

EVMS – AFTER THE EVOLUTION: THE LONG SLOW ROAD

By Gary C. Humphreys, CEO, Humphreys & Associates, Inc.

Jim Morin's superb article in *The Measurable News*, 2009, Issue 4, recounted the development of earned value and its earlier names, C/SPCS followed by C/SCSC, or CS Squared. I would like to revisit the years following its transition from the Specification to the 35 Criteria and the DOD's mandate that the three services contractually require its implementation on R&D (and later Production) type contracts. During those early implementation years of 1969-1971 I was the first US Army C/SCSC Team Director when slowly but steadily the requirement took hold.

Based on a cursory reading of the Air Force's C/SPCS criteria and DoD's C/SCSC criteria one could form the opinion that the transition should have been relatively straightforward. Why then did it take five years from the announcement of the planned development of C/SCSC¹ until the first Tri-Service Letter of Validation was issued in 1971? As will be seen, when dealing with the prerogatives of the three military services of that era, plus the natural reluctance on the part of industry's leaders, a great deal of determination, dedication, common sense, and sense of humor were required. That C/SCSC implementation was successful is a tribute to those who saw it through.

Those of us who were involved back then will recall that DOD established three Focal Points for C/SCSC, its contract application, contractor reviews, follow-up activities, and system surveillance. Initially, the Army's was Larry Stone (my boss); the Navy's, Dick Garretson; and, as Jim pointed out, the Air Force's, Whitey Driessnack. The Air Force served as pathfinder in the early years, developing the only C/SCSC training course and conducting the first Contractor System Reviews.

In the late '60's and into the '70's, the only training was the four-week C/SCSC course conducted at the Air Force Institute of Technology (AFIT), Wright Patterson Air Force Base, Ohio. The course's focal point was the Air Force Systems Command's (AFSC) Cost Analysis Directorate and was conducted by two Ohio State instructors, Dan Schneid and Gerald (Jerry) Keyes, who slowly covered the 35 Criteria and the System Review Process. Then a systems description was provided to be critiqued based on the knowledge obtained from the detailed discussions of each criterion.

The instructors played the roles of industry managers. We students interviewed them, reached conclusions about strengths and weaknesses, and conducted outbriefs as if we were debriefing a contractor. It was detailed but very important that the initial wave of team members understand what they should expect upon arrival at a contractor's facility. A typical class had 25-30 attendees, primarily Air Force plus a few Army, Defense Contract Audit Services (DCAS), and occasional Air Force Plant Representative Office (AFPRO), Naval Plant Representative Office (NAVPRO), and Army Plant Representative Office (APRO) representatives. Contractors were not able to attend until the mid-'70's when a maximum of two seats were made available. Attendee selection was made by AFSC's Cost Analysis Directorate.

The course was scaled back to three weeks in 1972, consistent with the release of the first Tri-Service version of the C/SCSC Joint Implementation Guide, a.k.a. the C/SCSC JIG. With the restructuring of the C/SCSC training course, the first Tri-Service C/SCSC Surveillance course was developed for DCAS, AFPRO, APRO, and NAVPRO representatives. It, too, was initially conducted at AFIT, spanning two weeks and offered approximately five to six times each year.

The C/SCSC training process, meant primarily for DOD representatives, was not only slow but also was one-sided in presenting an understanding of the Criteria, the Review Process, and did not always offer a consistent interpretation of the Criteria as applied to a contractor's system. Adding to the problem, contractors had little, if any, voice in this relatively new contract requirement and its associated Cost Performance Report (CPR).

1 - Robert N. Anthony, OASD (Comptroller) and Paul R. Ignatius, OASD (Installations and Logistics) Joint Memorandum for the Secretaries of the Army, Navy and Air Force, Schedule and Cost Planning and Control System Specification for Program and Contractor Management, 28 May 1966.

THE EARLY REVIEW PROCESS

Whitey Driessnack, an Air Force colonel at the time, led the AFSC Headquarters' Cost Analysis Directorate (ACC). Under Col. Driessnack, the first review team staffed and conducted the Minuteman Program R&D System Review in 1968. Around the same time, the AFSC Directorate began scheduling all of its Air Force Program Contractor Reviews with Army and Navy representatives on the teams for on-the-job training, or OJT's, as they were called.

The DOD Review Team's composition was of particular interest in the first decade of Criteria applications. The Team Director could be assigned from only one of the three DC area's Command Headquarters, depending on which branch had the program: AFSC, the Army Materiel Command (AMC), or the Navy Materiel Command (NAVMAT). The Team Chief was assigned from the procuring authority's command or organization, such as the Air Force's Space and Missile Systems Organization for missile and satellite programs, or the Army's Munitions and Chemical Armament Command for Howitzers and missiles, etc.

It was during those early years that I was assigned to Larry Stone's Army Materiel Command, Cost and Economic Information Office (CEIO), and in 1970 became the first US Army Team Director, following participation on two Air Force reviews including the first Tri-Service, Tri-Program Review at Boeing, Seattle for the Air Force's Airborne Early Warning and Control System (AWACS) and Minuteman Programs as well as the Navy's Short Range Attack Missile (SRAM) Program.

At the time the Army was rapidly coming up to speed in C/SCSC. The original Army Pamphlet (AP) 37-2, Performance Measurement Cost/Schedule Control System Criteria [Implementation Guide], was published in February 1970. The page that serves as a Foreword contains a passage indicating how things were progressing (or not) at that time: "The procedures contained herein provide a standard to be followed in conducting evaluation reviews and in-plant demonstration reviews of contractors' cost/schedule control systems. The Criteria in the Pamphlet are the ones to be used, since the proposed DODI 7000.2 is not in agreement but will eventually be revised to agree." (Emphasis is mine.)

Initially, the system review process involved a 12-month period entailing three scheduled events: an Implementation Visit (IV), a Readiness Review (RR), and a Demonstration Review (Demo). Approximately one month after contract award, the IV was conducted. The IV team generally consisted of the Team Director, a Team Chief, one or two representatives from the customer Program Office, and occasionally one or two from the local AFPRO, APRO, or NAVPRO Office, or from the local DCAS Office, the forerunner to the Defense Contract Management Agency (DCMA).

The most common findings resulting from the IV were that the contractor was unfamiliar with the requirement, had no implementation plan or implementation team, and had not begun to draft a system description or had "borrowed" a copy from another division. The implementation process was also particularly slow as there was no software available to support baseline development, data accumulation, or reporting. The results of the IV were documented and a Readiness Review (RR) was then scheduled, usually three to four months later.

The RR typically spanned a week and, again, involved the Team Director, Team Chief, three to four Program representatives, one to two plant representatives, and occasionally a representative from the local Defense Contract Audit Agency (DCAA). The outcome of the RRs determined the scheduling of the Demonstration Review (or another RR). The Demonstration Review was later renamed the Validation Review and is now called the Compliance Review. A significant factor in the Demonstration Review's schedule was Criteria acceptance by the customer's Program Office and the respective agency's patience with the contractor. Both the IV and the RR were replaced in the early '90's with the Progress Assistance Visit, or PAV, to soften the impression that these early visits were too judgmental.

The Demo was a major event for both sides. Remember, this took place about 30-40 years ago when all was relatively new for both sides. It typically involved 20-25 DOD representatives and took place at the contractor's facility over a 3-4 week period. It was not uncommon for the program being reviewed to incur a significant schedule slip because of the review's preparation and undertaking---interviews, data traces, briefings, daily meetings, etc. Some might also recall that for the initial 40-50 Demonstration Reviews during the late 60's and 70's, the outcomes were grim. For every three demos, only one contractor passed. These one-sided outcomes led to the evolution of the 9-Man Committee, then the 15-Man Committee to focus on more intelligent system design and implementation approaches for R&D and production respectively. The members of these two committees were selected from the National Security Industrial Association's (NSIA) Management System Subcommittee (MSS) to interface with the DOD's Performance Measurement Joint Executive Group (PMJEG).

Most often, the success or failure of the Demo was based upon the decisions of the Team Director and Team Chief. This call was made even though the teams were composed of another 15-20 representatives of the procuring authority's program, DCAS (or AFPRO, NAVPRO, etc.), DCAA, and various OJT participants, all of whom conducted the interviews, data traces, CPR and Contract Funds Status Report (CFSR) assessments, and the myriad of review activities. Because all of the review activities were conducted without the benefit of the automated tools we enjoy today, more time was needed in the contractor's facility involving more participants on both sides manually conducting data traces.

It was also during these initial Air Force and Army Program C/SCSC Reviews that Criteria Acceptance was not always matter-of-fact — on either side — contractor or Government Program Office. For example, the Office of the Secretary of Defense found it necessary to issue the Navy a "Show Cause" letter regarding its resistance to contractually requiring the 35 Criteria on major acquisitions. Also, more than a couple of contractors successfully dragged-out implementation until the R&D phase was finished.

To add another perspective in Criteria acceptance and continued compliant system operations, three contractors underwent Devalidations of their systems in the mid-to-late 70's following the outcomes of Subsequent Application Reviews, or SARs (shorter reviews undertaken to verify that a compliant system was being used properly on a subsequently awarded contract). It was principally because of the Devalidations of another five contractor systems during the 80's that the contractors began initiatives to work together toward balancing the scales in Validation Reviews and SAR outcomes.

The early review process days did have their lighter moments. Examples of the unfamiliarity with the overall process and examples of the "first-time-syndrome" kept surfacing. The first Tri-Service Letter of Validation was to be drafted by one of the Air Force System Command Team Directors in 1971. Col. Driessnack told him to have the AFSC's print shop, also located at Andrews Air Force Base, print the letter with three signature blocks: Two four-star Air Force and Army generals and the Navy's Admiral.

This first-time letter was to include the Navy's, Army's, and Air Force's seals in the letterhead at the top. Five hundred sheets of the new stationery were printed and promptly rejected by the Navy as their seal was not placed to the far left at the top, the Army's next, and the Air Force's last. The now-informed Team Director undertook a second trip to the print shop, fully appreciative of the protocol, particularly when it involves service branch seniority, four-star generals, and an admiral.

On another occasion, also in the early 70's, the first time ever Dollarized Responsibility Assignment Matrix, or RAM, was included as an attachment to the Demonstration Team's report, which was recommending validation of the contractor's system. No one on the Review Team, including the Team Chief and Team Director, had noticed that nearly one third of the dollar values on the RAM also contained an asterisk. A note at the bottom identified those control account dollars values as "PIDOMA." The process in the 70's to achieve actual system validation involved 10-12 layers of coordination within the lead command headquarters. At the two-star level, the command's Controller noticed the acronym and asked if the PIDOMA were a classified portion of the project, since the many asterisked control accounts summed to nearly 20% of the program's Contract Budget Base.

It took many phone calls back through the procuring authority's Program Office, to the contractor's DCAS representatives' office, to the contractor's Program Control representative (the originator of the RAM and its strange notation) to learn what PIDOMA meant. The look on the two-star general's face must have been interesting when the Team Director stood before him and explained that PIDOMA stood for "Pulled it directly out of my a., ---Sir." The Validation Letter was delayed for 4-5 months while the team returned to the contractor's facility to undertake a very thorough Baseline Budget Trace.

THE FOLLOWING DECADES

Once the initial years passed, the concept of EVMS and its associated review and reporting requirements not only spread into other U.S. governmental agencies, but also traveled abroad into England, Europe, Australia, and Canada. Soon, the DOE, NASA, FAA, NOAA, NSA, and even the IRS were requiring compliance, conducting reviews, and approving contractors' systems. The list of approved contractor systems indicates that over 225 U.S. contractors were validated between 1980 and 2000.²

² - Humphreys & Associates, Inc., List of Validated Contractors.

Meanwhile, an unforeseen reaction to one of the main attributes of performance measurement data usage began to occur. Both contractor and government Program Managers began to subtly resist the earned value concept's best feature: Early visibility to cost and schedule variances. A unique war cry was heard throughout the earned value community, "It tells us TOO soon!"

Enter the Gaming Techniques with Performance Measurement, its data, and customer briefings to the respective funding authorities, including Congressional Subcommittees. What was envisioned as needed—early cost and schedule visibility—soon was viewed by some Government Program Managers as "too soon to brief." In short, the PMs needed to buy time---aka, keep the program alive. In 1980, Hugh Langford pointed out "The Five Masking Techniques" that temporarily produced favorable program cost and schedule EV data would be used to help to soften or disguise the exact status of a program.³

The ultimate example in suppressing earned value data is still the Navy's A-12 Program and the resultant Congressional Hearing, aired on C-Span, December 10, 1990. Nonetheless, the struggle to validate systems and properly use EV data to foster early program decisions continued well into the 90's and some might say, "It still does."

The basic principles of Performance Measurement still prevail since its early days, largely as a result of the stalwart, dedicated efforts of those who believed in the benefits of early visibility. Performance Measurement's evolution into the EVMS of today involved not only many long hours of joint working sessions and restructuring, but also a wider range of U.S. Government agencies' customers. The NSIA MSS became the National Defense Industrial Association (NDIA) Program Management Systems Committee (PMSC), today's industry subject matter experts for EVMS. The 35 Criteria were scaled back to 32 Guidelines when industry (NDIA PMSC) proposed what is now the ANSI/EIA-748 Standard for Earned Value Management Systems in the mid-90s, and the Review Team structure requiring Team Directors and Team Chiefs slowly faded into obscurity.

The transition years were exciting, exhausting and frustrating, but considering the promise of the new approach to performance measurement, well worth the effort. Sadly, a number of the original stalwarts have passed, such as Whitey, but when properly used by government and industry, the promise is still true even after more than 45 years.

About the Author

Gary Humphreys has more than 35 years of project management experience in government and commercial environments specializing in Earned Value Management System (EVMS) design, development, and implementation. He is the CEO and founder of Humphreys & Associates, Inc., the leader in earned value and project management system design, development, implementation, evaluation, analysis, and training since 1978.

Mr. Humphreys' past experience demonstrates his depth of knowledge and passion for earned value management. He was the first US Army Team Director to conduct an EVMS Tri-Service Demonstration and led numerous Validation Reviews. He has served as Vice-Chair and Chair of what is now the National Defense Industrial Association (NDIA) Program Management Systems Subcommittee (PMSC). It was through the NDIA PMSC that he orchestrated the first ever survey on EVMS. As a direct result of this survey's findings, the US Government conducted their own survey. These two independent surveys formed the genesis for subsequent revisions to numerous guides and reference material on EVMS. He was also part of the eight person team that developed the ANSI/EIA-748 Standard for Earned Value Management Systems.

As a member of the Integrated Program Management Initiative Joint Team, Mr. Humphreys received the DOD's highest acquisition award, the 1998 David Packard Excellence in Acquisition Award. He is also the recipient of the Whitey H. Driessnack Award for Outstanding Contributions to the Advancement of Performance Management.

Mr. Humphreys holds a Bachelor of Science from the University of California at Berkeley and a Masters in Business Administration from the University of Southern California.

³ - Langford, Hugh A. Performance Measurement and Program Management: A Look Ahead, Technical Marketing Society of America Newsletter, February, 1980.