

## COSYSMO Workshop – 26-27 July 2006

### COSYSMO Usability Survey (Chris Miller)

- Investigating User perceptions of the COSYSMO results
  - Will decision makers trust and use the data
  - Will look at both inputs to and outputs from COSYSMO
  - Requested feedback on the clarity of the questions and the time it takes to complete – provide any ideas to improve the survey
    - Feedback needed August 7

### Addressing Reuse (Garry Roedler)

- Most programs in the current environment have some level of reuse – need to address reuse
- Consensus that each of the size elements could have potential reuse
- Established an approach and candidate formulas – see diagrams
- Cost drivers may also be influenced by the amount of reuse – more reuse could change the assessment of the cost driver
  - Need to provide guidance on how the reuse can impact the cost drivers
  - Could impact Requirements Understanding, Architecture Understanding, Personnel Experience/Continuity, Documentation, Migration Complexity, and Personnel/Team Capability

### Risk Extensions (John Gaffney)

- Presented overview and progress on development of Risk Extensions for COSYSMO
- Being developed by Lockheed Martin
  - Extensions and adjusted model to be made available to COSYSMO project
- Focused on addressing uncertainty (risk) that is inherent in the estimate
  - Uncertainty is represented as 3-point values; probabilistic range estimates of effort/cost and schedule
- Consensus that this will provide valuable insight and what-if capability by addressing variables to get to an acceptable risk level
- Requested workshop attendees to provide feedback regarding changes or improvements
- Schedule
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  - First released version expected by end of 2006

### Process for Communication / User Forum

- Representative from each company/business
- Website / Email
- Face-to-face meetings
  - USC Forums
  - PSM
  - INCOSE

- CSER –
- SSCAG?
- “Voting” Methodology
- Submission of recommendations

#### Deployment Experiences

- Lockheed Martin
  - Usage
    - Multiple pilot/validation projects across business units
      - Turned up data collection to allow local calibration
    - Central focus through the SE Council
    - Currently, only promoting use as a second opinion
    - Conducted joint training session of pilot project personnel with L3 Comm
  - Extending to address LMC needs
    - Working on risk extensions, effort distribution, and calibration techniques
  - Lessons Learned
    - Need to get the team on the same page and understanding of the model
    - Probably need to calibrate by key project types
    - Helps to have a central expert to work with projects to ensure consistency
    - Tailor the data collection sheet to better reflect business understanding (terminology, annotations, etc.)
  - Obstacles
    - Data collection for joint programs (with other companies)
    - Limited data granularity of SE effort on completed projects
  - Deficiencies
    - Ability to address reuse
    - Ability to do effort distribution
    - Lack of schedule compression insight
    - Ability to estimate a partial set of the SE activities
    - Ability to address a range of estimates based on risk
    - Ability to allow user defined number of hours in a person month
- Raytheon
  - Added 12 data points from multiple business units
  - Company-wide funding provided to support COSYSMO deployment
    - Enhanced SE Cost tool (includes Monte Carlo)
    - Supported with training and CCB
    - Working towards collection of necessary effort data through the labor data collection system – other data also being collected for all new programs
  - Primarily used for second opinions – only used once for primary

- Readiness criteria scorecard to evaluate readiness to use COSYSMO (# of data points, training, specialist support, DCAA briefings)
    - Learning to use at Mission System Integrator level
  - Obstacles
    - Other locations/business units having difficulty getting the data collection underway
  - Observed deficiencies
    - Does not address schedule compression – may need multiple anchor points
    - No exponent calibration process
    - Lack of clear definitions of complexity factors (easy, nominal, difficult)
    - Ability to estimate a partial life cycle
- Aerospace, Tecelote
  - Just tracking the other company efforts at this point
- L3 Comm
  - Some pilot work started
  - Mapping COSYSMO activities/tasks (and EIA 632) to internal WBS structure and programs
  - Need to improve COSYSMO calibration capability
- Boeing
  - Mapped COSYSMO activities/tasks to internal processes
  - Started data collections – tasked multiple sites – enterprise wide effort
  - Parallel effort to support internal estimation and COSYSMO
  - Validation period after data collection received from sites
- Other
  - Significant efforts in BAE and GD
  - Some orgs have successfully revised their information and labor data collection systems to require collection of data needed by COSYSMO

#### SystemStar

- Demonstration provided for SystemStar and Calico (calibration tool)
- Tool is now available

#### Review of Users Manual

- Group was provided the latest version of the users manual to review over night
- Conducted a walk-through of the document and captured comments and recommended changes
  - Got through more than half of the manual with detailed comments

#### COSYSMO Website Architecture and Content

- Bulletin Board (can subscribe for periodic changes)
- Library of COSYSMO related documentation
- Links to related information
- Tools implementing COSYSMO

- Calendar - Events
- Ask Dr. COSYSMO (with a picture of Ricardo)
- Private Email list – Who's Who
- Registration with demographics
- FAQ with introductory information
- Dilbert Corner
- Private area for working group
- Counters and Measures
- News
- On-line surveys (e.g., Usability Survey)

#### Improvement Opportunities (priorities in parentheses)

- Allow user defined number of hours in a person month (6)
- Model should provide results in hours and person-months (6)
- An industry calibration report should be produced annually – when enough data is available provide calibration by industry domain/segment (possibly other stratification) (5)
  - Note: Talk to Dan Galorath or Karen McRitchie about what they are doing with Scatter plots
- Annual review and refinement of the viewpoints (5)
- Ability to address reuse (1)
- Ability to do effort distribution (4)
- Lack of schedule compression insight (4)
- Ability to estimate a partial set of the SE activities (2)
- Ability to address a range of estimates based on risk (3)
- No exponent calibration process (7)
- Update Users Manual for clarity and completeness; e.g., lack of clear definitions of complexity factors (easy, nominal, difficult) (0)
  - Must be part of user manual release
  - See commented version of Users Manual
- Ability to estimate a partial life cycle (2)
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