



**9th Annual Practical Software and Systems  
Measurement Users' Group Conference**  
***"Measurement in Support of System and Process Integrity"***  
**July 18-22, 2005**  
**Keystone, Colorado**

**Conference Agenda**

**Monday, July 18, 2005**

7:00am - 8:30am ***Continental Breakfast***

7:00am - 8:30am On-Site Conference Registration

8:30am - 11:30am **Training:**  
***PSM One-Day Tutorial*** (This course is an introduction to PSM for those with little or no prior PSM experience).

10:00am -10:30am ***AM Break***

11:30am - 1:00pm ***Lunch on your own***

1:00pm - 5:00pm **Training:**  
***Continuation of morning session***

2:30pm - 3:00pm ***PM Break***

4:00pm - 6:00pm On-Site Conference Registration

***Dinner and Evening Activities on Your Own***

**Tuesday, July 19, 2005**

7:00am - 8:30am ***Continental Breakfast***

7:00am - 8:30am On-Site Conference Registration

8:30am - 9:00am  
***"Conference Welcome", Cheryl Jones, US Army RDECOM***  
Introductions, Conference Overview, Project Update

9:00am - 9:45am  
***"PMP - One Successful Example of Performance Measurement", Keynote Speaker, Robert B. Stenstrom, Outreach/ACE Training/Deployment, Division OIT/CBP/DHS***

The Client Representative Branch, within the Customs Service's (now CBP/DHS) Office of Information Technology, recently completed a five-year performance measurement program (PMP). The subjects were the services provided by 50 client representatives, scattered across the country in 18 major cities, for the import trade community and for Customs employees. PMP's focus was the agency's Automated Commercial System (ACS), which is a large-scale business oriented system used for processing commercial goods imported into the United States. PMP included quarterly tracking of six statistical system performance measures, and annual customer satisfaction surveys of ACS trade users and employees whose jobs involved ACS use. PMP's formation, its procedures, results, benefits and the lessons learned will be covered.

9:45am - 10:25am

***“Objective Program Oversight for Program Leaders”, Kevin Richins, USAF Software Technology Support Center***

The Navy, with industry counterparts, has developed a measurement program that takes multiple (thousands) data streams from multiple (20+) software suppliers and synthesizes it into a measurement package that allows DD(X) Senior Navy leaders to quickly understand software status and focus their attention where it's needed most. Kevin will discuss how the PSM process and data models were used to design, implement, and grow a measurement program for DD(X), one of the largest software acquisitions in the history of the DoD, with over 25,000,000 lines of code.

10:25am - 10:55am ***AM Break***

10:55am - 11:35am

***“PSM - The High Road to Measurement Maturity”, Kevin Domzalski, BAE Systems***

In 1989, our BAE SYSTEMS business unit (then a division of General Dynamics Corp.) began a quest on the path to higher maturity processes as we achieved our first SW-CMM rating of Level 1. We “quickly” moved up the maturity scale receiving Level 2 in 1992 and Level 3 in 1995 taking approximately 3 years between SW-CMM Levels. In mid 2002, we re-assessed and achieved SW-CMM Level-4 and by the end of 2002 had received SW-CMM Level-5. One year later in late 2003, we held a CMMI appraisal and achieved a CMMI Level-5 Maturity Rating with Level-5 Capabilities in 7 Process Areas! BAE SYSTEMS' achievement of Level-5, the Gold Medal of CMM/CMMI Maturity Ratings for Process Improvement, was due in no small part to the application of many of the principles and methodologies presented in PSM. This presentation covers some of the improvements we implemented related to Process Measurement in achieving CMMI Level-5.

11:35am - 12:15pm

***“SE Effectiveness Leading Indicators for the Lean Aerospace Initiative Using the PSM Approach”, Garry Roedler, Lockheed Martin***

As systems continue to increase in complexity, it is important to understand whether the systems engineering effort being applied is effective or likely to be effective in providing the desired system solution. Program leaders evaluating whether their programs are doing good systems engineering need to have access to a set of leading indicators. Today, we have many good leading indicators for the programmatic aspects of engineering, but lack good leading indicators of the more technical aspects of a program. Programs and organizations are looking for leading indicators that provide predictive insight on how their programs are progressing technically.

This need, along with the recent DoD emphasis on the revitalization of systems engineering, has been a catalyst for an effort to define Systems Engineering Effectiveness Leading Indicators. This presentation will discuss a project of the Lean Aerospace Initiative of MIT that has been supported by INCOSE, PSM, and industry. It is focused on defining a broad set of indicators for evaluating the goodness of the Systems Engineering on a program in a manner that provides information about impacts that are likely to affect the system performance objectives.

12:15pm - 1:15pm ***Lunch provided***

1:15pm - 1:55pm

***“Analysis of LSI Activity Areas and Decision Making Processes”, Jo Ann Lane, USC Center for Software Engineering***

As organizations strive to expand system capabilities through the development of system-of-systems (SoS) architectures, they want to know "how much effort" and "how long". In order to answer these questions, it is important to first understand the types of activities performed in SoS architecture development and integration and how these vary across different SoS implementations. Jo Ann will provide preliminary results of research conducted to determine types of SoS Lead System Integrator (LSI) activities and how these differ from the more traditional system engineering activities described in EIA 632 (Processes for Engineering a System).

1:55pm - 2:35pm

***“Integrating Lean, Six Sigma, and the CMMI”, David N. Card, Q-Labs***

This presentation discusses some of the similarities and differences of popular process improvement approaches. It discusses strategies for integrating them to obtain performance improvements more cost-effectively. Since these approaches all derive from common historical roots, an examination of the underlying concepts helps to explain how the superficially different terminology and techniques can be reconciled.

2:35pm - 3:15pm

***“Reducing Gaps in Software Process Performance Through ID and Implementation of Software Best Practices”, David Garmus, David Consulting Group***

David will discuss the potential for bridging gaps in software process performance by implementing best software practices. Industry benchmark data that support project productivity, based upon presenter’s experience at software organizations, which have achieved significant improvements in delivering software will be discussed. David will review a parametric model, which utilizes historical data points for purposes of analyzing the impact of selected process improvements, providing a knowledge base for improved decision making.

3:15pm - 3:40pm

***PM Break***

3:40pm - 4:20pm

***“The DoD Software Resource Data Report-An Update”, Mike Gallo, Technomics, Inc.***

The Department of Defense (DoD) mandates, by policy, that all Major Defense Acquisition programs with software development costs in excess of \$25M (FY2002\$) submit a Software Resource Data Report (SRDR). This mandate was in response to the continued dearth of relevant and credible software cost and metric data on completed software development programs. While DoD has mandated (contractually) cost data reporting their programs for the last three decades, the systematic collection of software metric data for completed software development programs is a recent phenomenon. This presentation provides a status on SRDRs submitted to date, summarizes initial results of the data collected and discusses the current challenges facing SRDR reporting.

4:20pm - 5:00pm

***“COSYSMO Risk Prototype”, Ricardo Valerdi, MIT, John Gaffney, Lockheed Martin***

Managers and technical personnel need to make decisions under uncertainty. They should assess the extent of the uncertainty in the data and quantitative information that they rely on so that they can make better, more informed, decisions. We have developed an excel-based tool that is a prototype of an add-on to the COSYSMO systems engineering labor estimation model; it is called the COSYSMO Risk Prototype (CRP). This tool enables the user to quantify his belief in the degree of uncertainty in the values of various parameters of the COSYSMO model, and hence in the value of the output of the model, systems engineering person months (PM).

***Dinner and Evening Activities on Your Own  
\*Wear/Bring your PSM Shirt tomorrow (for the group picture)***

**Wednesday, July 20, 2005**

7:00am - 8:30am

***Continental Breakfast***

8:30am - 9:10am

***“Measurement Mapping to the CMMI”, Pascal Rabbath, S-3 Consulting, Pty Ltd***

Most organisations embarking on CMMI<sup>®</sup>-based process improvement understand the need to implement (among other process areas) Measurement and Analysis (MA) to obtain Maturity Level 2. However, the MA process area should not be considered in isolation. Pascal will present both the explicit as well as the implicit dependencies that other process areas have on MA. The impact that MA has on

the rest of the model will be clearly shown in the mapping of measurement activities onto the rest of the process areas in the CMMI®. Finally, Pascal will present some lessons learnt on the barriers that typically prevent organisations in implementing effective measurement programs.

9:10am - 9:50am

***“Measuring End-User Satisfaction and Mission Impact”, Betsy Clark, Software Metrics, Inc, Craig Beyers, SETA Corporation***

The PSM Integrated Analysis Model and the CMMI’s Measurement and Analysis process area include customer satisfaction measures as elements of measurement programs. Over the past year, we have conducted two surveys to assess end-user satisfaction with software applications and IT services provided by the Customs and Border Protection (CBP) Office of Information and Technology. This presentation describes the genesis and background of these surveys, general results, and some detailed findings about one software application highlighted in the software application survey.

9:50am - 10:30am

***“Performance Modeling - Understanding and Measuring the Benefits of Process Improvement”, David Herron, David Consulting Group***

As organizations begin to position themselves and make the investment necessary to improve their software development practices it becomes necessary to have a mechanism in place by which they can forecast the impact of those improvements and monitor their progress. David will discuss how Performance Modeling can provide a knowledge base for improved decision making by identifying areas of high impact (e.g., productivity and quality). Performance Modeling is very important for Senior level managers since it often provides an opportunity for comparison to industry best practices.

10:30am - 11:00am ***AM Break (group picture - location will be announced, please wear your shirt)***

11:00am - 11:40am

***“Software Assurance Measurement Requirements: Information Needs for IA and Cyber Security”, Joe Jarzombek, DHS National Cyber Security Division***

Factoring security in business projects and enterprise decision-making has presented challenges relative to the quantification of security-related information, and the related business practices. Joe will discuss efforts to develop and evolve security measures and provide mechanisms to provide information in support of IA and cyber security.

11:40am - 12:20pm

***“IA Metrics - Why and how To Measure Goodness Of Information Assurance”, Nadya Bartol, Booz Allen Hamilton***

Nadya will describe the history of IA metrics, present an approach for developing IA metrics that has been adopted by NIST as a basis of its IT security metrics guidance, and discuss specific examples of IA metrics implementation within government and commercial environments. Nadya will discuss the challenges involved with establishing robust IA metrics within organizations, and propose means of addressing these challenges. She will discuss the role in IA metrics in facilitating continuous improvement of security through determining causes of poor performance and recommending specific corrective actions. A relationship between measuring performance and assessing process maturity, using an example of IA metrics as applied to ISO/IEC 21827 (System Security Engineering Capability Maturity Model [SSE CMM]) will also be discussed.

12:20pm - 1:00pm

***Brief Workshop Introductions by Workshop Leads (Please limit to 3-4 minutes)***

Brief descriptions of the goals of each planned workshop will be given.

1:00pm - 2:15pm ***Lunch on your own***

2:15am - 5:30pm

**Concurrent Workshops (See workshop chart on page 7 and workshop descriptions starting on page 8)**

- **#1 COSYSMO**
- **#4 Measurement Specification Lite**
- **#7 Acquisition Measurement**
- **#9 Security Measurement**

3:45pm - 4:00pm **PM Break**

7:00pm **Cash Bar /Conference Dinner @ The Snake River Saloon, ½ block east of the Keystone Inn)**

## **Thursday, July 21, 2005**

7:00am - 8:30am **Continental Breakfast**

8:30am - 12:00pm

**Concurrent Workshops (See workshop chart on page 7 and workshop descriptions starting on page 8)**

- **#2 COSOSIMO**
- **#5 Implementing & Sustaining Commitment**
- **#7 Acquisition Measurement (continuation of Wednesday afternoon workshop)**
- **#9 Security Measurement (continuation of Wednesday afternoon workshop)**
- **\*#10 Revision of IEEE Standard 1044: Classification of Software Anomalies**

**\* Workshop #10 will meet in the Gateway Building. A shuttle will pick attendees up in front of the Conference Center (after breakfast, @ 8:15am) and return them to the Conf.Ctr for lunch.**

10:00am - 10:30am **AM Break**

12:00pm - 1:00pm **Lunch Provided**

1:00pm - 5:15pm

**Concurrent Workshops (See workshop chart on page 7 and workshop descriptions starting on page 8)**

- **#3 Systems Engineering Technical Measures**
- **#6 Recommended Measures for ROI Activities Papers in Progress**
- **#8 Organizational and Enterprise Measurement**
- **#11 Information Needs for High-Maturity Measurement Survey**

3:00 pm - 3:30pm **PM Break**

**Dinner and Evening Activities on Your Own**

## **Friday, July 22 2005**

7:00am - 8:30am **Continental Breakfast**

8:30am - 9:10am

**“Categorizing Needs for Guidance on Measurement and Analysis in Software and Systems Engineering”, Ira Monarch and Dennis Goldenson, Software Engineering Institute**

The purpose of this work is to identify aspects of measurement and analysis that our existing customer base and intended target audience (1) find difficult to perform, (2) acknowledge as areas where their

current capabilities are insufficient, and/or (3) fail to recognize as opportunities for improvement. To do so, we conduct comparable lexical analyses of text from two sources: the Software Engineering Information Repository (SEIR), and the INSPEC database of published research literature on software and systems engineering.

We begin with pair-wise and multi-dimensional comparisons to identify the co-occurrence of measurement related terms and phrases within each database separately. We then compare and contrast the results from the two data sets to help identify root causes or potential solutions to the difficulties with measurement faced by software and systems engineering practitioners.

9:10am-9:50am

***“Creating Metrics for a Large Non-homogenous Portfolio of Systems”, Dan Cavey, Bank of America***

The “Holy Grail” of measurement is to find the denominator against which we can evaluate our various measures of quality and productivity. This denominator is the number we wish to use to represent the size or complexity of a system. Someday, in the dark matter of the universe, we may find this number for comparing one system against another or against a standard, but maybe there is an answer if we take a portfolio view. (Think Law of Large Numbers.) The Bank of America is in a unique situation in that they have a portfolio of over 2,000 systems to manage and measure. But, alas, the Law of Large numbers doesn’t lead the bank to one answer either because the portfolio is completely non-homogeneous. Stratification of the portfolio is helping the bank deal with the situation. A stratified portfolio approach to metrics may be the most appropriate, and statistically valid way, to measure and manage systems no matter what the portfolio’s size and demographics.

9:50am-10:20am ***AM Break***

10:20am-11:15am

***Workshop Outbriefs***

Each workshop lead will have 5 minutes to summarize the results of their workshop and discuss future goals.

11:15am-11:30am

***“Conference Wrap up Session”, Cheryl Jones, US Army RDECOM***

**PSM Users' Group 2005 Workshop**

*\* Descriptions on following pages*

<b>Wednesday, 20 July 2:15pm - 5:30pm</b>	<b>Thursday, 21 July 8:30am - 12:00noon</b>	<b>Thursday, 21 July 1:00pm - 5:15pm</b>
<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>COSYSMO (#1)</b> </div>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>COSOSIMO (#2)</b> </div>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>SE Technical Measures (#3)</b> </div>
<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>Measurement Specification Lite (#4)</b> </div>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>Implementing and Sustaining Commitment (#5)</b> </div>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>Recommended Measures for ROI Activities (#6)</b> </div>
<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>Acquisition Measurement (#7)</b> </div>		<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>Organizational and Enterprise Measurement (#8)</b> </div>
<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>Security Measurement (#9)</b> </div>		
	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>IEEE Standard 1044 (#10)</b> </div>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>Info. Needs for High- Maturity Measurement Survey (#11)</b> </div>

*\* Workshop #10 will meet in the Gateway Building. A shuttle will pick attendees up in front of the Conference Center (after breakfast, @ 8:15am) and return them to the Conf.Ctr for lunch).*

**Workshop #1: COSYSMO (Constructive Systems Engineering Cost Model)**  
**Facilitator(s): Ricardo Valerdi, USC Center for Software Engineering/MIT**

**Date: Wednesday, 20 July**  
**Time: 2:15pm - 5:30pm**

**Prerequisites:**

General knowledge of systems engineering, cost estimation, or measurement. Specific knowledge of EIA/ANSI 632 or ISO/IEC 15288 would be helpful.

**Materials to Bring**

Ideas for COSYSMO model implementation and local calibration manual.

**Discussion:**

The purpose of COSYSMO is to estimate the systems engineering effort. The drivers and counting rules have been defined which have lead to a number of implementations of the model such as Thomas' *myCOSYSMO*, Gaffney's *Risk/Uncertainty Estimator*, Ligett's *COSYSMOstar*, and Valerdi's *academicCOSYSMO*. Coordination among these implementations is essential. Some time will be spent reviewing these tools and identifying best practices for a single implementation.

The organizations that have provided data for the model\* need guidance on the necessary steps to perform a local calibration. Some time will be spent characterizing these steps and outlining specific instructions on how to perform calibrations.

**Goals/Products**

The goals of this workshop are to a) determine the best implementation features of the model and b) identify the necessary guidance needed to perform a local calibration.

\*BAE Systems, General Dynamics, Lockheed Martin, Northrop Grumman, Raytheon, and SAIC

**Workshop #2: COSOSIMO**  
**Facilitator(s): Jo Ann Lane, USC Center for Software Engineering**

**Date: Thursday, 21 July**  
**Time: 8:30am - 12:00noon**

**Prerequisites:** Interest in estimation of System-of Systems (SoS) Lead System Integrator (LSI) effort.

**Materials to Bring**

Bring examples of: SoS LSI statements of work showing typically activities performed by LSIs.

**Discussion:**

COSOSIMO is a cost model that is currently under development at the USC Center for Software Engineering. The purpose of this cost model is to estimate the effort associated with System-of Systems (SoS) Lead System Integrator (LSI) activities, assuming that the COSYSMO model is estimating the systems engineering effort for each of the systems being integrated. This workshop will review research conducted to date on LSI activities and the currently proposed cost model parameters and update it based on lists of SoS LSI activities provided by participants. As part of this workshop, we will also conduct a Delphi assessment of the proposed cost model parameters to obtain feedback from the participants with respect to the relevancy and completeness of the proposed parameters.

**Goals/Products**

The goals of this workshop are to a) clarify the LSI activities to be estimated by the COSOSIMO model and b) begin converging on a relevant and complete set of parameters for the COSOSIMO model that are easily discerned in the early stages of SoS development.

**Workshop #3      Technical Measurement**  
**Facilitators:      Cheryl Jones, US Army, Garry Roedler, Lockheed Martin**

**Date:              Thursday, 21 July**  
**Time:              1:00pm - 5:15pm**

### **Prerequisites**

Participants should be familiar with the PSM measurement process. Workshop attendees should also have a general understanding of system and software engineering measures currently in use across their projects or organization. Practical experience with and examples of technical measures are helpful. All workshop attendees should review the paper on this topic (available on the PSM web site).

### **Materials to Bring**

Attendees should bring examples of system and software engineering measures currently in use across their projects or organization. Also, bring a list of key system performance issues for their programs for which early predictive insight would help manage those issues. Workshop attendees should also bring written comments on the Technical Measurement white paper to the workshop.

### **Discussion**

Many projects and organizations have requirements for technical performance measures that provide information about whether their projects are progressing technically, as required. These measures generally need to go beyond the common measures of schedule and cost, to include measures that provide indications of the effectiveness of systems and software engineering in meeting contractual requirements. In order to ensure the technical solution meets the user's needs, these technical performance measures need to relate back to the measures of effectiveness identified by the acquirer.

Previous workshops and a survey on this topic have identified practices and common measures that are currently being used today. This work has led to the version 2 of the white paper on Technical Measurement. At the workshop in July, technical high comments against this paper will be discussed and development of sample measurement specifications will begin. Preliminary technical areas to be discussed include:

- Review ICM table to ensure the list is complete
- Update guidance on Technical Measurement Checklists to sections for General/MOE/MOP/TPM – consider both initiation and on-going checklists
- Definitions and major terms
- MOE/MOP/TPM example with associated measurement specification(s)

### **Goals/Products**

The goals of this workshop are to document recommended changes to the Technical Measurement white paper.

**Workshop #4: Measurement Specification Lite**  
**Facilitator(s): Betsy Clark, Brad Clark, Software Metrics, Inc.**

**Date: Wednesday, 20 July**  
**Time: 2:15pm - 5:30pm**

**Prerequisites**

Familiarity with PSM specifications. Experience in writing specifications is especially useful.

**Materials to Bring**

Examples of any tailoring done to measurement specifications to ease of the process of spec generation.

**Discussion**

More than one person has reported that their measurement efforts have become bogged down by the process of generating measurement specifications. Some view the current PSM specifications as overkill while others believe that important information is missing (such as that found in the SEI core measures checklists). The discussion will include: what is the purpose of a measurement specification? Is some information more important than other? When is it most useful to produce specifications (i.e, early in implementing measurements or later on when measurements have stabilized)?

**Goals/Products**

Guidance on essential information to be included in a specification.

Guidance on whether additional information (such as that found in the SEI checklists) should be added

**Workshop #5: Implementing and Sustaining Commitment**  
**Facilitator(s): Betsy Clark and Brad Clark, Software Metrics, Inc.**

**Date: Thursday, 21 July**  
**Time: 8:30am - 12:00noon**

**Prerequisites**

Knowledge of PSM, experience in implementing (or attempting to implement) measurement programs

**Materials to Bring**

Bring any lessons learned along with positive and negative experiences in sustaining measurement programs. Also bring any templates, procedures, policy statements or any other materials that were useful.

**Discussion**

What does it really take to make measurement programs stick? There appear to be many ways that measurement programs can fail. Some people have reported that their only real successes have been to build on existing data, transforming it into useful information products. There are probably many more attempts to implement measurement programs than true successes.

**Goals/Products**

Lesson learned, critical success factors, anything that can help guide effective implementation.

**Workshop #6: Recommended Measures for Return on Investment activities**  
**Facilitator(s): Virginia Slavin, SSCI**

**Date: Thursday, 21 July**  
**Time: 1:00pm - 5:15pm**

**Prerequisites**

Some familiarization with the Process Improvement paper released by PSM, as well as knowledge of issues regarding return on investment for process activities.

**Materials to Bring**

Bring examples of: organizational measures that have been used to identify ROI of process improvement activities

**Discussion:**

When beginning a process improvement infrastructure, one of the first items to institute is a measurement program. Eventually, the discussions will get around to ROI of process improvement activities. If organizations knew the basic ROI measures to put in place for organizational indications of ROI, then they could have those baselines already established (hopefully) before the ROI requests are made. Otherwise much time is typically spent going back and trying to understand these baselines.

**Goals/Products**

The goals of this workshop are:

1. Identify initial organizational measures that beginning organizations can put in place that will help answer ROI questions in the future.
2. If any of these recommended measures do not already have sample measurement constructs associated with them, then define these as applicable.

**Workshop #7: Acquisition Measurement**  
**Facilitator(s): Joe Dean, Electronic Systems Center/Mission Planning Systems**  
**Cheryl Jones, PSM**

***First Session:***

**Date: Wednesday, 20 July**

**Time: 2:15pm - 5:30pm**

***Second Session:***

**Date: Thursday, 21 July**

**Time: 8:30am - 12:00noon**

**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 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 and ICM Table (materials will be posted by 15 July 2005).

**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 not repeat mistakes made by others. This workshop leverages the experience of those "Acquisition Warriors" who have "been there and done that". For the strawman guidance document, developed over the past year, we will discuss additions to the measurement roles and responsibilities tables, and any critical technical comments that require group review.

**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. Measurement is the key to addressing these needs. This workshop will continue development of a measurement Information Need - Measurable Concept - Measures (ICM) table for Acquisition. 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 Air Force Materiel Command to be used by Air Force Program Offices to estimate their expected resources to implement future Air Force programs. This model is being converted to a generic model that will be useful for any acquisition organization. At this workshop, the cost model will be presented. Volunteers will be sought to participate in a pilot.

**Goals/Products**

The goals of this workshop are:

- Discuss critical comments on the Acquisition Measurement Guidance paper.
- Review the draft ICM table and identify practical measures for acquisition projects.
- Solicit volunteers to pilot the cost model.

**Workshop #8: Organizational and Enterprise Measurement**  
**Facilitator(s): Cheryl Jones, US Army, Betsy and Brad Clark, Software Metrics, Inc.**

**Date: Thursday, 21 July**  
**Time: 1:00pm - 5:15pm**

**Prerequisites**

Workshop attendees should have a general understanding of organizational and enterprise measurement requirements and information needs. Previous experience in organizational and enterprise measurement is highly desirable.

**Materials to Bring**

Participants should bring their knowledge of and/or information on organizational and enterprise activities, along with associated lessons learned. Participants should also bring practical examples of organizational or enterprise measures that they have utilized within their organizations.

**Discussion:**

In today's environment, there is a lot of focus on performance management and measurement. While there is a large perceived need in this area, in practice it is often very difficult to generate meaningful organizational and enterprise measures. In this workshop, we will discuss some of the problems and pitfalls, we will brainstorm information needs, and we will discuss potential measures. We will also discuss how to roll-up project level information in meaningful ways, given multiple lower-level measures that may need to be compared. Data normalization and aggregation methods will be discussed and potential issues and recommendations will be identified.

**Goals/Products**

The goals of this workshop are:

- Solicit practical lessons learned and experiences in organizational and enterprise measurement.
- Provide guidance and draft measures that are useful at the organizational and enterprise levels.

**Workshop #9: Security Measurement**

**Facilitator(s): John Murdoch, University of York, UK, Paul Caseley, DSTL UK MoD (tbc)**

***First Session:***

**Date: Wednesday, 20 July**

**Time: 2:15pm - 5:30pm**

***Second Session:***

**Date: Thursday, 21 July**

**Time: 8:30am - 12:00noon**

**Prerequisites:**

Those with experience and/or interest in the measurement of information, software and system security processes are warmly invited. Please review the *Security Measurement White Paper*, available on the PSM website (currently v1.0, to be updated to v2.0 by early July). Awareness of current security measurement/metrics work in DoD, SEI and other sectors would be greatly welcomed.

**Materials to Bring:**

The following would be particularly valuable:

1. comments/thoughts on the work reported in the White Paper;
2. examples of security measures/metrics in use or under development;
3. proposals or ideas for security-related information needs, measures, indicators, and/or measurement strategies.

**Discussion:**

This workshop will review and consolidate work so far (reported in the White Paper) and then consider four topics that have emerged during earlier workshops and in comments received. The objective is to gather as much insight as possible from participants for the next phase of work: These topics are (tbc):

1. information needs in relation to risk tolerance, threat trees and ROSI;
2. representative security base measures, drawn from existing practices, categorized by domain and type;
3. the few key indicators important for security technical management; strawman measurement specifications for a small set of indicators that have been proven in practice or could be trialled;
4. security measurement process design and organizational issues; development of draft practical 'how-to' advice.

The workshop will plan further work, including collaborations with related programs and participation in trials and case studies.

**Goals/Products:**

The products of this workshop are:

1. under the topics discussed, a set of technical recommendations and draft solutions, suitable for subsequent development;
2. a set of actions to take the work further.

**Workshop #10: Revision of IEEE Standard 1044: Classification of Software Anomalies**  
**Facilitator(s): David Card**

**Date: Thursday, 21 July**  
**Time: 8:30am - 12:00noon**

**Prerequisites**

None

**Materials to Bring**

Bring examples of: defect and problem classifications

**Discussion:**

The existing IEEE Standard 1044, Classification of Software Anomalies, is being revised after ten years to better reflect the state of the practice and current issues in software engineering. Potential new topics include security, defect causal analysis, and orthogonal defect classification. Input is sought from the community about the desired direction for the revision of this standard.

**Goals/Products**

The goals of this workshop are: recommendations for the revision of the existing standard.

**Workshop #11: Information Needs for High-Maturity Measurement Survey**  
**Facilitator(s): Dennis Goldenson, Software Engineering Institute**

**Date: Thursday, 21 July**  
**Time: 1:00pm - 5:15pm**

**Prerequisites**

Familiarity with successful high maturity implementations and/or the problems and difficulties faced by measurement practitioners in improving the capability of their measurement processes

**Materials to Bring**

Bring examples of: short descriptions (~2 pages maximum) of successful applications of high maturity practices, summaries of lessons learned, reviews of email or netnews traffic, synopses of published research, descriptions of surveys of related topics, and/or brief written synopses of your own experiences

**Discussion:**

As part of a larger series of needs analysis studies of software measurement practices, the SEI currently is considering fielding a state-of-the-practice survey that focuses on experiences with high maturity measurement. What characterizes high maturity measurement? What does it take to do it successfully? How can we ensure that the results will be used effectively? How can measurement accelerate organizational maturity and process capability?

Members of this group will participate in a modified Delphi structured brainstorming exercise (PSM style) to establish the measurement objectives for the state-of-the-practice survey. In addition to questionnaire content, we will address issues of appropriate sampling and generalizability for such a study.

**Goals/Products**

The goals of this workshop are modest, namely the identification of high level measurement objectives, ideally refined further to facilitate construction of a usable questionnaire and sampling strategy. If successful, we will circulate the survey specs and sampling plan for review, and we will aim to conduct the survey in time to present the results at the Tenth Annual PSM Users' Group Conference in 2006.