START Selected Topics in Assurance Related Technologies

Volume 6, Number 1

Single Process Initiative

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Introduction

In a memorandum dated December 6, 1994, then Secretary of Defense William J. Perry initiated a new reform initiative. Essentially, he directed that the Under Secretary of Defense for Acquisition and Technology, USD(A&T) develop procedures for making block changes to existing contracts to unify the management and manufacturing requirements of those contracts on a facility-wide basis. An important criterion for such changes was that they must be technically acceptable to the government.

Procedures were developed, and, at a press conference on December 8, 1995, Secretary Perry and USD(A&T) Paul G. Kaminski announced implementation of the Single Process Initiative (SPI). SPI is an initiative for transitioning from multiple government-unique management and manufacturing systems to the use of common processes. Initially, this concept addressed common processes within a facility but has been expanded to address processes common to all facilities within a company. The goal of the initiative is to ensure contractors use best practices and advantageous technologies. The objectives are:

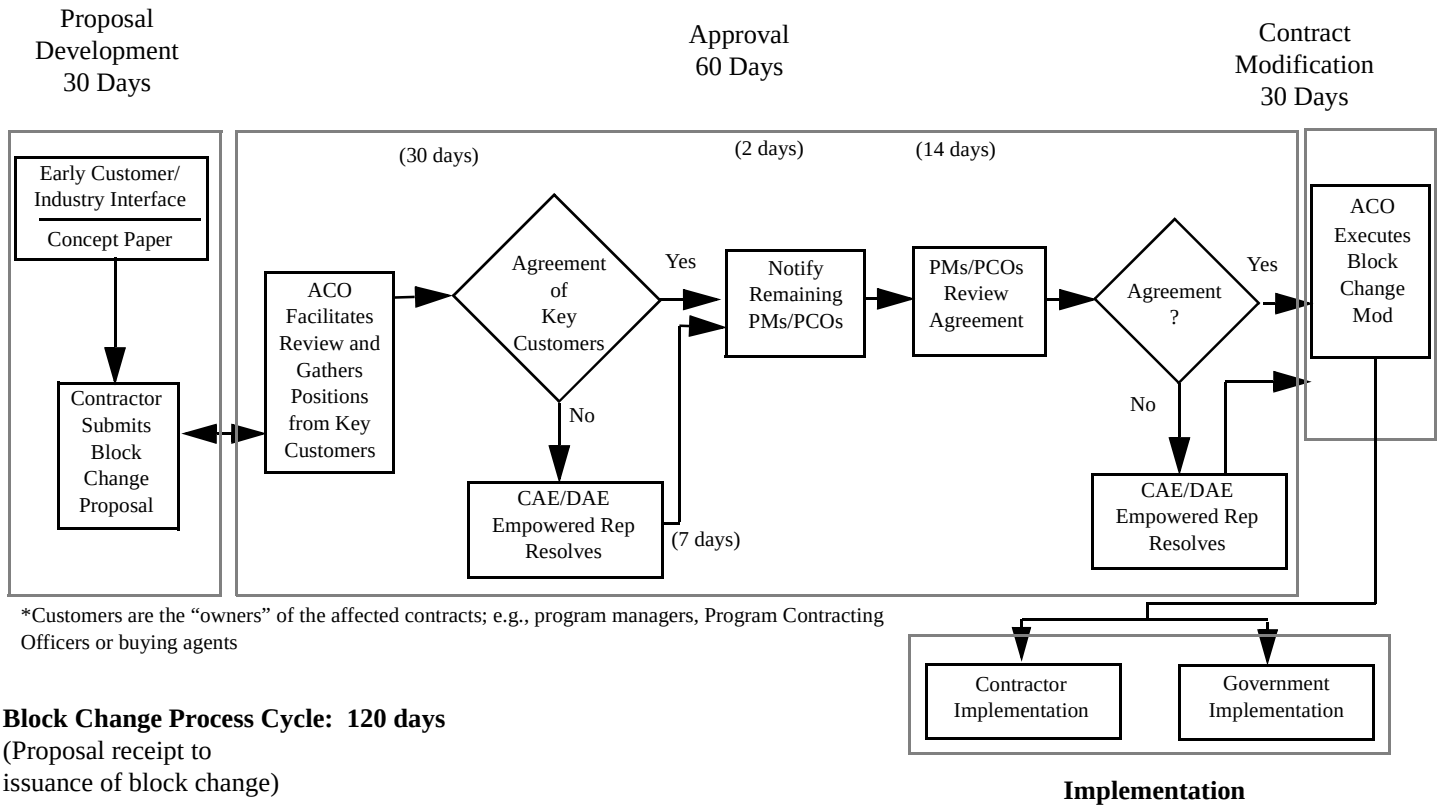
- Obtain better quality processes and products
- Reduce manufacturing and management costs - eliminate unnecessary direct and indirect cost drivers
- Lower costs, shorten schedules, and improve performance
- Simplify business practices
- Improve technology and increase industry competitiveness
- Expand environmental health and safety of updated processes
- Reduce the need for oversight

Background and Concept

Prior to this initiative, it was common for contractors to have several different standards or specifications for the same process levied upon them under different procurement contracts. For example, contractor A is producing product X for the Army, product Y for the Air Force, and product Z for the navy. In each case, a soldering process is needed. Each of the contracts imposes a different soldering specification. Although the three specifications may have some common elements, the differences drive up costs. These costs include training, development and maintenance of work procedures, documentation and so forth. if the contractor wants to substitute one specification that is consistent with the current three, each of the contracts must be modified separately. In reality, the problem was much more complex. In the case of one company, 65 variations on 38 defense specifications imposed under several different contracts controlled the product assembly process. Before SPI, any attempt to replace the many existing requirements with a few common requirements would have been impractical. Block change modifications, however, facilitate such a replacement.

The block change modification is the method used to make the changes within the contracts under SPI. In a block change modification, a single document can modify many contracts simultaneously, rather than one at a time. After a block change under SPI, the number of specifications and standards governing the assembly process previously described was reduced to eight.

In essence, SPI extends to existing contracts the military specifications and standards and other acquisition reforms introduced on new programs. To date, the most frequent proposed changes are in the areas of quality programs; manufacturing processes, such as plating, encapsulation, and electrostatic protection; and business practices, including certification requirements, subcontracting authorization, and work measurement.



Block Change Process Cycle: 120 days
(Proposal receipt to
issuance of block change)

Figure 1. Overview of block change modification process

Implementing SPI

USD(A&T) Memorandum "Single Process Initiative" (see 2.c under For Further Study) provided implementation guidance and included a flow diagram (Figure 1) with a general process and timeline for accomplishing SPI block changes. The process has the following characteristics:

- A streamlined approach is used to review contractor proposals and modify contracts
- A Management Council led by Defense Contract Management Command (DCMC) for each contractor facility is used to bring contractor and customer together
- Component Team Leaders from each affected Service determine if contractor proposed process changes are technically acceptable
- Administrative Contracting Officers (ACOs) modify contracts to use common, facility wide manufacturing and management processes

The process is designed to be flexible and fast with a cycle time goal of 120 days. Prompt evaluation is essential - - any delay in implementing changes postpones benefits and discourages contractors. Although customers must agree that contract changes will meet their technical needs, no approval is required above the appointed decision makers. Early customer involvement and interface is essential to meet the 120-day goal to review and negotiate proposed contract changes.
USD(A&T) has said that transition costs may equal or exceed near term savings. "We expect that contracts . . . Cost benefits analysis includes an appropriate "rough order of magnitude" estimate of implementation costs, savings on existing contracts, and long term cost avoidance. Contractors may offer additional goods, services (non-monetary) or adjustments to contract prices as provided by law and regulation."

SPI for Subcontractors

As defined in the beginning of this START sheet, SPI is a process for transitioning from multiple government-unique management and manufacturing systems to the use of common processes. However, it only applies to prime contractors (i.e., those having a direct contractual relationship with the government). It does not apply to subcontractors. So although SPI is an effective way of streamlining processes and providing flexibility to contractors, subcontractors must still contend with multiple requirements. An example can be found in the report of a study conducted by the Instrumented Factory for Gears (INFAC). In the study, eight companies that manufacture or use precision gears were surveyed

to determine the feasibility of having a common quality certification system. In the course of the study, several of the gear manufacturers discussed the need for a "subcontractor SPI program." In one case, a manufacturer provides precision gears to three customers who are primes to the government. Some of the gears are provided to all three primes. Each prime, however, imposes its own requirements on the subcontractor with the same negative results that had been experienced by primes prior to SPI. One such negative result concerns heat treating, a critical process. Many of the gear manufacturers outsource heat treating. Each of the primes has its own preferred list of heat treat facilities. Consequently, gear manufactures supplying all three primes must establish contractual relationships with three different heat transfer facilities.

This issue is being addressed by DoD. In May 1997, memorandum was issued by USD(A&T) with the title "Subcontractor Single Process Initiative (SPI)." The memorandum requires Management Councils at prime and subcontractor facilities to facilitate use of Government accepted subcontractor SPI processes.

For Further Study:

1. Web Sites. Additional information on SPI can be obtained from the following web sites. In addition, many of the publications in the list that follows can be downloaded from these sites.

   a. http://www.dcmde.dla.mil/spi.htm

   b. http://www.safaq.hq.af.mil/acq_ref/spi/

   c. http://www.acq-ref.navy.mil/spi.html

   d. http://acqnet.sarda.army.mil/acqinfo/zpspi.htm

   e. http://www.dcmc.hq.dla.mil/Spi/Index.htm

   f. http://www.acq.osd.mil/ar/single.htm

   g. http://www.navsea.navy.mil/acquisition-reform/spi.htm

2. Publications

   a. "Common Systems/ISO-9000/Expedited Block Changes," Memo, Secretary of Defense William Perry, 6 December 1995.

   b. "Critical Impact of Block Changes to Implement Performance Specifications and Commercial Standards on Existing DoD Contracts," McAleese & Associates, April 4, 1997.

   c. "Single Process Initiative," Memo, Dr. Paul G. Kaminski, USD(A&T), 8 December 1995.

   d. "Single Process Initiative - Eve of the First Anniversary," Keynote Address of Dr. Paul G. Kaminski, USD(A&T), DCMC SPI Lessons Learned Conference, Los Angeles, CA.

   e. "Single Process Initiative - - Progress and Prospects," Speech by Dr. Paul G. Kaminski, USD(A&T), to Aerospace Industry Assn., Willliamsburg, VA, 23 May 1996.

   f. "Subcontractor Single Process initiative," Memo, Dr. Paul G. Kaminski, USD(A&T), 16 May 1997.

Other START Sheets Available:

94-1	ISO 9000
95-1	Plastic Encapsulated Microcircuits
95-2	Parts Management Plan
96-1	Creating Robust Designs
96-2	Impacts on Reliability of Recent Changes in DoD Acquisition Reform Policies
96-3	Reliability on the World Wide Web
97-1	Quality Function Deployment
97-2	Reliability Prediction
97-3	Reliability Design for Affordability
98-1	Information Analysis Centers
98-2	Cost as an Independent Variable
98-3	Applying Software Reliability Engineering (SRE) to Build Reliable Software
98-4	Commercial Off-the-Shelf Equipment and Non-Development Items

To order a free copy of one or all of these START sheets, contact the Reliability Analysis Center (RAC), 201 Mill Street, Rome, NY, 13440-6916. Telephone: (888) RAC-USER (888 722-8737). Fax: (315) 337-9932. E-mail: rac@iitri.org. These START sheets are also available on-line at http://rac.iitri.org/DATA/START in their entirety.

Future Issues:

RAC's Selected Topics in Assurance Related Technologies (START) are intended to get you started in knowledge of a particular subject of immediate interest in reliability, maintainability and quality. Some of the upcoming topics being considered are:

- Accelerated Testing
- Mechanical Reliability
- Reliability Growth
- Performance-Based Requirements

Please let us know if there are subjects you would like covered in future issues of START.

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Mr. Criscimagna holds a Bachelor's degree in Mechanical Engineering from the University of Nebraska-Lincoln, a Master's degree in Systems Engineering from the Air Force Institute of Technology, and he did post-graduate work in Systems Engineering and Human Factors at the University of Southern California. He completed the U.S. Air Force Squadron Officer School in residence, the U.S. Air Force Air Command and Staff College by seminar, and the Industrial College of the Armed Forces correspondence program in National Security Management. He is also a graduate of the Air Force Instructors course and completed the ISO 9000 Assessor/Lead Assessor Training Course. Mr. Criscimagna is a member of the American Society of Quality (ASQ) and a Senior Member of the Society of Logistics Engineers (SOLE). He is a certified Professional Logistician, chairs the ASQ/ANSI Z-1 Dependability Subcommittee, is a member of the US TAG to IEC TC56, and is Secretary for the G-11 Division of the Society of Automotive Engineers.

About the Reliability Analysis Center

The Reliability Analysis Center is a Department of Defense Information Analysis Center (IAC). RAC serves as a government and industry focal point for efforts to improve the reliability, maintainability and quality of manufactured components and systems. To this end, RAC collects, analyzes, archives in computerized databases, and publishes data concerning the quality and reliability of equipments and systems, as well as the microcircuit, discrete semiconductor, and electromechanical and mechanical components that comprise them. RAC also evaluates and publishes information on engineering techniques and methods. Information is distributed through data compilations, application guides, data products and programs on computer media, public and private training courses, and consulting services. Located in Rome, NY, the Reliability Analysis Center is sponsored by the Defense Technical Information Center (DTIC). Since its inception in 1968, the RAC has been operated by IIT Research Institute (IITRI). Technical management of the RAC is provided by the U.S. Air Force's Research Laboratory Information Directorate (formerly Rome Laboratory).