Deploying the Measurement and Analysis Process
Topics

• Background
• Problem
• Approach
• Experience
• Resources
• Results
• Summary
Lockheed Martin Aeronautics Overview

29,000 employees across the company and around the world

Palmdale, CA - 3,834
Fort Worth, TX - 14,529
Marietta, GA - 6,864
Johnstown, PA - 103
Clarksburg, WV - 78
Greenville, SC - 3400

U-2
F-117
F-16
F-22
F-35C
C-130J
C-5

YF-22
X-35
F-35C
F-35B
F-35A

CTOL
STOVL
CV
Background

• Lockheed Martin Aeronautics measurement process improvements
  – SEI CMM Level 3 for software – 1993
    • SW Standard Metrics
  – SEI CMM Level 4 for software – 1999
    • SW Quantitative Management
  – SEI CMMI Level 3 at company level – 2007 & 2010
    • Company wide measurement process
Problem

- How to deploy the company Measurement and Analysis process across multiple programs and geographical sites?
  - Institutionalize the M&A process
    - Georgia, Texas, and California
  - Incorporate M&A planning into the program planning
  - Identify and deploy M&A related training
  - Programs already doing most of M&A process

Change company culture
Approach

• Take the Measurement and Analysis process to the programs
  – M&A planning workshops on site with the programs
  – Facilitated by small team of M&A experts
  – Pre-populated M&A planning templates
  – M&A process awareness training prerequisite for participants
  – Met with program management
  – Include current program SMEs and middle management
Approach (cont.)

- **Objective:** Develop a 70-80% complete M&A Plan for the program by end of 3 day workshop

- **Preparation**
  - Schedule workshop with program POC
    - Coordinate appropriate participants
  - Pre-populated plan template with standard content
    - Boiler plate material
    - General measurement traceability data
    - Measurement specification data for standard measures
    - Standard reference to M&A training
    - Place holders for required content
Approach (cont.)

- Objective: Develop a 70-80% complete M&A Plan for the program by end of 3 day workshop

- Onsite
  - Obtain buy-in from program manager
  - Identify current Information Needs with middle management
  - Review current measures with program SMEs
    - Match to the Information Needs
    - Identify any gaps or duplications
  - Load program data in organizational database
  - Generate plan tables from the database
  - Identify and fill in program specific information in the plan
  - Identify remaining tasks for program POC
Workshop activities

M&A Team
- Pre-populate template & database
- Schedule workshop
- Review plan template
- Initial buy in
- Collect information from Middle Mgmt
  - Objectives
  - Information needs & gaps
  - Current Measures
  - Reporting mechanisms
- Detail info from Prog SMEs
  - Objectives
  - Info needs & gaps
  - Current Measures
  - Reporting mechanisms

Program POC
- Complete initial M&A training

Program Mid Mgmt

Program SMEs

Program Mgr
Workshop activities (cont.)

M&A Team

- Populate database
- Collect Reporting and other program specifics
- Generate draft plan
- Review draft plan with program POC
- Hand off plan to program POC

Program POC

Program Mid Mgmt

Program SMEs

Notice this frees up the program to continue working

Program Mgr
Experiences

• Programs appreciated the help
  – Going to the program minimized impact to the program
• Distributed planning experience across company
  – M&A Team could take best practices & lessons learned from program to program
• Planning made workshop go smoother
  – Clear expectations and objectives
• Flexibility in execution fit better with program availability
  – Meet with management in a CR or go to their offices
• Meet with program manager helped gain buy in and visibility of M&A planning
• Many times program had been requested to improve their measures just before we arrived
Distribution of Lessons Learned

Program A

Program B

Program Z

M&A Planning experience

M&A Team & Plan Template
Experiences (cont.)

- Program follow up to complete the plan sometimes became low priority after we left
  - Took long time to complete
- Program personnel assigned to complete plan sometimes were re-assigned
- Program later did not recognize M&A planning as significant portion of program planning
- Program didn’t want to include all measures in their plan
- Program didn’t use the plan to manage their measures with
  - tendency to do it like they always have
- Difficult identifying various reporting mechanisms using measures
Resources

- Resources:
  - Pre-populated M&A plan template
    - Common objectives, information needs and measures
    - Boiler plate information
    - Training references
    - References to standard process
  - Measurement Model Database
    - Specification data for standard measures
    - Common objectives and information needs
    - Able to generate tables for M&A plan
Results

• Began culture change about use of measurement
  – Everyone uses measurement but they don’t plan how they use them or link them to specific information needs
  – Understand the need to document analysis and actions in preparation for management consumption
  – Concept to plan their measurement activities
  – Expanded awareness of M&A infrastructure
Summary

• Institutionalization of the measurement and analysis process
• Culture change
• Take the process to the programs
• Assisted the programs in measurement planning
Contact Information

- **William H. Golaz**
  - LM Fellow
  - Lockheed Martin Aeronautics
  - 817-935-5701
  - [William.h.golaz@lmco.com](mailto:William.h.golaz@lmco.com)