

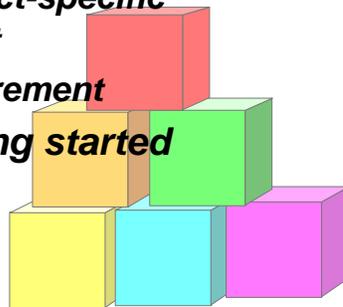
## Lessons Learned Implementing Practical Software Measurement

Beth Layman  
Senior Consultant  
(407) 984-2561  
beth.a.layman@lmco.com

Lockheed Martin Corporation  
Consultative Engineering  
Melbourne, FL

### Objectives

- Discuss our company's experience implementing PSM*
- Share Lessons Learned*
  - *organizational and project-specific barriers to measurement*
  - *institutionalizing measurement*
- Provide advice for getting started*



## Outline



- ***Experience Summary***
- ***Lockheed Martin and PSM***
- ***Lessons Learned***
  - ***Mind the gap***
  - ***Hooked on metrics***
  - ***Drowning in data***
  - ***Don't ask, don't tell***
- ***Getting Started***



PSMUGM BL - 7/98 Slide 3  
© 1998 Lockheed Martin. All rights reserved.

## Who We Are



- ***Consultative Engineering provides software measurement and process improvement consulting inside and outside Lockheed Martin. Currently:***
  - ***Working as part of transition team implementing PSM within Lockheed Martin***
  - ***Working with the PSM Support Center to develop PSM products and provide direct program support to DoD and Government agencies***
  - ***Working with commercial organizations to implement PSM-like approaches***

PSMUGM BL - 7/98 Slide 4  
© 1998 Lockheed Martin. All rights reserved.

## PSM Experience to Date



- ***Have worked with 20+ organizations/ projects over last 2+ years***
- ***Types of organizations:***
  - ***MIS/AIS, Real-time, Command and Control***
  - ***Government - Organic development***
  - ***IPT - Government and Contractor***
  - ***Development Teams - Prime and Subs***
  - ***Startup, Development, Maintenance***
  - ***“Distressed” projects***



PSMUGM BL - 7/98 Slide 5  
© 1998 Lockheed Martin. All rights reserved.

## PSM Experience to Date



- ***PSM Training***
- ***Executive Presentations/Marketing***
- ***PSM Workshop Facilitation***
- ***Project Measurement Assessments***
- ***Project Measurement Consulting***
- ***Project Measurement - Hands-on Direct Program Support***
  - ***Measurement Planning/Tailoring***
  - ***Data Specification, Collection Systems***
  - ***Measurement Application and Reporting***



PSMUGM BL - 7/98 Slide 6  
© 1998 Lockheed Martin. All rights reserved.

## Lockheed Martin's Use of PSM



- **Our biggest customer is adopting PSM**
  - DoD expects a PSM-like approach
  - Opportunity for LMCO to align practices with DoD
- **Product Development Best Practices Initiative Identified “Program Management, Scheduling, and Tracking” as:**
  - high priority for LMCO
  - improvement priority for some LM groups
- **SSRC has designated PSM a Best Practice**
- **SSRC offers:**
  - Training
  - Hands on Measurement Program Startup
  - Measurement Planning Workshops



PSMUGM BL - 7/98 Slide 7  
© 1998 Lockheed Martin. All rights reserved.



## Some Lessons Learned

PSMUGM BL - 7/98 Slide 8  
© 1998 Lockheed Martin. All rights reserved.

## Lesson #1: Mind the Gap



### **Problem:**

- *Organizational Measurement Initiative has Standard Set of Metrics*
- *Project Staff Finds no Value in Metrics*
- *Data is often Fabricated*
- *PSM Prescribes an Issue-Driven, Project-Specific Approach*
- *Metrics Group doesn't want to Lose Control*



Translation: There is often a disconnect between the measures currently collected and the issues "real projects" face.

PSMUGM BL - 7/98 Slide 9  
© 1998 Lockheed Martin. All rights reserved.

## Lesson #1: Mind the Gap (cont.)



### **Must Address:**

- *Organizational Metrics as a Static Requirement*
- *Streamlining of Current Metrics Set*
- *Differentiate Organizational Requirements from Oversight*
- *Resolve to "Walk First"*

PSMUGM BL - 7/98 Slide 10  
© 1998 Lockheed Martin. All rights reserved.

## Lesson #2: Hooked on Metrics



### **Problem:**

- *How to Get People to Buy-In to Measurement*

### **Must Address:**

- *Taking Personal Ownership of Project Issues*
- *Linking Issues and Measures*
- *Highlight their “Data Depravity”*
- *Developing Collection/Reporting Mechanisms*
- *Transition Metrics Group into Consultants*

Translation: Making people need measurement is the best first step towards institutionalizing it.

## Lesson #2: Hooked on Metrics



### **Recommendation:**

#### □ **Use Measurement Tailoring Workshops**

- *Project Members build Measurement Plan over 1-2 days*
- *Project Specific Issues and Information Needs uncovered*
- *Key is to Walk out with Measurement Specs, Ongoing Roles, and Assignments*



**Project Manager's Involvement and Commitment**

## Lesson#3: Drowning in Data



### **Problem:**

- *Lose sight of big picture project status*
- *Presentation of results lacks theme and conclusions*

### **Must Address:**

- *Remaining focused on issues*
- *Showing Both Causes and Effects*
- *Discussing tradeoffs, impacts, and likely outcomes from decisions*

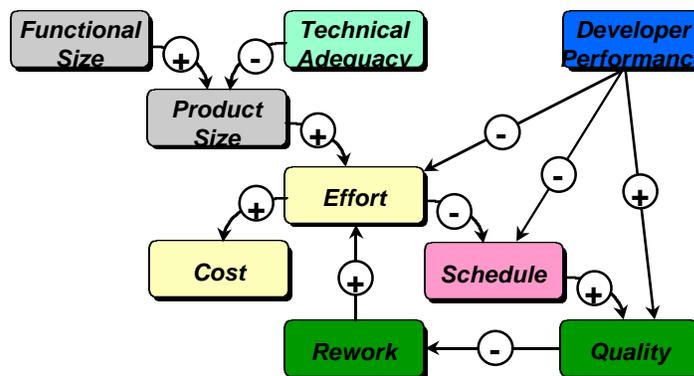
Translation: Don't lose perspective: 1) as the program evolves, 2) when presenting results and 3) when using the information to help make decisions.

PSMUGM BL - 7/98 Slide 13  
© 1998 Lockheed Martin. All rights reserved.

## Lesson#3: Drowning in Data



### **Recommendation: Use PSM Analysis Model to Drive Discussions**



PSMUGM BL - 7/98 Slide 14  
© 1998 Lockheed Martin. All rights reserved.

## Lesson #4: Don't Ask, Don't Tell

Translation: The project culture will impact the implementation.

### **Problem:**

- **Prevailing Culture is Either:**
  - *Don't make bad news visible or you'll get blamed, or*
  - *Don't give customer insight - they don't understand*

### **Must Address:**

- *Likelihood that Culture can/will Change*
- *Educating Management regarding Purpose of Project Measurement*
- *Introduction of New, Cooperative Development Approaches (IPTs)*



PSMUGM BL - 7/98 Slide 15  
© 1998 Lockheed Martin. All rights reserved.

## Other Suggestions for Getting Started

- **Market the Approach**
  - *Tie measurement to process improvement*
    - *Need project measurement at CMM Level 2*
  - *Show link to risk management*
- **Provide Education**
  - *Educate management in proper use of measurement results*
  - *Teach basic graphic analysis skills*
- **Conduct Measurement Planning Workshops**
  - *Facilitated workshops are best way to get started*
  - *Combines training with development of project measurement plan*



PSMUGM BL - 7/98 Slide 16  
© 1998 Lockheed Martin. All rights reserved.

## Other Suggestions for Getting Started (cont.)

- **Get Project Manager Involved**
- **Bring in Measurement Analyst for “Distressed” projects**
- **Focus on a Few Measures**
  - **Ensure measurement plan is feasible**
  - **Stress principle of flexible, adaptable, issue-driven measurement program**
- **Integrate Measurement into Process**



PSMUGM BL - 7/98 Slide 17  
© 1998 Lockheed Martin. All rights reserved.

## Integrate Measurement into Process

