

Workshop Title: PA&E Software Metrics Proposal

Workshop Participants:

Name	Organization
John Bailey	Institute for Defense Analysis
Tom Coonce	OSD/Program Analysis & Evaluation (PA&E)/Cost Analysis Improvement Group/Contractor Cost Data Report Project Office
Major Rob Flowe	OSD/Program Analysis & Evaluation (PA&E)/Cost Analysis Improvement Group
Rick Holcomb	Naval Air Systems Command
Beth McColl	Computer Science Corporation
Betsy Clark	Software Metrics, Inc.
Brad Clark	Software Metrics, Inc.
Joseph Dean	Tecolote Research, Inc.
Perry Deweese	Lockheed-Martin
Bill Brykczynski	Institute for Defense Analysis

Restatement of Objectives:

The objectives of this workshop were to a) collect comments and suggestions, and b) collect preliminary experience that firms had with attempting to provide the data on the proposed DD Form 2630.

Summary of Discussions and Issues Encountered:

John Bailey presented the genesis of the proposal, reviewed the elements on the form and asked for comments and suggestions. The following comments/suggestions were made:

General Comments/Suggestions

1. The question of dollar applicability was discussed. Tom explained that the Cost Working IPT must determine the WBS elements upon which metric data is desired. He explained that, for an ACAT I program, the dollar thresholds for metric reporting were the same as for CCDRs, i.e., any contract (or subcontract) with a value greater than \$42 million would be required to submit the reports. However, reporting could go as low as \$6.5 million if the CWIPT determined that the software WBS elements are high risk or of high technical interest.
2. Several participants asked about subcontractor reporting. Tom indicated that subs are required to report data as well, but the prime and subs must work out whether the

prime includes the subs' data or the sub reports directly. Perry indicated that we will never get the metric data from the subs if the prime does not communicate the requirement to him. Perry also pointed out that subs might be doing more than just software and typically report monthly cost at an aggregate level. If we want the subs' data by the software WBS elements, it must be clearly communicated to the prime and in turn to the subs. Bill pointed out that the quality data from the subs may not be applicable since the SQT and OTE are not done by the subs – only the primes.

Specific Comments/Suggestions

1. Part 1, Report Content. Beth pointed out that having only two data points might be misleading. By asking for the data only at the end of a project, the data may be very misleading especially if the final results greatly exceeded the initial estimates. Several participants suggested that space be provided on the form to explain extenuating circumstances. Beth suggested that some standard list of reasons be provided and the developer could merely check the appropriate boxes. They should also be permitted to enter text information to explain. Beth agreed to provide a sample that CSC uses.
2. Part 2, Product and Develop Description. The group discussed the need for the list of the GOTS/COTS. Brad pointed out that we might want to know the percentage of the requirements that were satisfied by each GOTS/COTS. The group thought this could get unwieldy if there were a number of GOTS/COTS used. Joe suggested that we merely ask for a Bill of Materials that lists the GOTS/COTS and then ask, at an aggregate level, what percentage of the requirements that are filled by GOTS/COTS. The BOM would be attached to the report.
3. Part 3, Product Size Reporting. The group discussed the pros and cons of the categories for size measures. The group agreed they were extensive, but there were probably too many. John pointed out that the form should be tailored – that contractors would fill out the elements that made sense and ignore those that did not. Betsy suggested that we visit with the contractor to collect the data rather than asking them to submit it without guidance. She pointed out that even if the government team tailors the form, the contractor might not really understand what is desired. The group discussed several ways to do this. One was for representatives from the CCDR-PO do it. Another was to delegate the task to the lead service, e.g., to the respective service cost center. Someone suggested that we look into having DCMA do this.
4. Part 4, Resource and Schedule Reporting. The group discussed the need for start and end date for each of the phases. John pointed out the danger of asking for start and end date for spiral development efforts, e.g., we might get the same end date for each of the phases. Joe pointed out the need for start and end dates to operate a number of the software models. John suggested, and the group agreed, that we should allow the CIPT to determine some other type of milestone to delimit a phases. This might be an internal designated milestone that would signal an end to that phase.

5. Part 5, Staffing Profile. Several people pointed out the important of obtaining staff turnover at the end of the project. This data element is not on the form, but should be as it could be a driving factor for effort, schedule and quality performance on the project. The group agreed that we should add the average annual personnel turnover for the last report. Someone suggested that we consult a personnel specialist for an appropriate definition.
6. Part 5, Product Quality Reporting. Tom explained the rationale for the Mean Time (MTTD) to Defect and the Cumulate Defect Data. MTTD is needed to understand the expected reliability and defect data (close to the end of the project) was needed to calculate the reliability of the product when delivered, i.e., Quality, the fourth dimension of the SEI Core Measures. The final reliability data is needed to 1) scale estimates in certain cost models, and 2) to assist cost analysts in predicting maintenance efforts. The group agreed that these data should be collected and ought to be readily available from any entity that is rated at CMM level 3 or higher.
7. Planning and Implementation Process. Rob observed that the software measurement planning and implementation process should be able to support the draft RFP process within source selection. This would require the CWIPT to develop inputs to the draft RFP, and be able to stay involved with the Program through the clarification process with the potential bidders. This would allow industry feedback to be considered in the final software measurement/reporting plan requirements included in the RFP.
8. Planning and Implementation Process. Rick asked what would prevent the contracting officer from eliminating the requirement. Rob pointed out that this would not happen if software development and measurement plan requirements were integrated into the selection criteria. Appropriate language would need to be included in sections L & M of the solicitation.
9. Pilot Tests. The group agreed that we needed to include projects that were near completion or have recently finished to see how easy it would be to obtain the desired data. Someone suggested that we look at the DAB schedule and choose programs that had recently passed. Someone else suggested that we contact Kristen Baldwin and target programs that recently asked for assessment help. Joe suggested we look at the Paladin program

Conclusions, Recommendations, and Results:

1. The data elements on the form are about right as long as the above suggestions are included.
2. Modify the planning process to allow contractors to comment on the Software Metric Plan, Data Dictionary and RFP language prior to formal solicitation.
3. Data is always harder to get than you think. Don't just ask contractors to fill out the form without spending some time on-site, explaining what is desired. Consider

options on who would do this.

4. Need some mechanism to ensure that the requirement will not be negotiated out. Consider developing evaluation criteria for sections L & M of solicitations.
5. Include other projects that are further along in the process (maybe even finished), so we can get some results earlier.

Next Steps/Action Items:

1. Modify the form to incorporate suggestions. Contact personnel specialist for best definition for staff turnover.
2. Modify the planning process to allow contractors to comment on the Software Metric Plan during the draft RFP process.
3. Modify the implementation process to conduct initial visits with the contract and research implementation details.
4. Research options to ensure requirement will not get negotiated out of contracts.
5. Find other projects for the pilot where results can be obtained sooner.