

# **Can Performance Measurement be Improved?**

Workshop

PSM Technical Working Group

30 March 2006

# Outline

## OMB Performance Measurement

- Performance Measurement Background
- Accelerating emphasis on Earned Value
- Where is Performance in Earned Value?
- Industry Standard Guidelines
- Performance-Based Earned Value
- Can PSM Help?

# Performance Measurement Background

# Background

- Government Performance and Results Act (GPRA) Act of 1993
  - Clinger-Cohen Act of 1996
    - E-Government Act of 2002
- IT Investment reporting defined in Part 7, Section 300 of Circular A-11
- Budget, not technical Process

Circular number A-11, "Preparation, Submission, and Execution of the Budget," Office of Management and Budget

# What Measures does OMB Require?

## Exhibit 300 Reports

Quantitative data must be provided  
on each “major” project :

- (1) Performance Measurement Baseline
- (2) Performance Goals and Measures
- (3) Earned Value Measurement System (EVMS)

# (1) Performance Measurement Baseline

Cost and Schedule Goals: Original Baseline for a Phase/Segment/Module of Project (Investment)					
Description of Milestone	Schedule			Planned Cost	Funding Agency
	Start Date	End Date	Duration (in days)		
1.					
2.					
3.					
Completion date:				Total cost estimate at completion:	

## (2) Performance Goals & Measures

Beginning in 2006, all new major DME investments report goals in the PSM & ISO Std15939 format:

Table 2						
Fiscal Year	Measurement Area	Measurement Category	Measurement Indicator	Baseline	Planned Improvements to the Baseline	Actual Results
2006						
2006						
2007						
2007						

# OMB-Defined Measurement Areas

All major IT projects must define one performance measure and one performance goal in each of these areas:

- (1) Mission and Business Results,
- (2) Customer Results,
- (3) Processes and Activities, and
- (4) Technology.

OMB defines a set of Generic Measurement Categories and Indicators that are to be “operationalized” for each IT project **(See the handout for detail)**



### (3) Earned Value Measurement System (EVMS)

- OMB Circular A-11: “You must demonstrate use of an EVMS that meets ANSI/EIA Std 748, for both government and contractor costs.”
- Std 748: “earned value becomes a metric ... to measure both what **was** spent ... and what **was** scheduled.”
- Std 748: “**Performance Measurement.** Earned value is a direct measurement of the quantity of work accomplished. The quality and technical content of work performed is controlled by other processes.”

# OMB Scoring of an Agency's PBMS

Performance Based (PB) Management System (OMB Circular A-11, Sec. 300, Part I, Section I.H)	
Score	Criteria
5	Agency will use, or uses an Earned Value Management System (EVMS) that meets ANSI/EIA Standard 748 and investment is earning the value as planned for costs, schedule, and performance goals.
4	Agency uses the required EVMS and is within the variance levels for two of the three criteria. Work is needed on the third issue.
3	Agency uses the required EVMS but the process within OIT is either very new, not fully implemented, or there are weaknesses in this investment's EVMS information.
2	Agency seems to re-baseline rather than report variances.
1	There is no evidence of PB.

# Formal OMB Assessment

- Program Assessment Rating Tool (PART)\*
- Objective: “allow budget decisions to be based on the performance of each program.”
- A PART assessment collects answers to 25 questions in 4 sections:
  - Program purpose and design (20%),
  - Strategic planning (10%),
  - Program management (20%), and
  - Program results (50%).

\* OMB On-line 2006 PART Guidance, “Instructions for the Program Assessment Rating Tool (PART),” [[www.omb.gov/part/](http://www.omb.gov/part/)]

# PART Sections

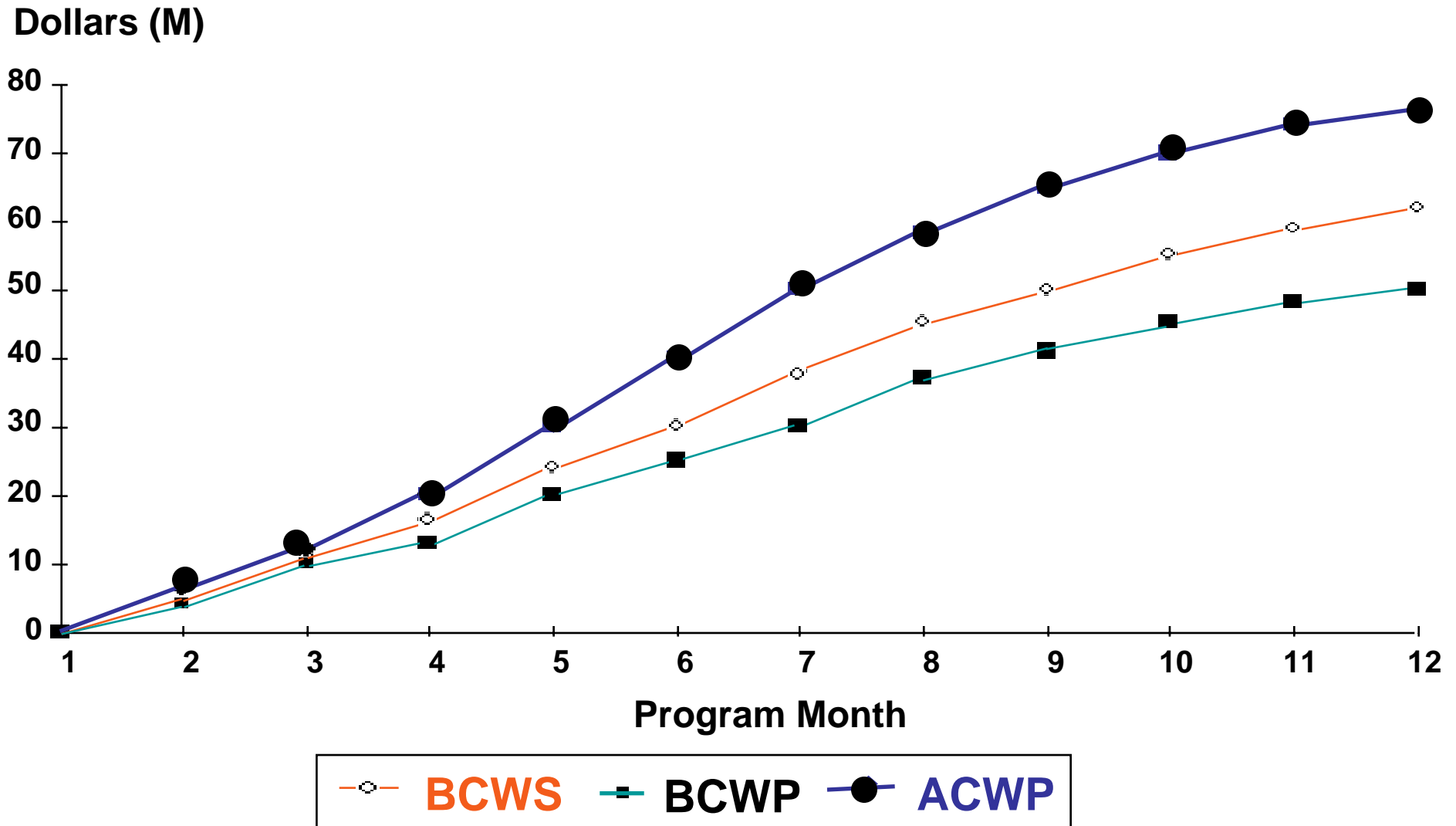
1. **Program Purpose & Design** to assess whether the program's purpose and design are clear and sound.
2. **Strategic Planning** to assess whether the program has valid long-term and annual measures and targets.
3. **Program Management** to rate agency management, including financial oversight and program improvement efforts.
4. **Program Results/Accountability** to rate program performance on measures and targets reviewed in the strategic planning section and through other evaluations.

# Example PART Questions

- 2.1 Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program?
- 3.1 Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance?
- 4.2 Does the program (including program partners) achieve its annual performance goals?
- 4.5 Do independent evaluations of sufficient scope and quality indicate that the program is effective and achieving results?

# Accelerating emphasis on Earned Value

# Example Information Display



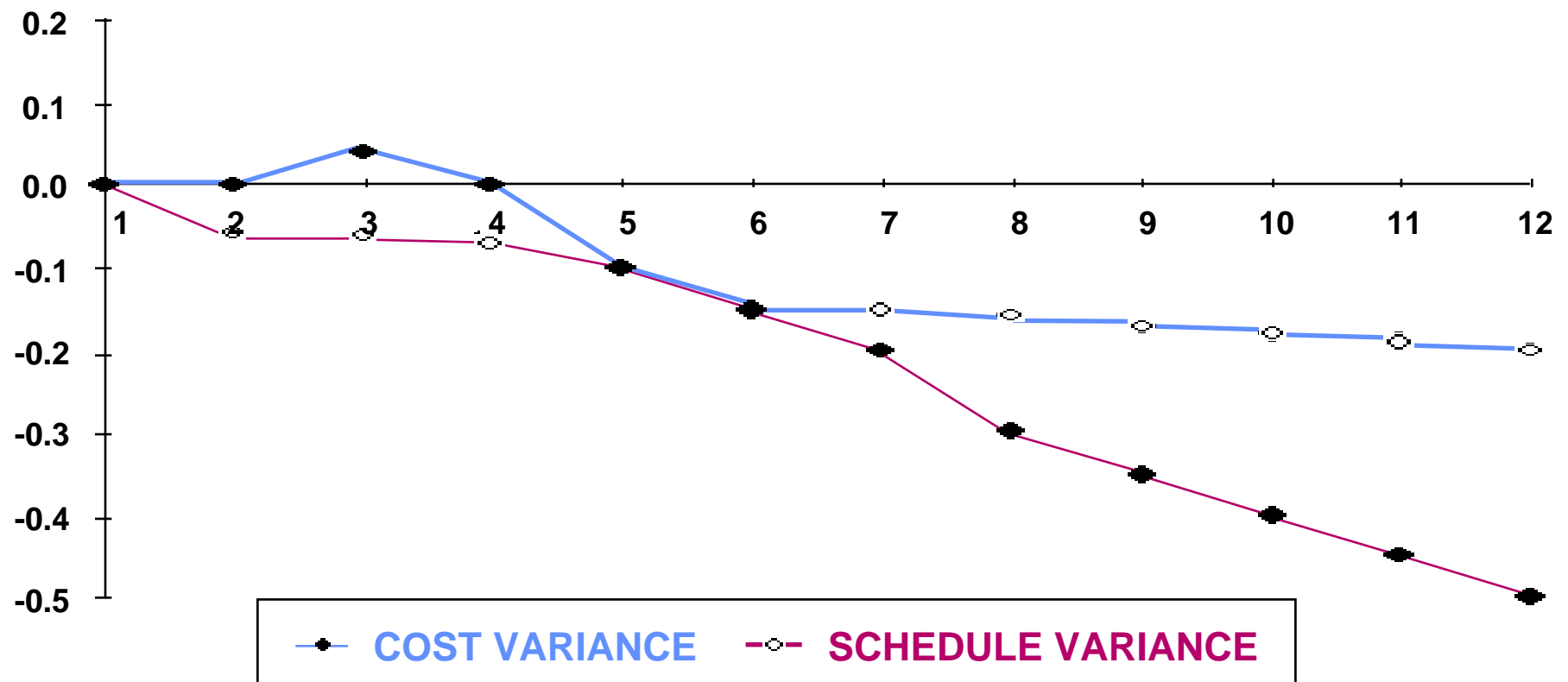
# Cost Metric - Presentation and Analysis

## Example Variance Graph

**Cost Variance = BCWP - ACWP**

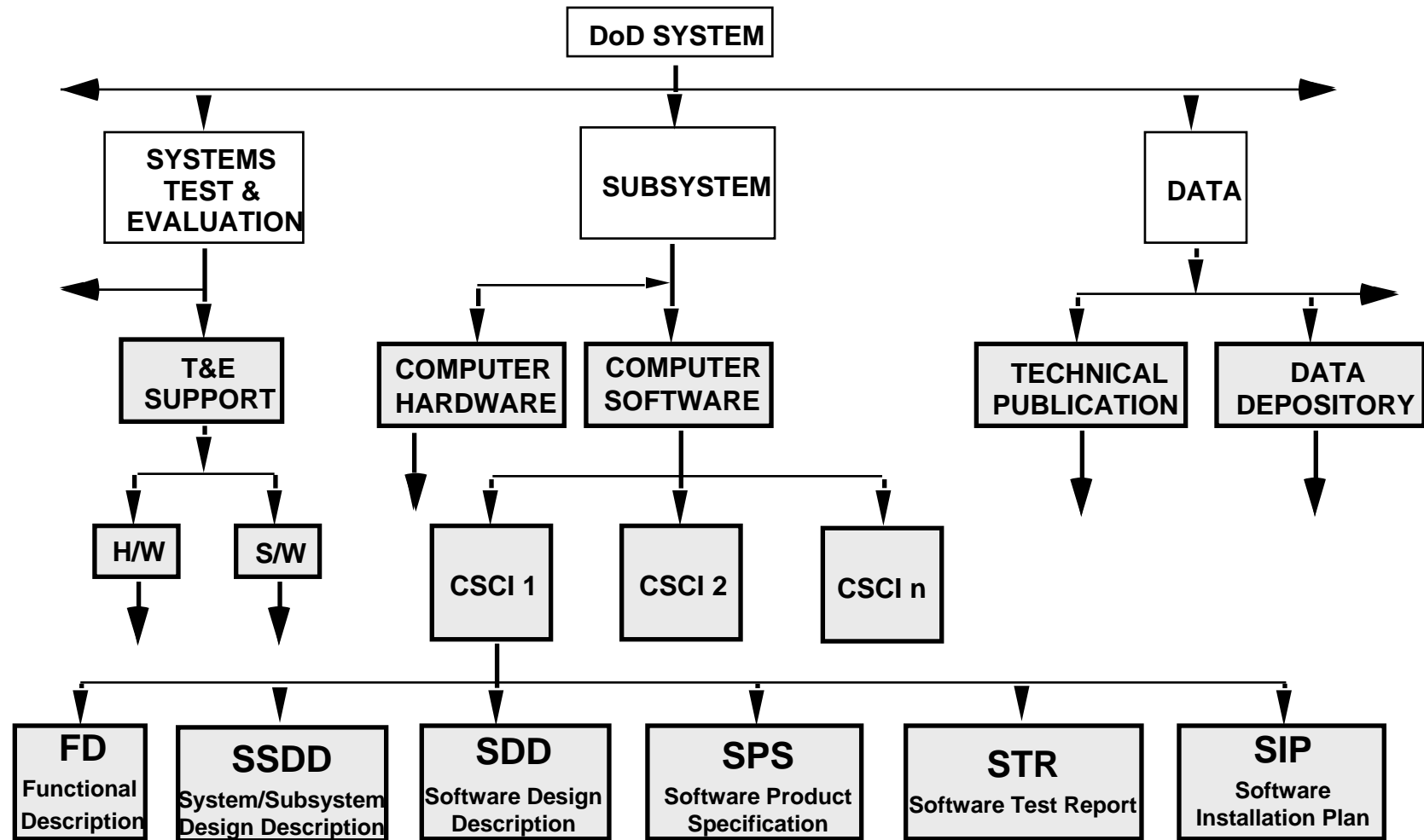
**Schedule Variance = BCWP - BCWS**

Dollars (M)





# Example WBS Chart



→ Indicates lower levels or additional categories are used

# GAO GPRA Claims

- **GAO Executive Guide<sup>1</sup>: Implementing GPRA  
June 1996**
  - “collected data ... *support decision-making at various organizational levels.*”
- **GAO Report<sup>2</sup>, February 1999**
  - Performance Measures “*systematically provide decision-makers with information,*”
  - “reinforce the connection between the agencies’ long-term strategic goals and the *day-to-day activities of their program managers and staff.*”

1. GAO/GGD-96-118, June 1996

2. GAO/GGD/AIMD-99-69, “Performance Plans: Examples of Practices That Can Improve Usefulness to Decision-makers,” 26 FEB 99

# EVMS Claims

- **Karen S. Evans, Administrator, Office of E-Government and IT, Memo for CIOs 8/4/05**
  - “OMB looks for affirmative answers to the following questions: “Is the agency using earned value management to ***plan and manage development activities*** for major IT investments ...”
- **OMB Circular A-11, Part 7 (section 300)**
  - “Agencies must use a performance-based acquisition management system, based on the ANSI/EIA Standard 748, to obtain ***timely information regarding the progress*** of capital investments.”

# EVMS Claims

- **DAU Intent Guide for the ANSI/EIA-748-A Standard for EVMS, December 2005**
  - “Earned value management information provides management with ***early insight into the extent of problems.***”
  - “Earned value data must be **utilized by all levels of management for effective project execution.**”

# Mandate for EVMS

OMB Memo for CIOs, “Improving Information Technology (IT) Project Planning and Execution,” August 4, 2005 :  
Defines procedures that IT managers can use beyond the planning phase “to continue this improvement during the execution phase of the IT project.”

## Attachments

- A - Procedures for Documenting and Reporting IT Project Performance
- B - Requirements for Fully Implementing an Earned Value Management System (EVMS) for IT projects
- C- Additional Resources and Training to Assist Developing and Implementing Policies for EVMS

EVMS Definition: ANSI/EIA Standard 748

# Mandate for EVMS <sup>(2)</sup>

Attachment B describes how agencies must implement EVMS for IT projects through:

- Developing agency **policies** no later than December 31, 2005;
- Including EVMS in **contracts**;
- Performing **reviews** to ensure the EVMS meets established requirements; and
- Ensuring **performance goals** are appropriate.

Where is Performance in  
Earned Value?

# Answer

Performance is not measured unless a performance measurement process is built into a “standard” EVMS.



# The Software Management Problem

As observed by Dr. Fred Brooks\* in 1965:

1. “All programmers are optimists”
2. Software costs and schedules are determined by “gutless estimation”
3. “We never have enough time or money to finish our jobs.”

\* PM of software development for the IBM 360 operating system, 1963-1965

# Common Limitations of OMB Measures & EVMS

- Poor estimates for Budgeted Cost and Work Scheduled
- Work Performed is measured as milestone date completion, lacking quantitative definition and criteria for completion
- Work Scheduled does not plan for requirements volatility or rework
- Top-level measures are defined in operational parameters

# The Hard Part of EVMS

- Building a Work Breakdown Structure
- Identifying Accounting Structures for the Project
- Establishing the Earned Value Baseline Plan
- Tracking Project Progress with a Changing Baseline

# **Organizational Requirements for EVMS**

**DoD Memo: Industry Standard Guidelines  
for Earned Value Management Systems**

**December 14, 1996**

# Industry Standard Guidelines

## 2.1. Organization

- Provide for the **integration** of the company's **planning, scheduling, budgeting, work authorization and cost accumulation processes** with each other, and as appropriate, the program **work breakdown structure and the program organizational structure.**

# Industry Standard Guidelines

## 2.3. Accounting Considerations

- b. When a work breakdown structure is used, summarize direct costs from control accounts into the work breakdown structure **without allocation of a single control account to two or more work breakdown structure elements.**
- c. Summarize direct costs from the control accounts into the contractor's organizational elements without allocation of a single control account to two or more organizational elements.

# Industry Standard Guidelines

## 2.4. Analysis and Management Reports

- Identify budgeted and applied (or actual) indirect costs at the level and frequency needed by management for effective control, **along with the reasons for any significant variances.**
- d. Summarize the data elements and associated **variances through the program organization and/or work breakdown structure to support management needs and any customer reporting** specified in the contract.

# **Industry Standard Guidelines**

## **2.5. Revisions and Data Maintenance**

- **Incorporate authorized changes in a timely manner, recording the effects of such changes in budgets and schedules.**
- **Reconcile current budgets to prior budgets** in terms of changes to the authorized work and internal replanning in the detail needed by management for effective control.
- **Document changes to the performance measurement baseline.**



# Performance-Based Earned Value

Paul Solomon

*Northrop Grumman Corporation*

“a better process for measuring and reporting progress on software projects”:

- Criteria for determining **which planned requirements are significant** for tracking progress.
- **Criteria for milestone definitions.**
- Earned value and internal **replanning for deferred requirements** or functionality.
- Earned value and internal **replanning for revised requirements.**
- Planning and measuring **progress during rework phase.**”

# Performance-Based Earned Value

Paul Solomon

*Northrop Grumman Corporation*

“EVM data will be reliable and accurate only if the following occurs:

- The indicated quality of the evolving product is measured.
- The right base measures of technical performance are selected.
- Progress is objectively assessed.”

# Performance-Based Earned Value

Paul Solomon

*Northrop Grumman Corporation*

“The EVMS standard has significant shortcomings with regard to systems engineering (SE), software engineering, and project management.”

1. EV measures the quantity of work, not the quality and technical content of work;
2. EV address only the project work scope, not product scope and product requirements;
3. EVM is perceived to be a risk management tool, but does not even mention the subject.

