



10th Annual Practical Software and Systems Measurement Users' Group Conference

"Performance and Decision Analysis"

July 24-28, 2006

Vail, Colorado

Conference Agenda

The theme of the conference this year is "Performance and Decision Analysis". At the conference this year, you will learn how both organizations and individual programs are implementing measurement and risk management to make decisions within their organizations, and to evaluate and improve their performance through the use of fact-based information.

Monday, July 24, 2006

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

7:00am - 8:30am On-Site Conference Registration (Manor Vail Lodge Lobby)

8:30am - 11:30am **Training:**

PSM One-Day Tutorial (This course is an introduction to PSM for those who are new to PSM or who want a refresher course on the PSM principles and information-driven measurement process.)

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 (Manor Vail Lodge Lobby)

Dinner and Evening Activities on Your Own

Tuesday, July 25, 2006

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

7:00am - 8:30am On-Site Conference Registration (Manor Vail Lodge Lobby)

8:30am - 9:00am

"Conference Welcome", Cheryl Jones, US Army RDECOM

Introductions, Conference Overview, Project Update

9:00am - 9:45am

"The Devil Does Power Point", Keynote Speaker, Rear Admiral (ret.) Kathleen K. Paige, United States Navy

We are honored to feature Rear Admiral Kathleen K. Paige (USN, ret.) as this year's keynote speaker. Her keynote addresses why this statement, "The Devil Does Power Point", is a fundamental truism of life. Using examples from Ballistic Missile Defense, Adm. Paige will talk about a professional life spent seeking practical solutions to real world problems, a journey that sent her chasing down the devil in a myriad of details, finding clues by listening to what the data was trying to tell us.

Rear Admiral (ret.) Paige has over 29 years experience in the development, testing, and sustainment of complex integrated weapon systems, weapon system networks and global ballistic missile defense systems. In her last tour of duty, she served as Program Director, Aegis Ballistic Missile Defense (BMD), the sea-based element of the Ballistic Missile Defense System (BMDS) under development by the Missile Defense Agency (MDA), Commander, Aegis Ballistic Missile Defense, a Naval Sea Systems Command Field Activity, and had additional responsibilities as the MDA Director for Mission Readiness. In previous roles, she served as Chief Engineer, Naval Surface Warfare Center, Port Hueneme Division and Technical Director for the Aegis Program Office.

9:45am - 10:25am

"NAVAIR F/A-18 Measurement", Claire Velicer, NAVAIR, Sharon Juarez, NAVAIR

This presentation addresses how measurement is implemented and used in one of the most successful DoD programs over the last 25 years, the US Navy's F/A-18 attack/fighter. This team has been rated at SW-CMM level 5.

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

10:55am - 11:35am

"Whence DoD Program Success?", Robert Charette, ITAHBI Corporation

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."

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 have to address to be successful in the context of their acquisition, budget, technical, and political environments.

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 instead by analyzing the unique characteristics of successful programs. In this talk, we explore the common characteristics exhibited by successful major DOD programs and discuss how Performance and Decision Analysis based on robust measurement and risk management practices are cornerstones to producing 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?

11:35am - 12:15pm

"Performance and Decision Analysis - The Foundation for Enterprise Success", John McGarry, U.S. Army Armament Research Development and Engineering Center (ARDEC)

Over the past 20 years there have been significant strides in the use of objective information to manage dynamic and complex projects. Very few organizations, however, understand how to define and manage their information resources to make integrated, multi-level performance decisions, decisions that materially impact their ability to achieve defined technical, capability, and financial objectives.

An integrated enterprise-level decision and analysis approach is a key component of corporate and organizational success in today's environment. This presentation addresses the identification, association, and use of objective information in making critical technical and management performance decisions across a multi-project enterprise. It is based on not only a detailed review of a representative base of Department of Defense programs, but also on experience with progressive organizations who have extended and integrated stand-alone information processes and resources into an integrated performance and decision analysis discipline. The presentation focuses on the practicalities of using objective information for making the decisions critical to enterprise 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 both program and enterprise performance, and presents recommendations for making objective information a key component of program and enterprise success.

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

1:15pm - 1:55pm

"Developer Based Sizing", Don Beckett, Quantitative Software Management, Inc.

Software languages, tools, and development methodologies are constantly evolving; a fact that complicates sizing and estimating. The crux of the matter is to identify sizing measures that correlate well with the work that needs to be done – or has been completed. Developer Based Sizing is a method that has team members identify the artifacts they will create when developing a system. These are mapped to the number of elementary units work, implementation units, required to produce them, which in turn constitute the size for estimating. The process is scalable, flexible, and promotes 'buy-in' from the developers. It can also be used to size completed projects to develop a productivity profile. Case studies will be used to illustrate the process.

1:55pm - 2:35pm

"Increasing the Use of Measures by Decreasing Measurement Effort", Mike Ferris, General Dynamics, Canada

The cost benefits of measurement is not always immediately apparent to individuals tasked with implementing a measurement program. The effort associated with data collection, data processing, charting, and analysis can appear formidable, especially as an organization moves toward the use of statistical process control to support CMMI Levels 4 and 5. This can create a barrier to measurement deployment. This presentation will discuss the method that General Dynamics Canada has employed to remove this barrier, specifically the automation of measurement tasks such as collection, processing, and chart creation. The details of a home-grown automation tool will be presented and the results of the deployment of the tool will be discussed.

2:35pm - 3:15pm

"Countrywide Servicing Systems Development Measurement Program Overview", Raymond L. Johnson, Countrywide, Craig Stauffer, Countrywide

Beginning in 2004, Countrywide Financial Corporation's - Countrywide Servicing Systems Division implemented Practical Software Measurement as the foundation for the Certified Key Measurements program. The leadership team determined that the most critical Information Needs were found at the Division level, rather than the individual projects. The PSM Integrated Analysis Model evolved into an Integrated Cause and Effect Analysis Model. The new model enhanced the understanding of the indicators within each of the CSSD-defined "Information Categories". Cause and Effect questions were built into the models, allowing management to gauge the success of IT as a business while providing value to the client.

3:15pm - 3:40pm **PM Break**

3:40pm - 4:20pm

***“SPC in Software Development?Innovation Needed!”*, Diane Manlove, IBM**

The use of statistical process control (SPC) techniques to establish process capability, to identify outliers and opportunities for improvement, and to assess the impact of process changes is as beneficial within software development as it is in a manufacturing environment. However, the implementation of SPC tools such as traditional control charts is far less straightforward for software development. Ingenuity and invention, combined with existing quality tools and the validation of results, are required to successfully implement SPC.

In this presentation the authors will discuss some of the challenges of implementing SPC for software processes, describe several methods for addressing the problems unique to software SPC, and show practical examples of SPC implementation across the software development lifecycle. Other traditional quality tools, such as pareto analysis, which can be used to augment measurement analysis will also be explained.

The real-life examples used to illustrate SPC are from large and complex industry projects developed at IBM Rochester. These examples are drawn from development as well as the maintenance phase of the software lifecycle. Examples of the analysis of process outliers and actual implemented improvement actions will also be provided. The project examples given are based mainly on releases of the operating system of the IBM eServer iSeries. The IBM Rochester iSeries software development process has formally achieved CMM Level 5.

4:20pm - 5:00pm

***“State of Software Measurement Practice Survey”*, Mark Kasunic, Software Engineering Institute**

This presentation will report the results of a survey that was conducted during February, 2006 to understand the state of software measurement practice. The objectives of this survey were to characterize

- the degree to which software practitioners use measurement when conducting their work
- the perceived value of measurement
- approaches that are used to guide how measures are defined and used
- the most common types of measures used by software practitioners

The survey used a randomized sample that was designed for $\pm 2.5\%$ precision with 95% confidence. With over 2,000 respondents, the overall response outcome for this survey was approximately 51%. The sample included representatives from 84 countries. 53% of respondents were from the United States.

Dinner and Evening Activities on Your Own
Wear your PSM Shirt tomorrow (for the conference group picture)

Wednesday, July 26, 2006

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

8:30am - 9:10am

***“Security and Information Assurance in Homeland Defense”*, Nadya Bartol, Booz Allen Hamilton**

The Department of Homeland Security (DHS) Software Assurance Program is collaborating with other agencies and PSM to create an integrated framework for security measurement. The framework will address a variety of stakeholder needs for security measurement within different contexts. The framework will leverage current research, standards, and methodologies, including PSM research into security measurement, NIST information security metrics work, ISO/IEC efforts under the auspices of SC7 (Software and System Engineering) and SC27 (IT Security Techniques), and various capability maturity models.

With the myriad of measures development methodologies available, the DHS approach is to customize existing methodologies or point to useful aspects of those and then focus our attention on integrating these methodologies to provide a coherent measurable picture of software assurance. The importance of measurement for improving software assurance cannot be overstated - measurement will pinpoint specific aspects of the development process that may require improvement, provide insight into which areas of training are lacking, provide information to support decision-making in acquisition, development and operations.

9:10am - 9:50am

“Integrated Measurements for CMMI®” Gary Natwick, Harris Corporation

As organizations move toward the Capability Maturity Model® Integration (CMMI®) requiring the integration of technical and management processes across functional disciplines, the tool suites used to plan, manage, and monitor these integrated processes must also evolve to support them. Harris Corporation is recognized in the industry for developing and delivering assured communications products; however, to advance ourselves in a competitive industry we have to continually improve our overall program performance.

One such example of this is an integrated engineering measurement set to reinforce process deployment, provide effective management oversight, and ensure alignment with organizational business goals. Harris Corporation achieved CMMI® Level 3 and formed an integrated process and measurement foundation for advancing to CMMI® Level 4/5 to develop an integrated measurement set across multiple engineering disciplines (e.g., systems, software, electrical).

This has been implemented with a client/server database tool to collect, analyze and report measurements with control limits across all division projects facilitating workflow management and providing online access for division management oversight. An overview of the measurement definition process, integrated measurement set and database tool will be provided, along with techniques and lessons learned for use by organizations pursuing similar initiatives.

9:50am - 10:30am

“Getting Started with Measuring Your Security”, Michele Moss, Booz Allen Hamilton

Information and systems security issues continue to dominate news headlines and impact our daily lives. Government, professional, and standards organizations increasingly emphasize compliance with security standards. The result is that information security is quickly becoming a business requirement. Systems Engineering Process Measurement is a well-developed field with valuable literature available. This presentation will provide the audience with a practical approach to integrating security measurement into a systems measurement program, ways for overcoming the challenges of measuring security, and a roadmap for moving forward with measuring security practices on their systems projects.

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

11:00am - 11:40am

“Achieving Common Metrics for Multiple Disciplines in a CMMI Environment”, Marie Mueller, Boeing

Marie will describe evolving efforts to achieve commonality of measurement definition and measurement across Boeing Integrated Defense Systems organization, which includes 14 major sites and numerous smaller sites. These combined sites represent work on a diverse range of products from helicopter and aircraft support to satellites and state of the art defense systems. The effort to achieve common measures began with Software Engineering, and with the advent of CMMI, was extended to other Engineering disciplines. But projects come in all shapes and sizes. How can a single metric set fit every need? How do you make a great software metric work for other engineering disciplines? How do you set up tailoring guidelines and still maintain commonality? Focus is on how Boeing IDS found

solutions to a broad range of measurement questions to facilitate commonality in measurements and indicators across a wide variety of sites and projects.

11:40am - 12:20pm

“Consortium for Performance Measurement and Benchmarking”, Mark Kasunic, Software Engineering Institute

The SEI recently has launched a vendor and industry collaboration on standards for benchmarking software project performance. The primary objective of the Performance Benchmarking Consortium is to develop a consistent, meaningful process for collecting, analyzing and disseminating comparative performance benchmarks for software projects.

This presentation will address:

- State of the current practice (measurement definitions and procedures)
- Summary of currently available information on software project performance measurement
- Issues posed by consortium members from industry, vendors/ consultancies, and academia

The discussion will cover:

- What makes a benchmark good and useful?
- What constitutes valid data if you are interested in comparing your range of results with other organizations?
- What aspects of performance need to be measured and how will we go about measuring them?
- Is it possible to use benchmark data from one model in a different context?

12:20pm - 1:00pm

Brief Workshop Introductions by Workshop Leads (5 minutes each)

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

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

2:15pm - 5:30pm

Concurrent Workshops (See workshop chart on page 9 and workshop descriptions starting on page 10)

#1 Using, Improving, and Extending COSYSMO

Facilitators: John Rieff, Raytheon, Garry Roedler, Lockheed Martin

#2 Measurement Program Start-Up and Maintenance

Facilitator: Sheila P. Dennis, David Consulting Group

#3 How to Boost Participation and Enhance the PSM Measurement Specification/Experience Report Libraries on the Web?

Facilitator: Steve Coffman, Paraswift, Inc.

#4 Security Measurement

Facilitator: Cheryl Jones, U.S. Army, John Murdoch, UK

#5 SEI Performance Measurement and Benchmarking

Facilitators: Mark Kasunic, Software Engineering Institute

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

7:00pm ***Cash Bar /Conference Dinner***

Thursday, July 27, 2006

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

8:30am - 12:00pm

Concurrent Workshops (See workshop chart on page 9 and workshop descriptions starting on page 10)

#1 Using, Improving, and Extending COSYSMO (continuation of Wed session)

Facilitator: John Rieff, Raytheon, Garry Roedler, Lockheed Martin

#2 Measurement Program Start-Up and Maintenance (continuation of Wed session)

Facilitator: Sheila P. Dennis, David Consulting Group

#4 Security Measurement (continuation of Wed session)

Facilitator: Cheryl Jones, U.S. Army, John Murdoch, UK

#7 Acquisition Measurement

Facilitators: Joe Dean, Electronic Systems Command/Mission Planning Support Group (ESC/MPSG), Cheryl Jones, US Army

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

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

1:00pm - 5:15pm

Concurrent Workshops (See workshop chart on page 9 and workshop descriptions starting on page 10)

#6 Constructive Network Infrastructure Protection Cost Model (CONIPMO) Delphi Exercise

Facilitator: Donald Reifer, Reifer Consultants, Inc.

#7 Acquisition Measurement (continuation of morning session)

Facilitators: Joe Dean, Electronic Systems Command/Mission Planning Support Group (ESC/MPSG), Cheryl Jones, US Army

#8 Improving and Extending the SE Leading Indicators

Facilitators: Chris Miller, SSCI, Garry Roedler, Lockheed Martin

#9 Defects/Anomalies Estimation and Management

Facilitator(s): John Gaffney, Lockheed Martin, and Chris Miller, SSCI

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

Dinner and Evening Activities on Your Own

Friday, July 28 2006

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

8:30am - 9:10am

"Project Management Decisions Based on Software Measurement Modeling Beyond the Estimate", J. Denton Tarbet, Galorath Incorporated

An effective tool is needed to extract critical project management information from software metrics collected on programs. The requirements of DOD 804, Improvement of Software Acquisition Processes, and the competitive importance of organizational performance dictate fact-based decision making at all levels of a program, or project within the program. Measurement can not be implemented as a Check-the-box process rolled out to satisfy a scheduled review or a process improvement assessment. Software measure must provide real information to support critical project and

organizational business and technical decisions. Measurement results must be effectively communicated and used across the entire program.

This presentation presents an effective tool that has been utilized to derive project management decision information from the software measurement data and convert that information into readily communicated forms with such as “stop light charts” which have been effectively utilized, especially for major programs with multiple project components, risk alternative analysis graphs, and staffing requirements. Maintaining that information on a regular basis provides a continually updated effort and schedule to complete with associated risks. The tool will be demonstrated with examples of project assessment and risk analysis.

9:10am - 9:50am

"Evolution of Software Metrics", Betsy Legg, Tecolote Research, Inc.

A standardized method for counting code is needed throughout the industry. The NRO has adopted the USC code counter for this purpose. In addition, the NRO has adapted the USC code counter into a ‘Diff tool’ to compare program baselines, along with the development of the Software Database to house information from these tools.

Betsy will discuss the need for standardization and the NRO’s approaches for solving this problem, including the USC Code counter, the ‘Diff tool’ and the Software Database. Real examples of charted measurements from the output of these tools will be discussed.

9:50am - 10:15am ***AM Break***

10:15am - 11:45am

Workshop Outbriefs

Each workshop lead will have 10 minutes to summarize the results of their workshop and discuss future goals.

11:45am-12:00noon

"Conference Wrap up Session", Cheryl Jones, US Army RDECOM

PSM Users' Group 2006 Workshop
Descriptions on following pages

Wednesday, 26 July 2:15pm - 5:30pm	Thursday, 27 July 8:30am - 12:00noon	Thursday, 27 July 1:00pm - 5:15pm
COSYSMO (#1)		SE Leading Indicators (#8)
Metrics Program Start-Up and Maintenance (#2)		Defects/Anomalies Estimation and Mgmt (#9)
How to Boost PSM Participation (#3)		CONIPMO (#6)
Security Measurement (#4)		
Measurement and Benchmarking (#5)	Acquisition Measurement (#7)	

Workshop #1: COSYSMO: Current Experience and Beyond
Facilitators: John Rieff, Raytheon, Garry Roedler, Lockheed Martin

First Session:

Date: Wednesday, 26 July

Time: 2:15pm - 5:30pm

Second Session:

Date: Thursday, 27 July

Time: 8:30am - 12:00noon

Prerequisites

- Knowledge of COSYSMO
- Deployment experience with the COSYSMO model
- Knowledge of your organization's needs and techniques for SE cost estimation

Materials to Bring

- Deployment experiences
- Enhancement recommendations
- Deployment Lessons Learned

Discussion:

It has been 1 year since the release of the COSYSMO dissertation and the academic COSYSMO model. Much has happened from the perspective of COSYSMO usage over that period of time. This workshop will explore what has transpired within the development and user communities. Contractors and customers will review their deployment experiences, the highs and lows, and lessons learned. The workshop will review the COSYSMO User's Guide and determine what improvements are needed and what other guidance/support may be needed. The workshop participants will identify model deficiencies they have discovered, improvements that could benefit users, and recommendations on how to resolve/address these deficiencies/improvement opportunities. The workshop participants will develop a set of recommendations for extensions to the COSYSMO model and a roadmap for the COSYSMO evolution. The workshop will also review academic work that has been performed or planned since the release of the first dissertation.

Goals/Products

- Lessons Learned from model deployment
- Recommendations for model improvement
- Recommendations for model extension
- Recommendations for changes to the User's Guide or other documentation
- A Process for communicating problems and future enhancements, including an ongoing user group forum
- COSYSMO Roadmap

Workshop #2: Measurement Program Start-Up and Maintenance
Facilitator: Sheila P. Dennis, David Consulting Group

First Session:

Date: Wednesday, 26 July

Time: 2:15pm - 5:30pm

Second Session:

Date: Thursday, 27 July

Time: 8:30am - 12:00noon

Prerequisites

Target audience is anyone interested in measurement program development, from novices to expert.

Materials to Bring

Writing materials or laptop to record ideas and information.

Discussion:

A Phase-Oriented Approach. Implementing and sustaining a valid, quality measurement program is no small endeavor in the information technology and/or business world of today. Pitfalls and obstacles can be encountered at every phase of a measurement program development and implementation.

However, if an organization is aware of the problems that could arise, necessary strategies can be devised to avoid as many obstacles as possible and overcome the remaining obstacles when they do appear. Use of a standardized measurement methodology, e.g. PSM, can assist in minimizing risk and further the probability of success.

Measurement program evolution will typically follow the same logical phases as found in information system life-cycle methodology: requirements identification and analysis (conception, justification, goals, resource commitments); design (analyzing and choosing measurement methods to support goals); design implementation (collection and analysis mechanisms); program testing (evaluation through a pilot project or limited data collection); and implementation (organizational deployment). Each of these phases has unique issues to be resolved and risks to be addressed, in addition to issues that affect the entire process of evolution.

Key factors will be addressed in each phase of measurement program development with particular emphasis on:

- Building an infrastructure framework that supports problem resolution during development, deployment, and maintenance
- Identifying potential areas of risk and having plans in place to minimize those risks
- Resolving obstacles early in the measurement life-cycle
- Selecting goal-driven, cost effective measures
- Using cost avoidance methods
- Infusing the PSM methodology into the measurement life-cycle

Goals/Products

- White paper or other substantive guidance on this topic
- Incorporating the workshop results and author/presenter's research.

Workshop #3: How to Boost Participation and Enhance the PSM Measurement Specification/Experience Report Libraries on the Web?
Facilitator: Steve Coffman, Paraswift, Inc.

Date: Wednesday, 26 July
Time: 2:15pm - 5:30pm

Prerequisites

- Visit and Review PSM's Sample Measurement Specifications, http://www.psmc.com/Prod_WorksInProgress.asp, in the Products Works in Progress area and the Experience Reports Current Products area, http://www.psmc.com/Prod_Current.asp, of the PSM website
- Experience writing Measurement Specifications and documenting project Lessons Learned will be helpful

Materials to Bring

- Examples of Measurement Specifications and Lessons Learned reports that have been used for your organization
- Examples of contribution based websites you have found particularly useful or have participated in

Discussion

This workshop will work to identify obstacles and potential solutions for developing an enhanced repository of Measurement Specifications and Experience Reports. Questions to be raised will include: What are the criteria for sharing a Measurement Specification (refer to 2005 Workshop #4, Measurement Specification Lite, <http://www.psmc.com/UsersGroup2005.asp> Is there a sufficient PSM community to enable on-line dialog, discussion, and incremental improvements to sample specifications (possibly ones you are currently working to develop or enhance)? Is there value to having partial specifications posted to seek input and feedback from the PSM community? What are the barriers to increased submissions rates? Are there other items which need to be in place to facilitate this exchange of information? (Enhanced Insight sample data, bulletin board capabilities, additional staff commitment) What would the PSM site need to offer to bring you back more frequently to seek examples?

Goals / Products

- Document the participant's actual and desired usage of the PSM web site relating to sharing samples and experience
- For any gaps between the expectations or desired usage and actual usage identify potential solutions. Capture enhanced value, risks, and concerns with solution proposals
- Seek commitment for future participation in pilot and/or rollout of enhancements

Workshop #4: Measurement of Security Processes
Facilitator: Cheryl Jones, U.S. Army, John Murdoch, UK

First Session:

Date: Wednesday, 26 July

Time: 2:15pm - 5:30pm

Second Session:

Date: Thursday, 27 July

Time: 8:30am - 12:00noon

Prerequisites

- All with experience or interest in the use of measurement in the development and/or operation of secure systems are warmly invited. Past work of the TWG is captured in (1) a Security Measurement White Paper v3.0, available on the PSM website, and (2) the current version of the security measurement ICM Table. This is being updated and will be distributed before the Workshop.
Within the last year, Working Group meetings have been held additionally under the DHS NCSD SW Assurance program, and collaboration has been established with the Measurement Working Group of ISSEA.
- Awareness/knowledge of other security-related measurement work would be greatly welcomed

Materials to Bring

- Those with security measurement or management experience are invited to share their experiences of particular security measures
- Practical examples of useful measures are invited

Discussion

- Review progress at DHS NCSD SW Assurance meetings (up to 19th July)
- Overview of work of the ISSEA MWG, including in connection with ISO/IEC 27004
- Review of PSM security ICM Table and development
- Review relationships between areas of measurement application:
 - software, hardware, system development
 - Information security, organization, management
 - Internet/ cybersecurity
 - Product assessment/ Common Criteria
 - ROI
 - Capability maturity / process models
 - Planning future development

Goals/Products

- To bring the security ICM Table to a stable, publishable form (v1.0)
- To enable wider review
- Updated plan of action for maturing measurement proposals and their take-up

Workshop #5: SEI Performance Measurement and Benchmarking
Facilitators: Mark Kasunic, SEI

Date: Wednesday, 26 July
Time: 2:15pm - 5:30pm

Prerequisites

None

Materials to Bring

- List of measures, and their definitions, that your organization uses for project estimation (those historically measured and factors rated for cost model purposes)
- List of measures, and their definitions, actually collected by your organization for project management purposes
- List of measures, and their definitions, used for project performance evaluation
- List of benchmarking studies that your organization participates in (internal or external)

Discussion:

- Participants complete a questionnaire on measurement practices and definitions in their organization (used for measurement and estimation) and discuss comparative results. These are based on the materials that participants bring in preparation for the workshop. These responses will be compiled and a summary report will be provided to participants.

Factors	Rating	Used for		Definition
		Measurement	Estimation	
	1-5			

- Participants discuss benchmarking activities that they are currently engaged in and reasons for benchmarking

Goals/Products:

- Participants gain insight into variation and commonalities of measurement practice and use, especially as it relates to project performance benchmarking.
- Participants learn about and contribute to SEI activities in this area.

Workshop #6: Constructive Network Infrastructure Protection Cost Model (CONIPMO)
Facilitator(s): Donald J. Reifer, Reifer Consultants

Date: Thursday, 27 July
Time: 1:00pm - 5:15pm

Prerequisites

Some understanding of how network defenses are mounted and how defense-in-depth for net-centric systems is mechanized using current and state-of-the-art techniques.

Materials to Bring

Some knowledge of the COCOMO estimation models would be useful. Those who have participated in previous CONIPMO development activities are encouraged to bring copies of their completed Delphi questionnaires plus an open mind.

Discussion:

CONIPMO is an acronym for Constructive Network Infrastructure Protection cost Model. This model is being developed to accurately estimate the engineering effort needed to mount an acceptable defense for network-based systems. Such defenses use COTS products like Intrusion Detection Systems (IDS), proxy servers, DMZ's and firewalls to protect the network infrastructure against both disruption (Denial of Service (DoS) attacks, Trojans, worms, etc.) and exploitation (reverse engineering, tampering, etc.) attempts.

The CONIPMO model builds on concepts that are used in the COSYSMO model developed by Dr. Barry Boehm at the University of Southern California for estimation of systems engineering cost. For example, size is a function of requirements and several other parameters (operational scenarios (e.g., security test and accreditation), false alarm rates, etc.), not source lines of code.

The CONIPMO model addresses those Security Engineering tasks called out in the Security and/or Program Protection Plans per the ISO/IEC 15288 system life cycle standard. The current emphasis of the CONIPMO development addresses only the early phases of the life cycle. Future versions will address later phases of this life cycle.

Goals/Products

The goals for this workshop are:

- Define and develop size constructs for network defense
- Complete the CONIPMO Phase I Delphi exercise
- Firm up the model/framework
- Calibrate cost drivers via expert inputs\
- Solicit inputs and update model based on expert opinions

The products of this workshop are anticipated to be the following:

- Commitment of participants to provide Delphi inputs \
- Plan of action and milestones for firming up the model
- Volunteer organization to provide initial data for calibrating model parameters

Workshop #7: Acquisition Measurement
Facilitator(s): Joe Dean, Tecolote Research, Inc., Cheryl Jones, US Army

Date: Thursday, 27 July
Time: 8:30am - 5:15pm

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 will be posted by 15 July 2006).

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 and/or a list of 3-7 acquisition measures they believe would be most useful.

Discussion:

This workshop will continue work on general acquisition measurement guidance, a recommended ICM table, a WBS and cost model for acquisition organizations, and specifications for measures to be applied to acquisition organizations. The primary focus will be on the Acquisition ICM Table and Measures.

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 questions on the draft guidance document and incorporate remaining comments, as appropriate.

Acquisition ICM Table and Measures

An Acquisition Organization needs to understand the progress, quality, and effectiveness of its products and processes and adequacy of its resources at any given time in the acquisition process. Measurement is the key to addressing these needs. This workshop will continue work on an Information Need - Measurable Concept - Measures (ICM) table that focuses on key acquisition information needs. Initial acquisition measurement specifications will be developed and reviewed, and volunteers identified to create additional sample specifications.

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 discussed and finalized.

Goals/Products

The goals of this workshop are to:

- Develop the draft I-C-M table and identify practical measures for acquisition projects.
- Specify key acquisition measures identified in the I-C-M table.
- Discuss questions and incorporate comments on the acquisition measurement guidance document (body).
- Finalize the acquisition services WBS and cost model.

Workshop #8: Improving and Extending the SE Leading Indicators
Facilitators: Chris Miller, SSCI, Garry Roedler, Lockheed Martin

Date: Thursday, 27 July
Time: 1:00pm - 5:15pm

Prerequisites:

- Knowledge of systems engineering
- Experience with measures for systems engineering
- Read the, “The Systems Engineering Leading Indicators Guide Beta Release”

Materials to Bring:

- Participants may want to bring a copy of The Systems Engineering Leading Indicators Guide Beta Release (available for download at: (http://lean.mit.edu/index.php?option=com_docman&task=cat_view&Itemid=0&gid=194) for their own reference.
- Draft input for any changes or new indicators

Discussion:

The Systems Engineering Leading Indicators Guide was released as a beta release on December 12, 2005. This effort is now conducting pilots to validate the technical content of this guide. The guide contains 13 leading indicators covering five generic life cycle phases. We are in search of several major aerospace or defense contractors to participate in a six month pilot of the leading indicators on programs at their facilities. The purpose of the piloting activity is to investigate the validity of the leading indicators, gain an understanding of the degree of tailoring necessary for broad deployment, capture challenges associated with implementation of the indicators, and identify any additional indicators that have been used successfully in industry. In addition, the project is looking for any other feedback for SE measurement practitioners on the set of indicators.

The purpose of this workshop is to briefly review the contents of the beta guide, review analysis and feedback for the indicators, and review piloting activities/progress. The majority of the workshop time will be spent sharing lessons learned on measuring systems engineering leading indicators, identifying additional pilot projects, and drafting a pilot feedback form.

Goals/Products:

- Lesson learned from use of the indicators
- Recommendations for changes/additions to the guide
- Recommendations to the piloting procedure
- Pilot data collection form
- Identification of additional candidate pilot organizations

Workshop #9: Defects/Anomalies Estimation and Management Workshop
Facilitators: John Gaffney, Lockheed Martin and Chris Miller, SSCI

Date: Thursday, 27 July
Time: 1:00pm - 5:15pm

Prerequisites

Knowledge about and interest in defects/anomalies in software and/or systems (including hardware). It is desirable that attendees are interested in obtaining and using measures and indicators, such as the number of defects discovered in inspections and tests in order to improve both their software and systems development processes and to be able to establish goals for and manage toward the realization of such measures as latent defect content (i.e., number of defect in a delivered product) and reliability.

Materials to Bring

Data and/or experience information and/or company or organizational experience in setting goals for defect discovery in development and sustainment projects and for estimating/project defects during such projects. It would helpful if workshop participants share their experience and techniques for estimating defects, procedures for establishing defect-related goals and managing to them. Above all, bring interest and experience, and yes, questions that you have and are willing to share.

Discussion:

It is desirable that attendees are interested in obtaining and using measures and indicators such as the number of defects discovered in inspections and tests in order to improve both their software and systems development process and to be able to establish goals for and manage toward the realization of such measures as latent defect objectives (i.e., number of defect in a delivered product) and reliability. We might try to answer questions such as:

- Do you set goals for defect discovery rates and related measures such as latent defect rates and number of escapes? If you do, what drives the selection of the goals, process improvement objectives, customer requirements, or what?
- Do you use mathematical techniques for defect estimation and projection? If so, what are they? If so, are these techniques imbedded in a tool, and if so, what tool?
- Where do you see defect estimation techniques and the like going in the future? Do you perceive a business need driving their (increasing?) use or not?

Goals/Products

Share experience and data if possible. Document some sense of use and practice in defect/anomaly management, including setting goals, tracking/estimating, and taking action. Also, document perceived need for improvements in defect modeling, management of defects, and related matters.