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The Honorable David L. Norquist
President & CEO
National Defense Industrial Association
2101 Wilson Blvd, Suite 700
Arlington, VA 22201

Subj: Rejected Comments to Improve EIA-748E

Dear Hon. Pres. Norquist:

This is a follow-up to my letter to you, Subj: Assign System Engineering Experts to Salvage Draft EIA-748E EVMS Standard dated August 12. It contains the comments that I had submitted to SAE G-47 Systems Engineering (SE) Committee. That committee includes members of the NDIA Integrated Program Management Div.

All comments were rejected and most address the deficiencies that must be resolved as a result of the balloting. They should be reconsidered when you add someone from the SE Division to the IPMD team to develop the response and fix the deficiencies in EIA-748E, especially those relating to the product scope and engineering best practices.

Rejected Comments and Suggested Resolutions to Modernize Draft EIA 748E			
Section	**Comment** (Notes)	**Suggested Resolution**	
Guideline (GL)		**Is:**	**Should be:**
Foreward/ Para. 1	Note 1	The EVMS guidelines incorporate best business practices to provide strong benefits for program enterprise planning and control. The processes include integration of program scope, schedule, and cost objectives.	The EVMS guidelines incorporate best business practices to provide strong benefits for program enterprise planning and control. The processes include integration of program product scope, work scope, schedule, and cost objectives.
2.1a GL 1	Note 1	Define the authorized work elements for the program. A product-oriented work breakdown structure, tailored for effective internal management. control, is commonly used in this process.	Add, “Including the work necessary to produce the product scope of the program, including rework and risk responses.”
2.2c GL 7	Note 1	Establish and maintain a time-phased budget baseline comprised of scope, schedule and budget at the control account level. Budget for far-term efforts may be held in	Add “including the product scope (including acceptance criteria), rework, and risk responses.”

		higher-level accounts until an appropriate time for allocation at the control account level. Initial budgets established for performance measurement are based on either internal management goals or the external customer negotiated target cost including estimates for authorized but undefinitized work.	
2.4d GL 20	Note 1	Using the results of control account variance analysis and indirect performance evaluations, update the control account estimates at completion to reflect future resource requirements to complete the remaining authorized work and, by comparing to budgets, calculate the variance at completion.	Add, “Estimates of future conditions include rework, risk responses, and, when using Agile methods, technical debt and the product backlog.”
2.5c GL 26	Note 1	Control retroactive changes to records pertaining to work performed that would change previously reported amounts for actual costs, earned value, or budgets. Adjustments are made only for correction of errors, routine accounting adjustments, or effects of customer or management directed changes, including implementation of a single point adjustment.	Add, “Retroactive changes to earned value, including negative adjustments to correct cumulative earned value so that it is consistent with achieved vs. planned technical performance, must be made to improve the accuracy of performance measurement data. ”
2.6 Common Terminology	Note 1	“Product Scope” not in EIA-748D	Add: "Product Scope": the features and functions that characterize a product, service, or result.
2.6 Common Terminology	Note 1	Statement of Work (SOW): Document that communicates the program’s work scope requirements and defines the technical requirements to the fullest extent possible. It is the basis for the work breakdown structure, establishing program schedules and budgets, assigning work to work teams, and	Add, “Including the work necessary to produce the product scope of the program, including rework and risk responses.”

		assessing program risks or opportunities.	
3.7.1 Discrete Effort	Note 2	Management assessment may be used to determine the percentage of work completed for a task or group of tasks. Earned value is then calculated by applying that percentage to the total budget for the work. Management assessment may include the use of metrics for work measurement. Generally, the objective earned value techniques (valued milestone or standard hours) are preferred, but each has its own merits and an organization should use those that best suit its management needs. A note of caution is to avoid artificial constraints on earnings such as a percentage limit on earnings in a work package pending closure of the ending milestone.	Management assessment may be used to determine the percentage of work completed for a task, group of tasks, *or objective indicators for which the denominator is the estimated quantity used to determine the estimate at completion, not the quantity used to determine the budget at completion.*` Earned value is then calculated by applying that percentage to the total budget for the work. Management assessment may include the use of metrics for work measurement. Generally, the objective earned value techniques (valued milestone or standard hours) are preferred, but each has its own merits and an organization should use those that best suit its management needs

Note 1: EIA-748 fails to enable Integrated Program Management (IPM) because the guidelines cite only the work scope and are silent on the product scope or technical baseline. A reset of EIA-748 should incorporate the product scope to attain the schedule and cost benefits of the digital engineering ecosystem and to ensure requirements traceability from the technical baseline to the schedule. The comments that will follow will also incorporate DoD policy and guidance such as DOD INSTRUCTION 5000.97 DIGITAL ENGINEERING (DE), DoDI 5000.87, ISO/IEC/IEEE 15288 etc.

Detailed rationale and recommendations for DE are provided in the white papers at www.pb-ev.com.

Note 2: When determining percent complete, it is a common malpractice to use the quantity of tasks, drawings, or other objectives that was used to establish the performance management baseline. Normally, the original number is too low and there is growth because of "more complexity, rework etc. It is a common malpractice to retain the baselined quantity as the denominator. This leads to a fast run up to an overstated percent complete, cost performance index etc. Sometimes, the control account manager "hold" percent complete at an artificially constrained percent limit. This misleading result can be avoided by using the estimated quantity at completion as the denominator.

The following information was derived from the article, “Basing EV on Technical Performance,” in CrossTalk, the Journal of Defense Software Engineering, Feb. 2013.

Fallacy of % Complete EV Technique

1. Ignores technical performance

• % of drawings, lines of code, test points is “objective” but, as practiced, may indicate original plan, not current estimate

2. Misleading if denominator increases

• “Hold” % at 95% until done; Common practice (trick?)

• Numerator may include rework

• Rule of thumb: 75%-90% of…product drawings, software design specifications and associated instructions…complete

3. EV and the cost performance may be overstated when…based on % of drawings or code completed without regard to the technical maturity of the evolving design. As a result, the EAC may be understated.”

Yours truly,

Paul Solomon

CC:

Hon. Troy Meink, Sec. of the Air Force

Hon. Dan Driscoll, Sec. of the Army

Hon. USD (A&S) Duffey Hon. USD Emil Michael

Hon. SON John Phelan

Jon Sindreu, WSJ Anthony Capaccio, Bloomberg News