

COSYSMO Workshop Summary/Meeting Minutes
8th Annual Practical Software and Systems Measurement Users' Group Conference
Keystone, CO July 28-29, 2004

Facilitators: Ricardo Valerdi (USC), Chris Miller (SPC), Gary Thomas (Raytheon),
Barry Boehm (USC), Jo Ann Lane (USC)

Attendees: John Rieff (Raytheon), Vicki Love (Raytheon), Sandra Chivers
(Raytheon), Merrill Palmer (BAE Systems), Donovan Dockery (BAE
Systems), Gan Wang (BAE Systems), Ali Nikolai (SAIC), Marilee Wheaton
(Aerospace), Greg DiBenedetto (Northrop Grumman), Louise Hardin
(Northrop Grumman), Evin Stump (Galorath Inc), Brooke Eiche (LMCO),
Susie Stauffer (LMCO), Rick Edison (LMCO), Garry Roedler (LMCO), Shane
Smith (LMCO), Willie Williams (Boeing), Les Lilliman (CIA), Tim
Pridgen (General Dynamics), Robert Factor (General Dynamics), Paul Frenz
(General Dynamics), David Seaver (PRICE)

All references to slide numbers are from the following file unless otherwise noted:
COSYSMO PSM 7-28-04 workshop.ppt (available on the CD that was distributed during
the workshop).

Objectives of the workshop:

- Define & develop constructs for SE size measures in COSYSMO
- Complete COSYSMO Delphi Round 3
- Evaluate the myCOSYSMO tool via case studies
- Perform a first cut on COSOSIMO drivers

Size Drivers (facilitated by Chris Miller)

Chris Miller facilitated discussions to review and update candidate entities (attributes) for
each of the COSYSMO size drivers. The following changes were made to the draft
descriptions:

1. Requirements: Candidate Entities comments:
 - a. Add “shalls and wills” to “shall”
 - b. Add new sources:
 - i. Internal functional requirements document (# of statements)
 - ii. Tool output such as DOORS, QFD, etc.
 - iii. Add SRs/DRs for operational environment changes
 - c. Consider “shoulds” and “mays” for some cases
2. Interfaces: Candidate Entities comments:
 - a. Add new sources:
 - i. Specification block diagram from the system specification (arrows)
 - ii. Specification tree (branches)
3. Critical Algorithms: Candidate Entities comments:
 - a. Add new sources

- i. Historical database (# of algorithms)
 - ii. Risk analysis (algorithm related risks)
 - iii. Subsystem description documents
- 4. Operational Scenarios: Candidate Entities comments
 - a. Add new sources
 - i. Engagement/mission/campaign models (scenarios)
 - b. Change the OV's to "Ovx", the SV's to "SVx", and the AV's to "AVx"

Level of Granularity for Requirements and Use Cases (facilitated by Barry Boehm)

Barry presented information on levels of use cases by A. Cockburn (*Writing Effective Use Cases*) and recommended that data on number of requirements and number of use cases be at level 3 (sea level) for COSYSMO.

ACTION ITEM (John Rieff, Garry Roedler, Barry Boehm): Requirement/use case levels to be analyzed in terms of System-of-Interest Diagram.

ACTION ITEM: COSYSMO team to develop additional examples for evaluation. (Ricardo is looking for volunteers—Jo Ann, Chris Miller, Don Greenlee, Marilee Wheaton)

COSYSMO Delphi Survey (facilitated by Ricardo Valerdi)

Ricardo stated that the following changes needed to be made on the survey form for Technology Risk:

- a. For Level and Maturity and Lack of Readiness, reverse the Very Low and Very High previous values
- b. For Obsolescence, change 0.68 to 1.32.

Model formula suggestion from audience: Add parentheses around the "w" terms and also add a "k" subscript on the summation terms.

Number of system requirements: Should "precedentedness" be one of the "easy, nominal, difficult" discriminators? Does "poorly specified" belong in description? Need to better distinguish between "number of requirements" and level of "requirements understanding" cost driver. Should we include a factor/view point for type of life cycle process (e.g., spiral)? Should redefine # of requirements as to "simple to implement, nominal implementation, difficult to implement" – this clarification should reduce overlap with requirements understanding. Need to clarify that system requirements includes interface requirements (and that number of interfaces adds additional effort for interface requirements).

Number of interfaces: Need to clarify "major" interfaces. Suggestions:

- Change the word "major" to "system".
- **Action Item:** Clarify external and internal interfaces. G. Roedler suggested the following terms: "external to the system of interest" and internal interfaces

should include those at one level below the system of interest. (Ricardo to draft and send out for review). To look at Standards e.g., IEEE.

- Delete “well defined”/”ill-defined” row in definition.
- Add another row to definition for complexity.

Should number of interfaces include number/types/complexity of each type of messages transmitted?

Critical algorithms: Need to clarify that this is effort in addition to that in the requirements count. Other suggestions:

- Drop the term “critical” and replace with “system-specific”
- Drop the first row of description

Action Item: Need to revisit the definition of the algorithms size driver, especially the easy column. Working group formed to develop recommendations: Donovan Dockery, Willie Williams, and Gan Wang.

Operational scenarios: Considerable discussion on use cases and test cases.

Action Item: Barry Boehm to propose another row to address the number of threads that make up an end-to-end use case and update the overall definition of this driver.

Attendees to provide comments on B. Boehm’s proposed changes.

Action Item: Discuss status of the Delphi survey and discuss whether or not to split out different view points on each cost driver.

MyCOSYSMO Review (facilitated by Gary Thomas)

Demo conducted using Albatross version of the Raytheon tool. Due to time constraints, case studies not completed.

Action Item: All attendees to go through case studies and provide comments back to Gary.

COSOSIMO Delphi Survey (facilitated by Jo Ann Lane)

Action Item:: Lane to send out COSOSIMO survey electronically to all workshop attendees. Attendees to get appropriate people in their organizations to fill out and return. If multiple people in an organization participate on a single response, each response should indicate number of participants.

The next COSYSMO meeting will take place during the COCOMOII Workshop on Thursday October 28, 2004 at USC in conjunction with the 19th Annual Forum on COCOMO and Software Cost Modeling.