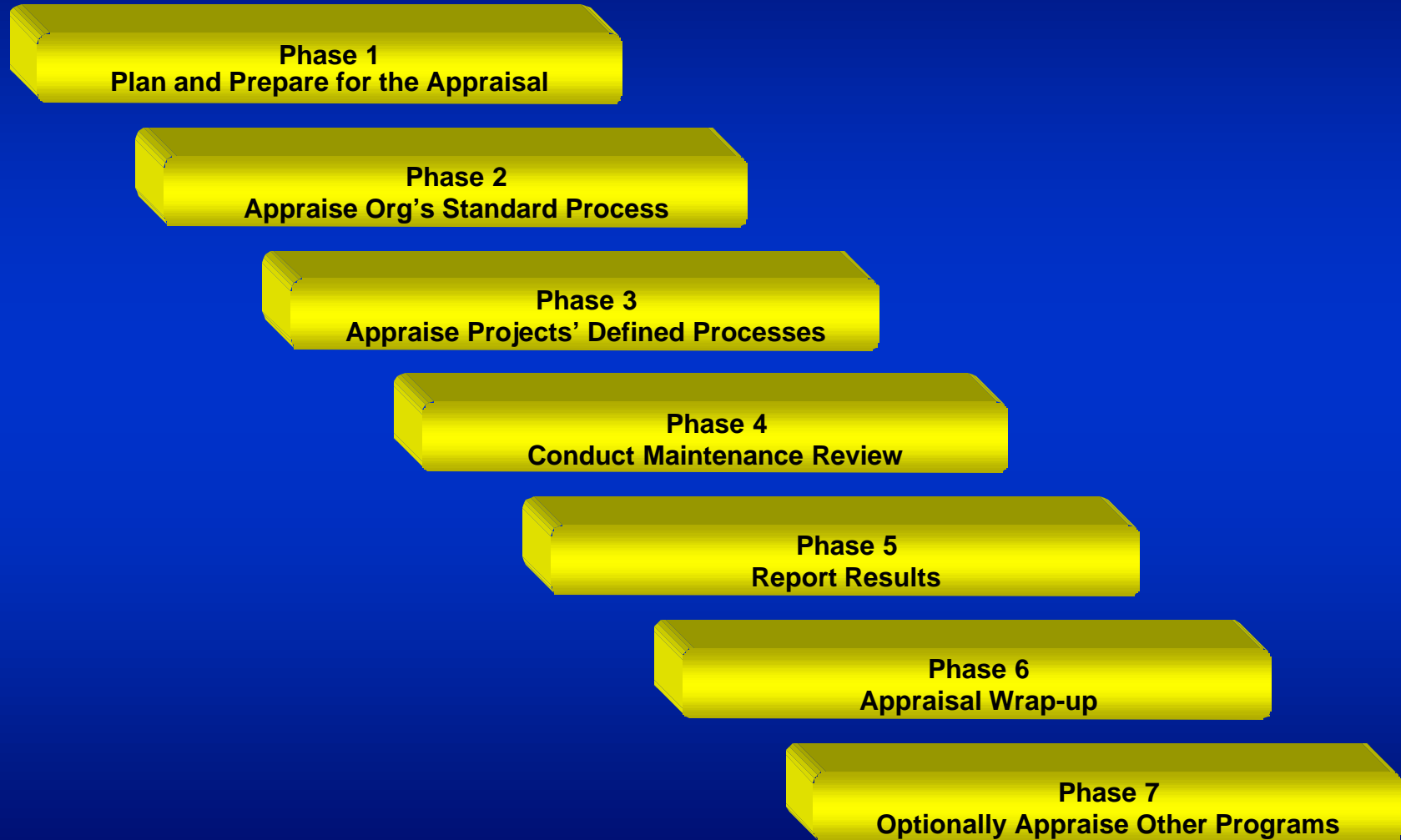
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Benefits of CAM



- **Provides opportunity to correct weaknesses by conducting appraisals over multiple-site visits**
- **Supports continuous process improvement through the use of Process Corrective Actions (PCA)**
 - **Focus on process improvement as opposed to “pass the test”**
- **Makes appraisals less invasive to the organization and projects**
 - **Provides flexibility in scheduling appraisal**
- **Promotes institutionalization by appraising additional projects at the completion of the capability or maturity level rating**

Seven Phases of CAM



USE of PII in CAM



Phase	Use of PII	Remarks
1 Plan and Prepare for Appraisal	Readiness for Appraisal	Determines verification or discovery
2 Appraise Organization's Standard Process	Verification	Organizational PIID – verification/discovery
3 Appraise Projects' Defined Processes	Verification	Project PIID – verification/discovery
4 Maintenance Review	Verification	CAM produces a fully populated PIID
5 Report Results	Reporting	
6 Archive Appraisal Assets	Archive	
7 Appraise additional Projects	Verification	Project PIID verification/discovery

CAM Data Collection Form



- **CAM uses a Data Collection Form to record Specific and Generic Practice and Goal compliance to the CMMI®**
- **Uses PII data to initially populate the form**
- **Validates PII data**

Organization Data Collection Form



	Description	Organization		
		D I A	Objective Evidence	Reason/Rational
Process Management				
Org. Process Focus				
SG 1 Determine Process Improvement Opportunities				
SP 1.1-1 Establish Org. Process Needs				
SP 1.2-1 Appraise the Org's Processes				
SP 1.3-1 Identify the Org's Process Improvements				

D = Direct evidence
I = Indirect evidence
A = Affirmation

Project Data Collection Form



	Description	Project		
		D I A	Objective Evidence	Reason/Rational
Process Management				
Org. Process Focus				
SG 1 Determine Process Improvement Opportunities				
SP 1.1-1 Establish Org. Process Needs				
SP 1.2-1 Appraise the Org's Processes				
SP 1.3-1 Identify the Org's Process Improvements				

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Capability Level Chart



Capability Level 5					
Capability Level 4					
Target Profile 3					
Target Profile 2					
Capability Level 1					
	OPF	OPD	OT	OPP	OID

Process Management

Summary



- **CAM has been successfully used throughout Lockheed Martin and proven to be:**
 - **Efficient**
 - **Eliminates appraisal hard copy library**
 - **Replaces preappraisal review by independent party**
 - **Eliminates preappraisal interview practice**
 - **Participants don't need to know CMMI[®] speak**
 - **Involves individuals on a limited basis**
 - **Effective**
 - **Participants are open and freely volunteer information**
 - **Fear of failure is gone**
 - **Organizations are able to recover from a few non-compliant issues to achieve the rating through process improvement**