

Classic DoD Acquisition Standards Still the Cornerstones

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Some observers look at military-industrial relations as a confrontational environment fraught with dissension and conflict—after all, why does one read regularly about aborted programs and ongoing litigations? Admitting at the outset that not all programs are conceived or conducted perfectly, there remains, nonetheless, a common set of values that benefit both the Department of Defense and the industrial base. The most important thing is that both camps require each other to succeed.

As a starting point, one must understand the motivations of both groups. DoD has a continual requirement to develop and field products that address the national interest, and those products should be procured at prices acceptable to the American taxpayer. Industry, on the other hand, is in the business of business, which is making a usable product that returns a reasonable profit while positioning for the future. While different, the goals are not mutually exclusive, and thus, there are mutual interest areas that can be exploited to benefit both groups.

The question, then, is what shared tools could be used to mutual benefit. One area that comes to mind is the use of standards. To that end, DoD began an effort to remove im-



pediments to effective product development and procurement. The Perry Initiatives (named for former Secretary of Defense Dr. William Perry) greatly reduced the mandatory regulatory rules imposed on industry. By freeing up industry to use established commercial standards, the hope was to decrease both time and cost. The result was the downgrading of many formerly mandatory standards and specifications to advisory status, placing them in handbooks, and the outright elimination of many other standards. The end product is a current listing of some 10,000 commercial standards adopted for use by DoD. However, it must be noted that not all commercial standards have been adopted, but all the adopted standards can be found in DoD's ASSIST database, < <http://assist.daps.dla.mil> > . Accepting that commercial standards are preferable to DoD or government standards, one must then ask if there is any value in the remaining DoD standards or processes.

The answer to that question is yes. I will not discuss every available standard but will instead focus on four essential areas found almost universally on acquisition programs: work breakdown structures, data, statements of work, and specifications. Each of those areas is defined by DoD tools; the tools themselves are eas-

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ily accessible; and both government and industry would utilize these type of techniques in day-to-day operations. In fact, it would be difficult to find an acquisition program that does not routinely perform in all four areas.

Work Breakdown Structure: Not an Option

Without stretching the point, it can be shown that there is considerable utility in DoD tools. For example, there are many methods for developing a work breakdown structure, and there can be little doubt that, with the exception of the simplest development, a well-designed WBS is a necessity, not an option. MIL-HDBK-881A, *Work Breakdown Structures for Defense Material Items*, provides an excellent tool for crosschecking requirements during program development and may be found in the ASSIST database. In DoD acquisition context, WBSes are “product-oriented family trees composed of hardware, software, services, data, and facilities” that “relate the elements of work to be accomplished to each other and to the end product.” This definition should not be taken lightly, as it can be seen that the definition properly describes a complete system as well as possible component elements. The handbook contains eight specific categories of defense items: aircraft systems; electronic/automated software; missile systems; ordnance systems; sea systems; space systems; surface vehicle systems; and the newest group, unmanned air vehicle systems. These major defense systems can also be combined to define complex composite systems, such as a surface-to-surface missile mounted on a tracked vehicle with both systems containing electronic and computer components. In addition, the handbook provides definitions for the common elements to be considered on any system. Using the handbook as a checklist provides a comprehensive set of considerations that should be addressed on any type of system, so rather than having to divine derived requirements out of the ether, the handbook forces the developer to ask whether or not all requirements have been properly addressed.

MIL-HDBK-881A: Lessons from History

For the government user, MIL-HDBK-881A offers many advantages. Built on the lessons of accumulated history, the

handbook represents a well-founded approach to many programs. This basis can be used directly in completing the program WBS, which will be the basis for the contractor’s WBS for development of the program products. As the Defense Acquisition University’s *Systems Engineering Fundamentals* notes, the WBS is the “foundation for all program activities, including program and technical planning, event schedule definition, configuration and data management, risk management, specification preparation, statement of work preparation, status reporting and problem analysis, cost estimates, and budget formulation.” Clearly, in DoD’s view, a WBS is intended to cover a myriad of seemingly disparate functions.

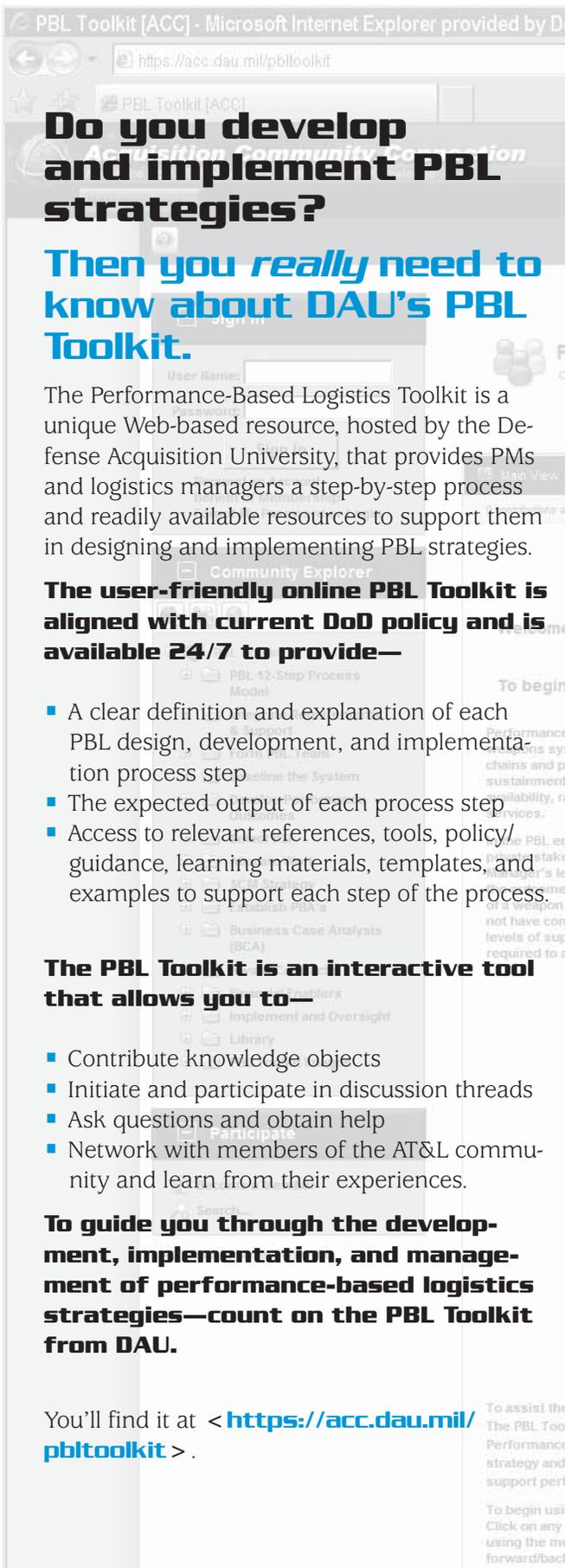
Many of these very same benefits are available to industry, and this knowledge is a competitive advantage in cost-effectively defining a program approach. Using this publicly available information, a company can anticipate DoD’s approach to many programs, especially when MIL-HDBK-881A is being employed. And since the bottom line really does matter, note that this information is also free.

Besides the previous shopping list of uses, it can also be seen that MIL-HDBK-881A is useful well beyond merely making a block diagram, and it adds value by providing an umbrella of pertinent areas/issues for consideration. As most defense professionals are aware, an earned value management system is required on DoD programs greater than or equal to \$20 million, and a formal EVMS validation is required on programs greater than or equal to \$50 million. On smaller programs (less than or equal to \$20 million), earned value management is optional. The EVMS process directs development and delivery of five separate data reports, and not surprisingly, MIL-HDBK-881A is the common structure for all five reports. In other words, the handbook is extremely useful for technical and programmatic planning, and it also forms the foundation of the EVMS process. There is no doubt that this free tool is of value to industry and is obviously of interest to DoD.

Data: Not Just an Administrative Function

Use of MIL-HDBK-881A for EVMS points to another area of common interest: data. To collect data, DoD uses DD Form 1423, Contract Data Requirements List, to define the data and provide a basis for costing the data development and delivery. The CDRL form can be found at < www.dtic.mil/whs/directives/infomgt/forms/formsprogram.htm > and contains instructions for completing the form, contract and data item information, information on requirements and frequency for data submission, explanations of distribution, and remarks for data development.

In turn, the CDRL is based on the use of a common set of 1,220 data item descriptions that are located, as are standards and handbooks, in the ASSIST database previously discussed. DIDs define content across every aspect of DoD operations, from management to software



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to human factors to finance to logistics—in all, covering 50 specific identified subject areas. Nonetheless, people unfamiliar with the process often comment that the DID system doesn't have the coverage required on their programs. Illustrating just several examples, a quick review of ASSIST indicates there are 254 DIDs covering systems engineering standards and specifications, 30 DIDs covering information processing standards for computer software, and 131 DIDs covering management. But if, among those 50 subject areas, one truly needs a unique DID, it can be created using the existing MIL-STD-963, *Data Item Descriptions*, process.

By intention, each DID addresses applicable referenced documents, general and preparation instructions, format, and content. So regardless of the subject area, the user can expect an understandable, standardized, usable package. Presenting clear, unambiguous requirements is a definite advantage to both DoD and industry, and because of the large costs associated with procurement of any data, it is imperative that both DoD requirements and the proposed industry product and cost are well managed.

The CDRL or DID disbeliever should consider two facts. First, Defense Federal Acquisition Regulation Supplement (DFARS) 215.470(b) clearly states that “when data are required to be delivered under a contract, include DD Form 1423, Contract Data Requirements List, in the solicitation.” Therefore, since use of the CDRL is not optional, it also follows that a DID must accompany the required CDRL. Second, data are not simply an administrative activity, as there actually are ramifications to data development. The Government Accountability Office noted in its report GAO-06-839 that the Services have “encountered limitations in their sustainment plans for some fielded weapon systems because they lacked needed technical data rights.” And the report further recommended that it is “during the development of the solicitation and the subsequent negotiation of a proposed contract that the government is in the best position to negotiate and secure required technical data rights.” Both the government and industry play a role in properly addressing the issues raised by these two facts.

Contracting: Importance of the SOW

The above GAO recommendation discusses solicitations and contract negotiations. Contracting is critical to both DoD and industry, and some preliminary definitions may be useful. The *Glossary of Defense Acquisition Acronyms & Terms* defines a contract as “an agreement between two or more legally competent parties, in proper form, on a legal subject matter or purpose and for legal consideration.” Further, we should stipulate that a contract, by Federal Acquisition Regulation definition, exceeds the simplified acquisition threshold of \$100,000. Despite finding the term “legal” three times in our definition, we do not necessarily need an attorney on retainer, as DoD provides an aid to

contracting, MIL-HDBK-245D, *Handbook for Preparation of Statement of Work (SOW)*. All military handbooks and standards are located in the ASSIST database.

While seemingly obvious, a well-structured statement of work may not be simple or easy to prepare, and many of the MIL-HDBK-245D suggestions are not only sound but are truly insightful. For instance, the handbook states that “qualitative and quantitative design and performance requirements are contained in specifications” while “all work (non-specification) performance” should reside in an SOW. Julius Caesar suggested the same approach with “divide and conquer.” Or consider another 245D suggestion: an “SOW prepared in explicit terms will enable offerors to clearly understand the government’s needs. . . . This facilitates the preparation of responsive proposals and delivery of the required goods or services.” The old saying “if you don’t know where you want to go, any road will do” meets the opposite approach. Given that contracts are legal documents and can, therefore, end up in court, exercising some prudence is a good idea. In that light, the handbook suggests that “in a dispute concerning performance, rights, or obligations, clearly defined requirements will enhance legal enforceability.” Fram Oil Filters certainly summed up this approach when they advertised “you can pay me now or you can pay me later.” It would be difficult to argue that the government’s preparation of solicitations, industry’s subsequent development of proposals, and both groups’ contract negotiation and execution would not benefit from these and many other recommendations in the handbook. These examples and many others throughout the handbook offer both experience and insight pointing directly to MIL-HDBK-245D’s continued and regular use.

Many readers would not search out military handbooks for entertainment, but MIL-HDBK-245D can even assist there as well: Appendix B provides three pages of “good” words and Appendix C provides two pages of “not-so-good” words. More accurately, Appendix B suggests work and product terms while Appendix C compiles phrases that have multiple meanings—and as we have already discussed, clarity and a lack of ambiguity are unarguably positive attributes.

Specifications: Clear and Simple

As mentioned when discussing MIL-HDBK-245D, the technical and performance aspects of an acquisition program are properly described in a specification, and (no surprise here) DoD already fully defines specifications in MIL-STD-961E, *Defense and Program-Unique Specifications Format and Content*. Many of the same philosophic approaches are found in both MIL-HDBK-245D and MIL-STD-961E: clear and simple language, no vague terms, and commonly used words and phrases are provided with accompanying rules in proper usage. Both documents also present a standardized preparation format that allows for easy

personnel assimilation when moving to new programs. Government and industry clearly benefit when following such commonly accepted guidelines.

MIL-STD-961E also provides specific instructions on preparation and use. The standard clearly notes that a specification “describes the essential technical requirements for material *and* the criteria for determining whether those requirements are met” (emphasis added). The standard further applies six criteria to describe requirements:

- Stated in such a way that an objective verification can be defined
- Cross-referenced to the associated verification
- Only those necessary, measurable, achievable, and verifiable are included
- Worded to provide a definitive basis for acceptance or rejection
- Described in a manner to encourage competition
- Worded such that each paragraph addresses only one requirement or topic.

These six criteria are simply fundamental to proper requirements development.

Likewise, the standard defines verification as accomplishment by “analysis, demonstration, examination, testing, or any combination” and further goes into some detail describing verification inspection approaches such as first article, qualification, conformance, sampling, or inspection lot. Since both government and industry have a vested interest in the appropriate development of performance requirements and the verification of those requirements, both groups stand to suffer potentially significant losses when unsuccessful, making this knowledge even more important.

As we started this subject, only two issues really mattered—usable tools and cost. And since cost is important to both DoD and industry, we can agree that husbanding funds is universally understood and valued. For tools, DoD has a stable of assets to assist the practitioner in developing program definition and structure (MIL-HDBK-881A), technical definition (MIL-STD-961E), and non-technical and data documentation definition (MIL-HDBK-245D, DD Form 1423, and the ASSIST database). These DoD assets are well-established, have passed the test of time, and are available at no cost to either DoD or industry. The bottom line is this: Whether government or industry, how can professionals ignore fundamentally useful tools that are free for the taking?

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