# *Technical Working Group Meeting*
# *29-30 March 2006*

## *AGENDA*

### Wednesday, 29 March 2006

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| 8:00am - 8:30am | Sign-In, Coffee |
| 8:30am - 9:00am | ***"The Current Status of PSM", Cheryl Jones, US Army TACOM-ARDEC***<br>Cheryl will update attendees on recent PSM activities, upcoming events, and the status of PSM products. In addition, opportunities for participation will be identified. |
| 9:00am - 9:40am | ***"Technical Measurement Guide", Garry Roedler, Lockheed Martin***<br>Technical measurement as used in this guide includes the Measures of Effectiveness (MOEs), Measures of Performance (MOPs), Technical Performance Measures (TPMs), and their relationship to the Key Performance Parameters (KPPs). As important as this topic is in the development of systems, there has not been a comprehensive set of guidance in the past. Due to this void, PSM, INCOSE and industry partners have worked on a collaborative project over the past few years to develop guidance in this area that leverages the PSM approach. The Technical Measurement Guide is now available for use. This presentation will provide the highlights of technical measurement, discuss the collaborative project, and give a overview of the guide. |
| 9:40am - 10:25am | "***Understanding DoD Program Success", Robert Charette, ITABHI***<br>The Defense Acquisition Performance Assessment (DAPA) project team recently described the present state of defense acquisition as, "… characterized by massively accelerated cost growth in major defense programs, lack of confidence by senior leaders, and no appreciable improvement in the defense acquisition system despite the many attempts in the past two decades."<br>Yet, even in the complex acquisition environment described by the DAPA project team, some major DoD programs do succeed, and succeed spectacularly. In contrast to program failures, successful programs take a broad view in defining the risks and information needs they had to address to be successful in the context of their acquisition, budget, technical, and political environments.<br>The keys to understanding why some DOD programs succeed while others fail are not definable by looking solely at the failure factors and trying to eliminate them, but by analyzing the unique |

characteristics of successful programs. In this talk, we explore the common characteristics exhibited by successful major DOD programs and how measurement and risk management support these characteristics. We also look into three inter-related questions: What makes successful programs different from their less successful brethren? Can major program success be duplicated? And finally, what, if anything, can DOD or others do to increase program success for all defense programs?

10:25am - 10:45am AM Break

10:45am - 11:15am ***"The Use of Objective Information in DoD Program Decision Making", John McGarry, U.S. Army Armament Research Development and Engineering Center (ARDEC)***

This presentation addresses the application and use of objective information in making critical technical and management performance decisions across a wide range of U.S. Department of Defense Programs. Based on a detailed review of a representative base of DoD programs, it examines how both project and enterprise information needs are identified and addressed in a complex DoD environment of growing performance requirements and constricted resources. The presentation focuses on the practicalities of using objective information for making the decisions critical to program performance across all levels of management. It introduces an integrated decision model that helps to evaluate the decision maker's ability to identify, communicate, and address program and organizational performance, and presents recommendations for making objective information a key component of DoD program and enterprise success.

11:15am - 11:30am ***"NIST US Measurement System (USMS) Project, Software Measurement & Technological Innovation", Tom Rhodes, Software Sector Analyst NIST Information Technology Lab (ITL)***

This presentation addresses the USMS Project. NIST is conducting a broad survey and assessment of the state of the US Measurement System (Report by June 2006). The focus is on the U.S. industry measurement needs (MNs) that are barriers to technological innovation. Measurement needs arise from measurement problems in R&D, production, marketing, and end-use stages in developing new products and processes.

11:30am - 12:30pm Lunch on your own (cafeteria downstairs)

12:30pm - 1:10pm "***Mature and Secure: Creating a CMMi and ISO/IEC 21827 Compliant Process Improvement Program", Michele Moss, Booz Allen Hamilton***

The key to a successful measurement program is a foundation of solid processes. Booz Allen Hamilton has invested in a Process Improvement Program that includes compliance with the CMMI as

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| | well as ISO/IEC 21827, the Systems Security Engineering Capability Maturity Model (SSE-CMM). This presentation will provide an overview of the CMMI and SSE-CMM, the approach for integrating SSE-CMM compliant processes into our standard processes, describe the similarities and differences between the appraisal methods, present our approach for integrating an ISO/IEC appraisal with the SCAMPI method, and relay our experiences. With the growing emphasis on information security that is quickly becoming a way of business, this presentation will provide the audience with a practical approach for demonstrating their organizations' compliance with an international security standard. |
| 1:10pm - 1:50pm | ***"ISO/IEEE Standards", Cheryl Jones, US Army***<br>This presentation will discuss current ISO/IEEE activities, including:<br>- 15939, measurement process<br>- 16085, risk management<br>- harmonization of12207, software development processing and 15288, system engineering processing |
| 1:50pm - 2:30pm | ***"SE Leading Indicators", Garry Roedler, Lockheed Martin***<br>One of the questions asked frequently regarding systems engineering is how to determine whether the work performed is effective. This presentation addresses the need for predictive insight into the effectiveness of Systems Engineering on programs. It describes an initiative and the resulting guidance that was undertaken last year by the Lean Aerospace Initiative, INCOSE, PSM and others to define a candidate set of leading indicators. |
| 2:30pm - 3:00pm | PM Break |
| 3:00pm - 3:40pm | ***"An Appraisal View of Measurement and Analysis", David Dayton**, **Q-Labs, Inc.***<br>This presentation will discuss the Measurement and Analysis (MA) process of the CMMI from an appraiser's viewpoint. It will review the kinds of evidence and behavior expected to satisfy the CMMI requirements. This discussion will focus on best practices, not the minimum necessary to "pass the test". It will consider CMMI Generic Practice 2.8, as well as the relationship of MA to the measurement requirements of the OPD, OPF, IPM, PP, and PMC process areas. |
| 3:40pm - 4:00pm | ***"Workshop Descriptions"***<br>Each workshop lead will briefly describe the intent of their workshop. |
| 4:00pm | ***Adjourn*** |

## Thursday, 30 March 2006

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| 8:00am - 8:30 am | Sign-in, Coffee |
| 8:30am - 12:00pm | **Concurrent Workshops** *(see details on following pages)*:<br>***#1 - "Acquisition Measurement"***<br>Workshop Leads: Rita Creel, Software Engineering Institute, Joe Dean, ESC/MPSG<br><br>***#2 - "Rational Method Composer (RMC)/RUP Plug-In Review"***<br>Workshop Lead: Doug Ishigaki, IBM<br><br>***#3 - "Measurement of Security Processes"***<br>Workshop Lead: Fred Hall, Assurance Engineering |
| 12:00pm - 1:00pm | Lunch on your own (cafeteria downstairs) |
| 1:00pm - 5:00pm | **Concurrent Workshops**<br><br>***#1 - "Acquisition Measurement" (continuation of morning session)***<br>Workshop Leads: Rita Creel, Software Engineering Institute, Joe Dean, ESC/MPSG<br><br>***#2 - "Rational Method Composer (RMC)/RUP Plug-In Review" (continuation of morning session)***<br>Workshop Lead: Doug Ishigaki, IBM<br><br>***#4 - "Can Performance Measurement be Improved?"***<br>Workshop Lead: Fred Hall, Assurance Engineering<br><br>**(AM and PM Breaks As Appropriate)** |
| 5:00pm | ***Adjourn*** |

**Workshop #1: Acquisition Measurement**
**Facilitators: Rita Creel, SEI, Joe Dean, ESC/MPSG**

**Date: Thursday, 30 March, 2006**
**Time: 8:30am - 5:00pm**

***Prerequisites***
Participants should review the workshop materials available on the PSM website, including the acquisition measurement guidance, draft ICM Table, sample measurement specifications, WBS, and updated acquisition cost model. Workshop attendees should have a general understanding of systems acquisition and program office requirements for supporting system acquisitions. An understanding of parametric cost models and statistical analysis methods is desirable.

***Materials to Bring***
Participants should bring their knowledge of and/or information on program office functions, experiences, and lessons learned in acquisition management. Participants should also bring practical examples of acquisition measures that they have utilized within their organizations. Participants should also bring written comments against the draft materials for this workshop, particularly the acquisition WBS (materials will be posted by 14 March 2006).

***Discussion:***
This workshop will continue work on acquisition measurement guidance, recommended ICM table and measures, and a cost model for acquisition organizations.

***Acquisition Measurement Guidance***

Lessons learned are valuable for any organization in order to avoid mistakes made by others. This workshop will leverage the experience of those "Acquisition Warriors" who have "been there and done that." We will discuss the strawman guidance documents and develop additional ideas and inputs to make the guidance as useful as possible.

***Acquisition ICM Table and Measures***

An Acquisition Organization needs to know how it is doing and what it needs to improve on at any given time in the acquisition process. Of course, measurement is the key to addressing these needs. This workshop will work to evolve an acquisition measurement Information Need - Measurable Concept - Measures (ICM) table. Initial acquisition measurement specifications will be reviewed, and volunteers to develop other sample specifications will be identified.

***Acquisition Cost Model***

A draft acquisition cost model has been developed by the Air Force Materiel Command to be used by the Air Force Program Offices to estimate their expected resources to implement future Air Force programs. This model is being converted to a generic model so it can become a useful tool for any acquisition organization. At this workshop, the WBS elements that comprise this model will be refined.

***Goals/Products***
The goals of this workshop are:

- Solicit practical lessons learned and experiences in program office acquisitions.
- Review the draft I-C-M table and identify practical measures for acquisition projects.
- Identify comments and provide inputs to the acquisition WBS.

**Workshop #2: Rational Method Composer (RMC)/RUP Plug-In Review**
**Facilitator(s): Doug Ishigaki, IBM**

**Date: Thursday, 30 March, 2006**
**Time: 8:30am - 5:00pm**

***Prerequisites***
Basic familiarity with RUP.
(Optional) Download and review the RMC Plug-in for PSM.

***Materials to Bring***
Bring examples of:
Current users of the Plug-in for PSM (v1.0 or v2.0) are welcomed to share the experience.

***Discussion:***
The IBM Rational Unified Process©, or RUP© plug-in for PSM was jointly developed by PSM and IBM, released in January 2004, and has been available for download at the PSM Web site. This plug-in integrates the measurement activities, artifacts, and concepts as described by PSM, replacing the measurement concepts provided by the RUP base framework.

In January 2006, a new version of the plug-in was released based on the Rational Method Composer (RMC), which is the next generation of the RUP platform and includes the new RUP v7.0 process framework. This new version 2.0, can be downloaded from here.

In this workshop, we will review the new version 2.0 of the plug-in and identity areas for improvement.

***Goals/Products***
The goals of this workshop are:

- Review and discuss PSM Plug-In v2.0 content (roles, activities, concepts, guidelines)
- Identify recommended enhancements for future releases of the plug-in
- Review the PSM Plug-In's candidate measures

Identify field sites for validating the PSM Plug-In.

**Workshop #3: Measurement of Security Processes**
**Facilitators: Fred Hall, Assurance Engineering**

**Date: Thursday, 30 March, 2006**
**Time: 8:30am - 12:00noon**

***Prerequisites***
All with experience or interest in the measurement of information security processes are warmly invited. Awareness of current security measurement/metrics work in DoD/DHS, ISSEA MWG, industry and in connection with ISO/IEC WD 27004 are welcome. Those planning to attend are asked to review the *Security Measurement White Paper* v3.0, available on the PSM website.

***Materials to Bring***
Those with security measurement or management experience are invited to share their experiences of particular security measures, possibly in the form of draft measurement information specifications. Proposals or ideas for security-related information needs, measures and/or indicators, if possible. Critique of or queries about the White Paper.

***Discussion***
The group will continue the work of the March, July and October 2005 workshops, by (1) peer reviewing the *Security Measurement White Paper*, v 3.0 and (2) reviewing and developing practical security measurement guidance materials, based on additional workshop inputs. The following will be progressed:

1. I-C-M table linking security measurement needs, measurable concepts and prospective measures;
2. draft measurement information specifications;
3. draft measurement process guidance.
4. plans/ proposals for case studies and trials.

***Goals/Products***
The goals of this workshop are:

- to assess and progress practical guidance materials;
- to plan for completing the current cycle of PSM work on safety and security measurement, aiming for completion summer 06;
- to seek participation in trials, case studies and assessments;
- to develop collaborative arrangements with ISSEA MWG and DHS SW Assurance Forum working groups to continue the effort.

**Workshop #4: Can Performance Measurement be Improved?**
**Facilitator(s): Fred Hall, Assurance Engineering**

**Date: Thursday, 30 March, 2006**
**Time: 1:00pm - 5:00pm**

***Prerequisites/Who Should Attend***
Participants should be somewhat familiar with Earned Value concepts and the OMB Performance Measurement and reporting requirements in Circular A-11. Participants do not need an in-depth understanding of the OMB requirements, because they follow the PSM measurement process and Earned Value concepts. Workshop attendees should also have a general understanding of system and software status measures that are currently in use in their projects or organization. All workshop attendees should review the paper "Overview of the OMB Requirements for Performance Measurement" that is available on the PSM web site.

***Materials to Bring***
Examples of measures and procedures that are used for your organization's project-management information and OMB performance measurement (Exhibit 300) reporting.

***Discussion:***
Since 1994, the Government Performance and Results Act (GPRA) has required all Federal agencies to measure their performance and to use that performance information to support management decisions. The Federal Office of Management and Budget (OMB) implements the GPRA and supplemental laws through the detailed procedures of OMB Circular A-11. Circular A-11 requires that all Federal acquisition programs, especially major IT investments, must implement a "Performance-based Acquisition Management" process. This process is defined in the Circular as a: "systematic process for program management, which includes … use of earned value techniques for performance measurement during execution of the program. EVMS is required for those parts of the investment where developmental effort is required. … EVMS is to be applied to both government and contractor efforts."

EVMS is the process through which the agency and OMB measure progress toward achieving the Performance Measurement Baseline, Goals, and Measures. These measures are recorded in the agency's strategic plans, annual performance plans, and "Exhibit 300" reports that are submitted monthly or quarterly for a major project. A recent GAO Report1 shows that OMB Circular A-11 has significantly increased Federal agencies' use of performance measurement for program management. Earned Value data allows agency budget managers to make informed decisions on which projects will continue to receive budget resources.

Earned Value data certainly provides these managers with a basis to compare the performance of various projects. However, project managers often complain that EV data does not support their needs. As shown in Attachment A, it is easy for any federal executive to assume that the OMB-mandated measurement process and regular "Exhibit 300" measurement reports are an adequate measurement process for all management levels in their agency. Because the OMB Earned Value reports will determine the project and agency budget for the following year, these executives will certainly put their highest priority on collecting the OMB Performance Measurement

[1] Report: GAO-04-38, "GPRA Has Established a Solid Foundation for Achieving Greater Results," March 2004

data. The workshop facilitator has observed the significant and growing problem that many Federal agencies are directing all their measurement efforts and funding to produce the "Exhibit 300" measurement reports.

The reality is that Earned Value data provides a project manager with very little useful information. The primary utility of Earned Value data is to support executives at the Enterprise or Organizational management levels to make decisions on allocation of the budget between choices of projects investments. Earned Value data certainly provides these managers with a basis to compare the performance of various projects. However, project managers often complain that EV data does not support their needs. At the project managers' level, Earned Value data is significantly limited in the ability to support useful management information:

(1) Earned Value data is derived from formal cost and schedule reports and is usually too late to support the "leading indicators" that are needed for project managers to effectively manage risk;
(2) Earned Value data does not address the real performance characteristics of the project. This limitation of EVMS is directly addressed by the ANSI/EIA Standard 748 definition of 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 [project management]."
(3) The OMB performance measurement process cannot actually measure the performance of an individual project. Most Federal agencies have neither the detailed processes for Work Breakdown Structure or cost accounting to support realistic measurement of performance or progress at the project level (see Attachment B).

***Goals/Products***

The goals of this workshop are to:

1. Identify existing or potential risks in the OMB Performance Measurement Process.
2. Define possible solutions to these risks, such as:
    a. Recommend changes to the 2007 version of OMB Circular A-11;
    b. Draft a briefing to OMB executives to identify risks and recommended solutions,
    c. Define an overall measurement process that is affordable and meets the objectives of both OMB and project managers.