



**7th Annual Practical Software and Systems
Measurement Users' Group Conference**
"Making Measurement Work throughout the Enterprise"
July 14-18, 2003
Keystone, Colorado

CONFERENCE AGENDA

Monday, July 14, 2003

7:00am - 8:30am Continental Breakfast

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

8:30am - 11:30am Concurrent Training:

PSM One-Day Tutorial (This course is an introduction to PSM for those with little or no prior PSM experience).

PSM Qualified Trainers Refresher Training (PSM, Version 5.0d for those trainers who had v4.x TTT course)

10:00am -10:30am AM Break

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

1:00pm - 5:00pm Concurrent Training - both sessions (***cont***)

1:00pm - 3:30pm ***Measurement Specifications Workshop***
This workshop is for existing trainers and other interested parties. This session is aimed at getting all participants on the same 'playing field' in terms of the intent of the guidelines. We will discuss the purpose and use of each of the required identifiers and how to generate a measurement specification, as defined in the PSM guidance.

2:30pm - 2:45pm PM Break

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

Dinner and Evening Activities on Your Own

Tuesday, July 15, 2003

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

7:00am - 8:30am Continental Breakfast

8:30am - 9:00am ***"Conference Welcome", Cheryl Jones, PSM Project Manager, TACOM - ARDEC***
Introductions, Conference Overview, Project Update

- 9:00am - 9:45am ***“Balanced Scorecard in the Federal Government”, Keynote Speaker, James B. Whittaker, (Retired) Rear Admiral, President, The Whittaker Group***
 James will discuss BSC in the light of government performance measurement requirements, considering how this may be the time for BSC to make a difference in the government. Organizations use measurement for different reasons. The focus in the federal government for many years has been in the measurement of funds both obligations and commitments. We get our funds late and we spend them quickly under the scrutiny of many layers of supervision. The private sector was told ten years ago that the world was too competitive to just focus solely on making money. They had to have a broader focus. The government message was theoretically changed via GPRA. The focus was to put emphasis on outcomes, impacts, and results, however, little change was seen in many federal organizations. This time may be different. With the PMA focusing in five areas and with a budget process that will reward change, we just might have it right this time. Mission matters, not just spending dollars.
- 9:45am - 10:15am ***“Implementing a Performance Measurement System at Texas Guaranteed”, Phil Flora, Texas Guaranteed Loan Corporation***
 This session will entail a discussion/review of the basis for the system, challenges, lessons learned, and how TG works on a continuous basis to improve the system.
- 10:15am - 10:45am AM Break
- 10:45am - 11:15am ***“Practical Experience in Developing a CMMI Based Measurement Program”, George Georgaras, General Dynamics Canada, and Bob MacIver, Software Productivity Consortium***
 Practical experience and lessons learned in how General Dynamics Canada used PSM to plan and begin implementation of a CMMI based measurement program by focusing it from the top of the organization. The presentation will discuss how management is involved, how they developed the measurement plan and organization, and experiences with defining and implementing the chosen measures using PSM’s guidelines.
- 11:15am - 11:30am ***“Software Acquisition Process Improvement Program (SAPIP)”, Cheryl Jones, US Army TACOM - ARDEC***
 This presentation will provide a brief overview of the new initiative to address performance management and measurement within the DoD. This initiative is based on the new 804 performance management language of the Defense Appropriations bill, along with the DoD requirements to improve software acquisition.
- 11:30am - 12:00noon ***“Multi-Billion Dollar Software Intensive Defence Project on Schedule? Impossible? Not at All. Discover PSM’s Vital Roll in Achieving Success”, Stuart Garrett, Australian Department of Defence***
 Stuart and Tim will present a project that Boeing is developing for the Australian Department of Defence. The presentation will be a joint effort by the Project Office and Boeing and will address the selection, implementation and use of software measures on the AEW&C Project.

12:00noon - 1:00pm *Lunch provided*

1:00pm - 1:30pm ***“Practical Measurement in the IBM Rational Unified Process”, Doug Ishigaki, IBM Rational Software, and John Riedener, US Army TACOM-ARDEC***

The Practical Software and Systems Measurement (PSM) Initiative and the Rational Unified Process® are two existing process frameworks that explain the measurement process. The PSM Initiative is a team of government, industry, and academia that was formed to bring together and promote the best practices of software and system measurement. The Rational Unified Process (RUP®) is a process platform that contains a process framework of best practices for iterative, incremental, software and systems development. Together they can be used to implement an effective measurement process. This presentation will show how PSM and RUP can work together to provide a coherent measurement process.

1:30pm - 2:00pm ***“Setting the Foundation for Objective Program Oversight and Informed Decision Making”, Kevin Richins, DD(X) Software Engineering Manager***

The US Navy’s Zumwalt Class Destroyer, DD(X), may very well be the largest software development and acquisition program in the history of the Department of Defense (~25M SLOC). DD(X) has utilized the principles, process, and methods of PSM to identify and specify critical technical and management measures which allows DD(X) management to gain valuable insight into program performance and make objective, informed decisions. The PSM principles and process, as well as the Measurement Information Model (MIM) form the basis for the DD(X) Software Tracking and Oversight Process. This presentation will 1) outline the DD(X) measurement program, 2) highlight the impact of PSM principles, the process and Measurement Information Model (MIM), and 3) show how a measurement program utilizing PSM can support the management of a large, mission-critical, high-risk software engineering effort.

2:00pm - 2:30pm ***“Enterprise Deployment of PSM and CMMI Measurement Process”, Lou M. Coelho, General Dynamics Advanced Information Systems***

General Dynamics Advanced Information Systems (GDAIS) established a measurement and analysis process composed of a policy, procedure, and instruction together with various templates to institutionalize a culture of measurement and data driven process improvement. The presentation focuses on actual practices (good and bad) and highlights our measurement and analysis process along with examples of measurement specifications for areas ranging from program management and engineering to human resources and quality.

- 2:30pm - 3:00pm ***“Using The CMMI To Improve Contract Management Within DCMA”, Guy Mercurio, DCMA***
The Defense Contract Management Agency (DCMA) is the Department of Defense (DoD) component that works directly with Defense suppliers to help ensure that DoD, Federal, and allied government supplies and services are delivered on time, at projected cost, and meet all performance requirements. DCMA, in collaboration with the Software Engineering Institute (SEI), the Software Productivity Consortium (SPC) and the Office of the Secretary of Defense (OSD), is piloting and evaluating the use of CMMI to improve its Contract Management Services. Guy will update attendees on the status.
- 3:00pm - 3:30pm PM Break
- 3:30pm - 3:45pm ***“System-of-Systems Measurement”, Rob Flowe, Defense Acquisition University (DAU)***
Rob will discuss ongoing DAU-sponsored research dealing with identifying the sources and drivers of cost, schedule, and acquisition risk in system-of-systems acquisitions. The premise of the research is that acquisition of system-of-systems changes the nature of the effort from primarily one of development to one of systems integration. The researchers hypothesize that systems integration is substantially different from systems development and may require new measurement approaches to obtain the necessary insight to predict and manage acquisition outcomes.
- 3:45pm - 4:15pm ***“Ten Secrets of Measurement”, Betsy Clark, Software Metrics, Inc.***
This presentation covers ten “secrets” that, in Betsy’s experience, have turned out to be major determinants of success or failure in implementing an effective measurement program. Betsy calls them “secrets” because most were not obvious at the beginning. It was only in looking back and trying to understand patterns of success and failure that their importance became clear.
- 4:15pm - 4:45pm ***“The Estimation of the Reliability of a Large Tactical Information System”, John Gaffney, Lockheed Martin***
Lockheed Martin, Mission Systems has developed the Tactical Information Segment (TIS), a software intensive system that gives the Navy the capability to digitally receive and process reconnaissance imagery from multiple sensor platforms. TIS has been installed aboard the aircraft carrier, *USS Nimitz*. Utah State University’s Space Dynamics Laboratory (SDL) was a partner in the development of TIS. John will discuss the quality parameter estimation methodology employed on this project, which is based upon extensive experience at Lockheed Martin, Mission Systems, and other heritage IBM organizations that are now part of the Lockheed Martin Corporation.

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

Wednesday, July 16, 2003

- 7:00am - 8:30am Continental Breakfast
- 8:30am - 9:15am ***“The Business Case for Agile Methods/Extreme Programming”,
Keynote Speaker, Don Reifer, Reifer Consultants, Inc.***
This presentation will summarize the results of a two-year effort undertaken to understand when and under what conditions it makes sense to use agile methods/extreme programming practices within software production shops. The pitch starts by reviewing the demographics of the “hard data” collected from 16 firms involving 78 projects in 12 different application domains and concludes with a question and answer session.
- 9:15am - 9:45am ***“COSYSMO: Constructive Systems Engineering Cost Model”, Dr. Barry Boehm, University of Southern California***
Building on the synergy between Systems Engineering and Software Engineering, the Center for Software Engineering (CSE) at the University of Southern California (USC), is in the process of developing a parametric model to estimate Systems Engineering costs. The goal of this model, called COSYSMO (Constructive Systems Engineering Cost Model), is to more accurately estimate the time and effort associated with performing the system engineering tasks defined by ISO/IEC 15288. This presentation outlines the work accomplished thus far by USC, in collaboration with its corporate affiliates, to develop the initial version of COSYSMO. The presentation describes the development of the model, explains both its size and cost drivers, and outlines future steps that need to be taken to guarantee COSYSMO’s successful adoption.
- 9:45am - 10:00am ***“Safety and Security”, Paul Caseley, UK MOD***
For PSM to be truly a system process measurement framework it needs practical examples of measurement programs other than those based on software. An area being investigated is that of safety and the related discipline of security. This presentation reports on the results of a number of experimental safety process measurement programs including one where two separate companies carried out independent safety analysis up to Preliminary Hazard Analysis for the same system requirement
- 10:00am - 10:30am AM Break - Group Picture outside of Conference Center (wear your shirt)
- 10:30am - 11:00am ***“Systemic Analysis of SIS Acquisition Issues (Tri-Service Assessment Initiative Phase 2 Results)”, John McGarry, US Army TACOM-ARDEC***
The Department of Defense (DoD) faces complex technical and management issues across its program base. Forty-Nine percent of its new projects are delivered late or over budget, and 23 percent are canceled before completion. To help address the overall performance problem, the DoD has implemented an integrated program

assessment and analysis process under the Tri-Service Assessment Initiative (TAI). TAI is a Tri-Service endorsed initiative that provides DoD Program Managers with independent, objective assessments of their software intensive systems, and provides a basis for both immediate and long-term performance improvements to the individual programs. An integral part of the overall TAI initiative is the Systemic Analysis of issues and performance trends that occur across all of the assessed programs. This “cross program” analysis provides unique and quantitative insight into recurring technical and management issues, and provides both DoD Program and Enterprise managers with the objective information they require to make critical trade-off and policy decisions. This presentation will provide a summary of the results of the “Phase 2” TAI Systemic Analysis. It will address performance issues that are found most often in DoD programs, which issues are causes and which ones are symptoms of performance shortfalls, an in-depth review of program performance related to process capability, systems engineering, organizational management, and system testing, future acquisition and technical-related risks, and possible performance improvement approaches

- 11:00am - 11:30am ***"What Ever Happened to Process Capability?" Robert Charette, ITABHI Corporation and Laura Dwinnell, Northrop Grumman IT***
A recent analysis by the Tri-Service Assessment Initiative across a number of DoD programs identifies process performance shortfalls as a primary factor in the inability of a software intensive system (SIS) program to meet its acquisition objectives and technical requirements. The analysis shows that nine out of ten DoD SIS programs are likely to have technical and/or management process performance issues that are materially impacting their ability to deliver an effective system within established acquisition parameters. This presentation will explore the types of process performance shortfalls encountered, with special emphasis given to the problem of inadequate process capability plaguing SIS programs today. Some possible solutions will be offered for audience discussion.

11:30am - 12:00noon ***Workshop Introductions***

12:00noon - 1:30pm ***Lunch on your own***

1:30pm - 5:00pm ***4 Concurrent Workshops***

2:45pm - 3:00pm PM Break

7:00pm Conference Dinner / Cash Bar at the Kickapoo Tavern, River Run Village

Thursday, July 17, 2003

7:00am - 8:30am Continental Breakfast

8:30am - 12:00pm ***5 Concurrent Workshops***

10:00am - 10:15am AM Break

12:00pm - 1:00pm Lunch Provided

1:00pm - 4:30pm **6 Concurrent Workshops**

3:00 pm - 3:30pm PM Break

Dinner and Evening Activities on Your Own

Friday, July 18 2003

7:00am - 8:30am Continental Breakfast

8:30am-9:00am ***“Technical Measurement Project Results”, Garry Roedler, Lockheed Martin***

This presentation will provide a summary of the results from the Technical Measurement Project. It will discuss approach of the project, resources used, assumptions and conclusions made, and provide examples of system engineering technical measures.

9:00am-9:30am ***“Cost-Effective Process Modeling & Simulation Using the Balanced Scorecard & Raytheon Six Sigma Methodology”, Dr. Aaron N. Silver, Raytheon***

The development and deployment of Cost-Effective Process Simulation Models comprising Programmatic (cost, schedule, size, effort, complexity, and risk), as well as Performance Parameters (defects and defect density/containment), Quality Attributes (reliability, maintainability, dependability, survivability, portability, etc.), and Computer Science (cyclomatic complexity, unique & common operands and operators, etc.) entities are described within the context of a “Raytheon Six Sigma” operational environment. Dr. Aaron Silver will discuss this environment

Unable to attend:

“Systems Engineering Measurement: Acquisition Measures for the Pre-Contract Award Time Frame”, Rita Creel, Aerospace Corporation

The activities performed prior to contract award form the foundation on which a program is built. As such, these activities and artifacts have a major impact on program success. In today’s complex and evolving environment, these characteristics are difficult to achieve because a well-defined set of measures does not exist for the pre-contract award time frame. This presentation will discuss a research effort focused on characterizing and improving the acquirer’s products and processes in the pre-contract award time frame. The approach for the research is based on the Practical Software and Systems Measurement (PSM) Process. It will also discuss near-term goals - directed toward identifying, selecting, and defining measures - and the work accomplished to date.

10:00am - 10:15am AM Break

9:30am - 12:00noon ***Workshop Outbriefs***

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

12:00noon - 12:15pm ***Conference Wrap up Session***, Cheryl Jones, US Army TACOM-ARDEC

PSM (Concurrent) Workshops

Users' Group Conference 2003

(See Workshop descriptions.doc for more details)

| Wednesday, July 16 1:30pm - 5:00pm | Thursday, July 17 8:30am - 12:00noon | Thursday, July 17 1:00pm - 4:30pm |
|---|---|--|
| COSYSMO WORKSHOP (#1) | | |
| | System-of-Systems Measurement (#5) | |
| Software Product Quality Modeling (#2) | | Measurement of Safety and Security Processes (#9) |
| | Interpreting Measurement and Analysis in CMMI (#7) | Measurement Specifications (#6) |
| Software Acquisition PI Program (#3) | Acquisition Measurement (#8) | |
| TAI Architecture (#4) | | |