Acquisition Reform May Resemble Madness, but the Method is Real

Jim Belford
Science Applications International Corp.

Acquisition reform opens the door to innovative thinking and creative teamwork. Leaders have taken advantage of this in ways that at first glance appear drastically different from the norm. Jim Belford learned this when he acted as technical advisor for the CROSSTALK team interviewing leaders of missile programs at Eglin Air Force Base, Fla.. However, upon deeper investigation he found familiar process methods at work.

There has been considerable debate over the merit of current acquisition reform initiatives. In this issue of CROSSTALK two major programs, the Joint Air-to-Surface Standoff Missile (JASSM) and the Advanced Medium Range Air-to-Air Missile (AMRAAM), were presented that demonstrated a significant return by applying innovation to the way they acquired weapon systems. The common thread seemed to be developing accurate functional requirements, selecting a capable contractor, empowering the contractor, and obtaining a bumper-to-bumper warranty. The focus was on product rather than process. The results were impressive to say the least.

> "Process maturity helps to ensure repeatability, and a contractor assessed at Level 3 or higher will have institutionalized processes, which assures repeatability …"

We need to keep in mind the old adage, "An ounce of prevention is worth a pound of cure." Mature processes facilitate and are essential to the success of the current acquisition strategies that have resulted from reform initiatives. Both Lockheed Martin and Raytheon, developers of JASSM and AMRAAM respectively, place a high regard on process improvement. Companies throughout Lockheed Martin have recognized the importance of software development excellence and strive for highest software process maturity—Federal Systems at Oswego, N.Y., achieved Level 5 using the Software Engineering Institute's Capability Maturity Model® (SEI CMM) in December 1997. JASSM was one of three programs used in December 1998 to certify Lockheed's Missiles and Fire Control Company at SEI CMM Level 3. Seven other programs were introduced in 1999 to insure institutionalization of the processes.

With respect to JASSM, Terry Little, program manager, stated, "We have … had absolutely no problems with software. We are ahead of schedule in software development, and it is a fairly formidable program because it involves not just the missile's operational flight program, but the seeker algorithms, … and a whole different set of software related to the mission planning."

Raytheon has also demonstrated a high level of proficiency with respect to software development. Raytheon Systems Company's Command and Control Division achieved SEI's highest rating, CMM Level 5, in January 1998. Raytheon Missile Systems, Software Engineering Center, Tucson, Ariz., achieved SEI CMM Level 4 in October 1998. This places both companies among the elite with respect to software development.

Contractor Holds the Key

Selecting the right contractor is the key to success in this era of innovative acquisition strategies. Both Little and Judy Stokley, AMRAAM director, stressed the importance of past performance in selecting a contractor. The Defense Science Board Task Force on Software stressed the importance of both past performance and process maturity as key considerations when awarding a contract. Is there a connection between past performance and mature processes? I believe there is.

Process maturity helps to ensure repeatability, and a contractor assessed at Level 3 or higher will have institutionalized processes, which assures repeatability regardless of which organization within the company does the work. Repeatability also supports predictability resulting in more accurate estimates of the effort required (cost and schedule) to deliver a product. Stokley stated, "I think of process improvement more as an attitude that we motivate industry with … to keep this [AMRAAM] a healthy viable product that meets its requirements and is affordable."

In addition, for acquisition reform to be successful the acquirer must also use sound processes when initiating a business relationship. It is the acquisition organization's responsibility to select a vendor that is capable of delivering a product that meets the stated performance specification, on time, and at cost. To accomplish this, as a minimum, processes must be in place to communicate requirements in an unambiguous manner, ensure contractor capability, verify cost and schedule estimates, and track metrics that impact the program (schedule, expenditures, etc.). These processes are as significant as those used by the vendor to develop mission critical software.

It is my opinion that process maturity provides the foundation for success in today's acquisition reform arena. Innovative individuals such as Stokley and Little provide the leadership that bring all of the players together as one team to make it happen.◆

About the Author

Jim Belford is a senior systems engineer with Science Applications International Corp. He works in the Computer Resources Support Improvement Program office, Hill Air Force Base, Utah, providing technical and business management support. Belford has 13 years experience in the development and acquisition of software intensive systems. He has an master's degree in business administration (technology management) from the University of Phoenix, a masters in computer engineering from the Air Force Institute of Technology, and a bachelor's degree in electrical engineering from California State University.

Computer Resources Support Improvement Program (CRSIP)
OO-ALC/TI-3
5851 F Avenue
Hill AFB, UT 84056-5713
jim.belford@hill.af.mil
801-777-8600 DSN 777-8600