Ensuring the Right Process is Deployed

Right:
Synchronizing Process Checkpoints with Business Rhythm

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Motivation for this Presentation

• Process “failures” have been identified as a source of program problems
  – By DoD
  – By industry, including Lockheed Martin

• Using CMMI® requires (at maturity level 3) that processes tailored from the organizational standard process be deployed on programs

• However, even in organizations using CMMI®
  – The “right” process isn’t always deployed
  – The process isn’t always deployed “right”

How do we ensure the right process is deployed right?
Agenda

• What is the “right” process for a program?

• How do we ensure the process is deployed “right”?
What is the “right” process?

The “right” process

- Meets requirements, including standards
  - From the customer
  - From the organization
- Is tailored from the organizational standard process
- Is appropriately suited to the domain and program
- Contains necessary and sufficient process elements
- Is integrated across the disciplines

The Lockheed Martin Integrated Enterprise Process (LM-IEP) levies requirements on the Organizational Standard Process
Lockheed Martin Integrated Enterprise Process (LM-IEP) Product Suite

LM-IEP includes Vocabulary, Architecture, Requirements, and Assets
LM-IEP Architecture

**Business Execution Processes**

- **A.1 Organizational Management**
- **A.2 Strategic Planning**
- **A.3 Quality Management**
- **A.4 Ethics & Business Conduct**
- **A.5 Legal**
- **A.6 Communications**

**Infrastructure Processes**

- **B.1 Process Management**
- **B.2 Work Environment Management**
- **B.3 Technology Mgmt**
- **B.4 Contracts**
- **B.5 Workforce Mgmt**
- **B.6 Finance**
- **B.7 Supplier Agreements and Procurement**
- **B.8 Security**
- **B.9 Property Mgmt**

**Common Management Processes**

- **C.1 Project Planning**
- **C.2 Decision Analysis**
- **C.3 Configuration and Data Management**
- **C.4 Performance Assessment and Control**
- **C.5 Risk and Opportunity Management**

**Product Life Cycle Processes**

- **D.1 Program Mgmt**
- **D.2 Business Capture**
- **D.3 Development**
- **D.4 Production**
- **D.5 Deployment**
- **D.6 Operation and Sustainment**
- **D.7 Disposal**

* Recursive processes to be applied at any level of the system hierarchy
Goal: Consistent OSP Architectures

LM-IEP Architectural Conformance

PS A.x  PS B.x  PS C.x  PS D.x

Policy
Process
Procedure
Templates, Guidebooks, etc.

Consistent Hierarchy Vertically P&P W/G

Online Access to Assets — LM-PAL

Corporate Intellectual Capital Collection
Key Architectural Tenets

• **Architecture covers the entire enterprise**
  - To be used as a taxonomy for Corporate command media
  - Detailed taxonomy below IEP level to be determined by responsible functional organizations

• **Is complete in scope, not in requirements**
  - Requirements based on source standards, thus heavy emphasis on PM, Quality, and Engineering
  - Requirements in other areas need to be augmented by existing corporate policies and procedures, and other industry standards

• **Represents a single architectural “view”**
  - Presents process elements from a topical viewpoint
  - Other views required for management and practitioners; e.g., temporal, role-based, information flow
Using LM-IEP to get the “right” Process

Step 1
Establish Appropriate Business Unit Infrastructure
- IPG
- Steering Committee

Step 2
LOB 1 Business Needs Analysis

Step 3
Process Requirement Analysis
- Process Application & Scope
- Process Architecture
- Process Requirements
- Policies
- OSP
- Procedures

Step 4
Define & Update Quality Management System (QMS)/Command Media
- OSP Gap Analysis
- Transition Plan
- Organizational PIP

Step 5
Deploy & Support Processes
- Measures
- Process Assets
- Tailoring Guidelines
- PAL Assets
- Tools
- Process & Tool Training
- Assessments

Step 6
Assessment

Business Needs

Contract Requirements
Integrated Project Plan
Process Assets & Measurements

Project 1 Implementation

Project n

LOB n

LM-IEP Standard

LRP
How do we ensure the process is deployed “right”? - 1

The typical approach involves:

- Organizational policy (“thou shalt…”)
- Process & Product Quality Assurance
- Mechanisms for ensuring process fidelity, including
  - Process-enforcement mechanisms such as process enactment tools
  - Process tailoring approval
  - Quality assurance audits
  - Reviews, checklists, etc.
How do we ensure the process is deployed “right”?

- Lockheed Martin experience is that ensuring the process is deployed “right” requires:
  - Process checkpoints synchronized with a program’s business rhythm
  - Including process improvement investment during strategic, long-range planning
  - Prescribing organizational participation in corporate-level infrastructure

Corporate policy enforces these checkpoints
Corporate Policy Statement (CPS) on Program Management (PM)

- A: Program Manager Development
- B: Risk Management
- C: Past Performance
- D: Proposal and Program Reviews → Updated
- E: Data Management
- F: Configuration Management
- G: Managing Major Subcontracts
- H: Integrated Planning & Scheduling → New
- I: Program Performance Reporting → New

Corporate Direction to Formalize the PM Infrastructure
Synchronizing Process Checkpoints with a Program’s Business Rhythm

**Customer Events**

- **RFI**
- **DRFP Release**
- **FRFP Release**
- **Proposal Submit**
- **Contract Award**

**LM Color Reviews**

- **Black Hat(s)**
- **Pre-Proposal Kaizen (PPK)**
- **Blue Team**
- **Red Team**

**New Business Opportunity Management (CPS-009)**

- **PTW & Competition Analysis**

**Program Management CPS-070**

- **Sub-Contract Management Plan**
- **GAP Analysis**
- **INAR**
- **RM Plan**
- **Program Startup**
- **BR**
- **PAR Every 6 Months**

**Independent Cost Est CPS-440**

- **ICE**

**Approval of Proposals CPS-017**

- **EPP**

**Allows:**

- On-line Completion and Storage of Checklist
- Centralized Repository for Review Artifacts
- Automatic Action Item Generation
- Summary Metrics of Checklist Findings

**Common Checklist for Program Reviews**

Every 6 Months

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Assuring Organizational and Program Process Compliance & Implementation

Recommendation: Institute the requirement for process maturity in command media with check and balance for implementation and management.
Future Improvements

- Fully electronic processes (using models/tools) to
  - Improve human understanding and communication
  - Improve process fidelity, management and improvement
  - Implement multiple views (e.g., behavioral, functional, organizational, informational)
    - Support process enactment
- Improved program startup
  - Ensure smooth transition from proposal phase
  - Enable quick and robust program initiation
Process Improvement Strategy Example

1/06 IEP V3 Gap Analysis

4/06 Plan for Electronic Process Management System

6/06 IEP V3 Gaps closed AS9100 certification

8/06 CMMI V1.2 Gap Analysis

10/06 CMMI V1.2 Gaps closed

12/07 SCAMPI, Maturity Level 4

LM-IEP architecture transition strategy

4/06 *

LM-IEP V3 Requirements gap closure

6/06 *

AS9100 certification

6/06 CMMI V1.2 gap analysis and closure

10/06

IMIPS process update implementation and training

9/06

Execute IEP architecture transition strategy and implement process management system

6/08

IMP/IMSs process deployment complete

6/07 IDE implementation

6/07 Full LM-IEP Process Management System implemented

Integrated Digital Environment implementation

6/07

* Submit to corporate

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Why participate in corporate infrastructure?

Subcouncil Participation

- Capture Best Processes
- Share Innovation
- Improve Skills and Training
- Leverage Tools

BRING

- issues / needs
- & your assets

Business Unit Infusion

- Improve Productivity
- Lower Cost to Programs & Business
- Implement SC Assets
- Connect Local users to help network

TAKE HOME

- assets / solutions

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EPI Program Infrastructure: 2005

Tech Ops Management Council (TOMC)
(Engineering VPs from LMC Businesses)

Sets Strategy, Provides Resources

System Engineering
Software Engineering
Mechanical Engineering
Electrical Engineering
Engineering Project Management

Joint Working Groups (all SCs supporting)
- Integrated Measurement (EPM led)
- Integrated Sys. Dev. Methodology (SESC led)
- Integration an Test (SESC led)
- Tool Integration (EPI led)

Supportability
PWB / CCA

Subcouncils
- Consensus on best practices, process, methods, tools

Process Groups
- High Priority initiatives

Subcouncil / Process Group Representatives
- Implement EPI Processes
- Apply Standard Tools

Corp. Tech Training Council

EPI Center

Provides Program Direction & Management
Facilitates Subcouncil/ Focus Team Activities

Provides Engineering Support for Process/Tools

SubCouncil/Process Group Participation Benefits Members, Companies and Lockheed Martin
Selecting the “right” process for a program is non-trivial and requires

- Having the “right” OSP
- Using the “right” assets to support the process

Supporting infrastructure facilitates deploying the process “right”

- Process checkpoints linked to program milestones
- Strategic investment to leverage across businesses
- Infrastructure support (e.g., participation in corporate-level councils)
BACKUP
Defines “what” level of processes versus “how”
• LM-IEP Standard specifies what is to be performed
• Company processes, methods and tools specify how

AS9100 to LM-IEP
IEEE 1220 to LM-IEP
EPI 280-07 to LM-IEP
ISO/IEC 15288 to LM-IEP
ISO/IEC 12207 to LM-IEP
ISO 9001:2000 to LM-IEP
CMMI®-SE/SW/IPPD/SS to LM-IEP
EIA/ANSI 632 to LM-IEP
LM-IEP To Source Standards
LM-IEP Requirements Conformance Matrix

Standard (280-01) available on the EPI web-site at http://www.epic.lmco.com/docs/280-01all/index.htm

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