

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE Jan-Feb 1996		3. REPORT TYPE AND DATES COVERED Journal
4. TITLE AND SUBTITLE Program Manager - A Bimonthly Magazine of the Defense Systems Management College			5. FUNDING NUMBERS	
6. AUTHOR(S) Numerous Authors				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Defense Systems Management College ATTN: DSMC Press 9820 Belvoir Road Suite G38 Fort Belvoir, VA 22060-5565			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Same as 7.			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) Program Manager is intended to be a vehicle for the transmission of information on policies, trends, events and current thinking affecting program management and defense systems acquisition.				
14. SUBJECT TERMS Strategic Planning in Government; Acquisition Reform Communications Center; Innovative Program Office Restructuring; DSMC's Cost Analysis Strategy Assessment Model			15. NUMBER OF PAGES 44	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited	

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January-February 1996

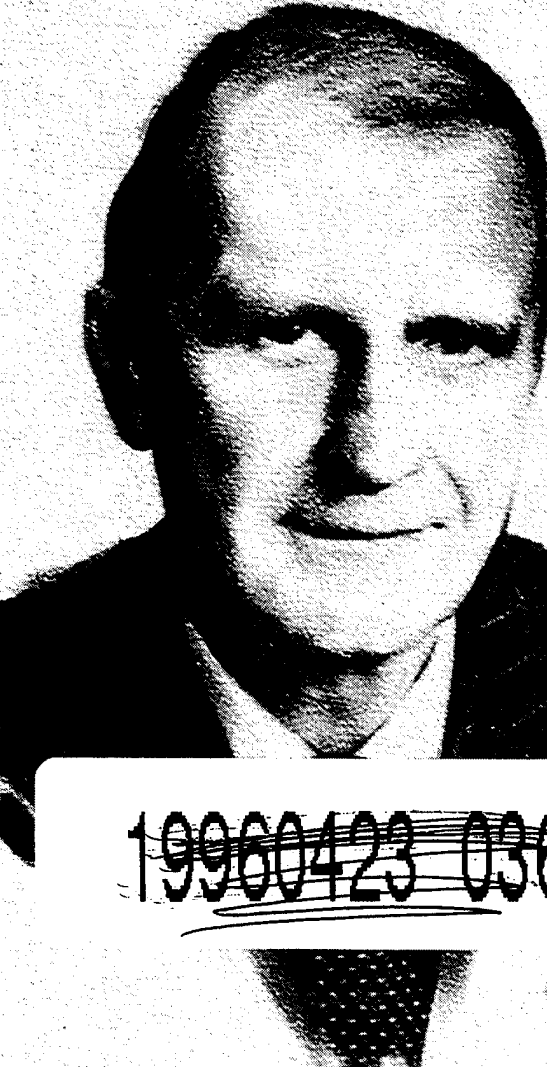
PROGRAM MANAGER

A Bimonthly Magazine of the Defense Systems Management College

Acquisition Reform Communications Center

PEO/SYSCOM/PM Conference

Strategic Planning In Government



MALCOLM BALDRIGE

1922 -1987

- LEADERSHIP •
- INFORMATION AND ANALYSIS •
- STRATEGIC QUALITY PLANNING •
- HUMAN RESOURCE DEVELOPMENT
AND MANAGEMENT •
- PROCESS MANAGEMENT •
- PERFORMANCE RESULTS •
- STUDENT FOCUS • SATISFACTION •

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19960423 036

**Malcolm Baldrige National Quality Award
Pilot Program In Education**

Published by the
**DEFENSE SYSTEMS
 MANAGEMENT COLLEGE PRESS**



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Program Manager (ISSN 0199-7114) is published bimonthly by the Defense Systems Management College Press.

POSTMASTER: Send address changes to:
 DEFENSE SYST MGMT COLLEGE
 ATTN DSMC PRESS
 9820 BELVOIR ROAD
 SUITE G38
 FT BELVOIR VA 22060-5565

To subscribe, government personnel should submit written requests (using their business address) to the above address.

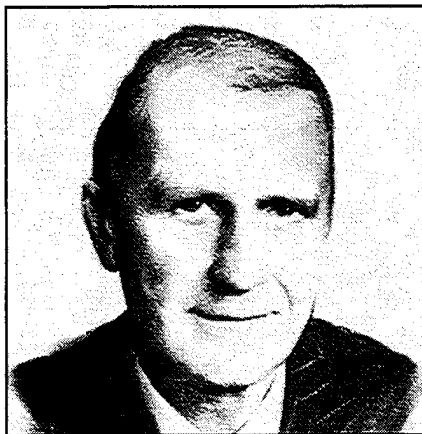
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PROGRAM MANAGER

A Bimonthly Magazine of the Defense Systems Management College

Vol XXV, No. 1, DSMC 130



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DSMC Participates in 1995 Malcolm Baldrige Pilot Program in Education

Collie J. Johnson

DSMC hosts the first on-site visit to a government agency by a team of Malcolm Baldrige National Quality Award examiners in conjunction with the 1995 Pilot Program in Education.

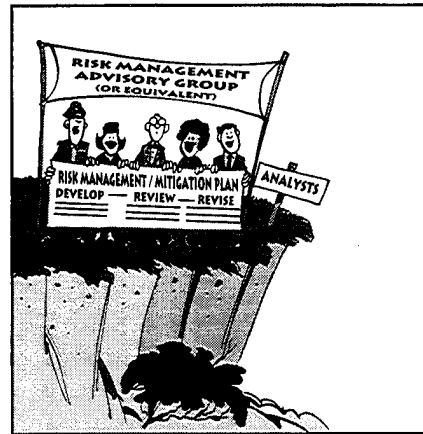


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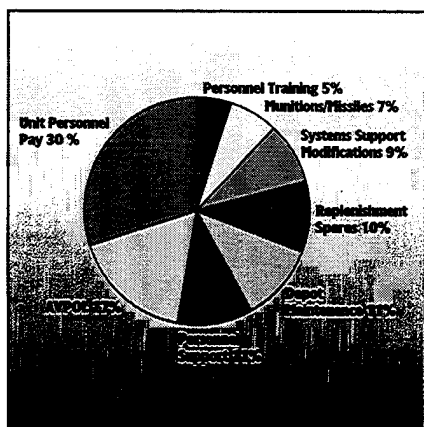


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DSMC Participates in 1995 Malcolm Baldrige Pilot Program in Education

Recognizing Quality Achievements in Education

COLLIE J. JOHNSON

An application for entry into the Malcolm Baldrige National Quality Award (MBNQA) Pilot Program in Education recently paid off in a big way for the Defense Systems Management College. As one of 13 academic institutions applying to participate in the Pilot, DSMC became the first government agency to receive a Site Visit by a team of Baldrige examiners.

What Did We Gain?

Although there is no tangible award to be gained from participation in the Baldrige Pilot Program in Education, the intangible awards abound. First and foremost, the College enjoyed the benefit of a Site Visit by the Baldrige examiners — a team of highly qualified professionals in the field of education who literally left no stone unturned in evaluating the primary criteria on which we were judged:

- Leadership
- Information and Analysis
- Strategic and Quality Planning
- Human Resource Development and Management
- Educational and Business Process Management
- School Performance Results
- Student Focus and Student and Stakeholder Satisfaction

About the Site Visit

The College was first notified by the the American Society for Quality Control (ASQC) of its selection as one of

three educational institutions selected to participate in the Site Visit phase of the Pilot Program on September 25, 1995. Subsequently, we were pleased to host a team of six Baldrige examiners during the period October 23-25, 1995. What were they looking for? Overall their objectives were to verify and clarify the information in our application. They also took a hard look at how well we are performing in our:

- approach to transforming to a quality/management philosophy;
- deployment of improvement strategies;
- integration of processes; and
- results.

Our emphasis during the Site Visit phase of the evaluation was to be responsive to the inquiries of the evaluators and to point out progress since the application was completed in April 1995. Adhering to the strict terms and conditions of the Baldrige administrative and ethical standards, the team probed to get a clear picture of the way DSMC does business. This report will ultimately be given to both DSMC and the Baldrige judges.

Brig. Gen. Claude M. Bolton, Jr., USAF, Commandant, DSMC, summarized the importance of the Site Visit:

This is a Win-Win situation. We've taken the time and focused a considerable amount of discipline on documenting all that we're doing. Now comes the payoff. We'll be able to get feedback from experts and learn

THE FIRST TEAM OF BALDRIGE EXAMINERS TO CONDUCT AN ON-SITE VISIT TO A GOVERNMENT AGENCY ARRIVED AT THE DEFENSE SYSTEMS MANAGEMENT COLLEGE, FORT BELVOIR CAMPUS, ON OCTOBER 23, 1995. FROM LEFT: WILLIAM ALEXANDER, TRENTON STATE COLLEGE; JULIE HORINE, UNIVERSITY OF MISSISSIPPI; JENNIFER FRANTZ, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY; EDWARD GORE, JR., SACRED HEART UNIVERSITY; DAN BARTON, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY; DAVID JOHNSON, DAVENPORT COLLEGE OF BUSINESS; STAN HARGER, STAN HARGER & ASSOCIATES; AND DEMETRIUS KARATHANOS, SOUTHEASTERN MISSOURI COLLEGE.



Ms. Johnson is Managing Editor, Program Manager, DSMC Press.

valuable lessons for moving forward.

An added benefit, according to Gen. Bolton, is the privilege of participating in a venture that will ultimately improve the quality of U.S. education. It was also an excellent opportunity for the College to advance the concept of the Malcolm Baldrige National Quality Award.

What Did We Learn?

What did the College learn about itself? Plenty. As a result of evaluating our programs and processes in preparation for the Site Visit, we:

- emphasized customer requirements and expectations;
- pinpointed our strategic direction (where we're going and how we're going to get there); and
- focused on guided, self-directed learning in our classrooms.

Getting Started

The team's visit culminated a tremendous year-long effort by the College. Beginning with a phone call by the College's Special Assistant for Quality, Dr. Mary-jo Hall, to the ASQC over a

MALCOLM BALDRIGE

26th Secretary of Commerce

Malcolm Baldrige was nominated to be Secretary of Commerce by President Ronald Reagan on December 11, 1980, and confirmed by the United States Senate on January 22, 1981.



During his tenure, Baldrige played a major role in developing and carrying out Administration trade policy. He took the lead in resolving difficulties in technology transfers with China and India. Baldrige held the first Cabinet-level talks with the Soviet Union in seven years, which paved the way for increased access for U.S. firms to the Soviet market. He was highly regarded by the world's most preeminent leaders.

Leading the Administration's effort to pass the Export Trading Company Act of 1982, Baldrige was named by the President to chair a Cabinet-level Trade Strike Force to search out unfair trading practices and recommend ways to end those practices. He was the leader in the reform of the Nation's antitrust laws.

Baldrige's award-winning managerial excellence contributed to long-term improvement in economy, efficiency, and effectiveness in government. Within the Commerce Department, Baldrige reduced the budget by more than 30 percent and administrative personnel by 25 percent.

Prior to entering the Cabinet, Baldrige was chairman and chief executive officer of Scovill, Inc., Waterbury, Connecticut. Having joined Scovill in 1962, he is credited with leading its transformation from a financially troubled brass mill to a highly diversified manufacturer of consumer, housing and industrial goods.

Baldrige began his career in the manufacturing industry in 1947 as a foundry hand in an iron company in Connecticut and rose to the presidency of that company by 1960. During World War II, Baldrige served in combat in the Pacific as a Captain in the 27th Infantry Division. He was born in Omaha, Nebraska, and graduated from Yale University with a bachelor's degree in 1944.

Baldrige worked during his boyhood as a ranch hand and earned several awards as a professional team roper on the rodeo circuit. He was a Professional Rodeo Man of the Year in 1980 and was installed in the National Cowboy Hall of Fame in Oklahoma City in 1984.

Malcolm Baldrige died July 25, 1987, in a rodeo accident in California. His service as Secretary of Commerce was one of the longest in history. He is said to have been possibly the most colorful Secretary of Commerce and one of the most beloved. He is survived by his wife Margaret and his two children.



year ago, the College began the arduous application process. Putting together a DSMC team to prepare the application was the next step. Headed by Professor John P. "Jack" McGovern, Manufacturing Management Department, Faculty Division, the Team coalesced into seven category teams. The category leaders for the Site Visit were:

- Leadership – Professor Bob Stryjewski
- Information and Analysis – Cmdr. Brian Kelmar, USN
- Strategic and Quality Planning – Dr. Mary-jo Hall
- Human Resource Development and Management – Lt. Cmdr. Jill Garzone, USN
- Educational and Business Process Management – Professor Don DeCoursey
- School Performance Results – Lt. Col. Bob Traube, USAF
- Student Focus and Student and Stakeholder Satisfaction – Professor Jesse Cox

Each category team worked with four to five others to research and write the application.

The 1995 Pilot Program in Education followed processes similar to those established for the Malcolm Baldrige National Quality Award. Our application highlighted the College's standing and performance in several key areas:

- our products and services;
- customers;
- organization;
- major markets;
- key customer quality requirements;
- employee profile (staff and faculty);
- equipment, facilities, and technologies used;
- suppliers;
- regulatory environment; and
- current status of quality.

The application, in essence, became a research document, collating the results of countless committees, meetings, charters, agendas, memoranda, focus groups, working groups, analyses, research projects, and student

"The economic liberty and strong competition that are indispensable to economic progress were principles that "Mac" Baldrige stressed..."

Ronald Reagan

feedback used to develop the College's strategic direction and environment.

What's Baldrige All About?

As America confronts the realities of the changing global marketplace, the importance of quality to our competitiveness, productivity, and our standard of living has become clear. Stemming from this renewed national quality awareness, Public Law 100-107, the Malcolm Baldrige National Quality Improvement Act of 1987, was signed into law by President Ronald Reagan on August 20, 1987. This Act established the Malcolm Baldrige National Quality Award, named in honor of the former Secretary of Commerce. The purposes of this Award Program are to:

- promote quality awareness and practices in U.S. business;
- recognize quality achievements of U.S. companies; and
- publicize successful quality strategies and programs.

Importance of Quality To Education

Along with the business community, the importance of quality to the educational community has become clear as well. Thus, the decision was made to pilot a Baldrige-based program in Education. The purposes of the Pilot Program in Education are to:

- determine the interest and readiness of educational organizations to

participate in a national-level recognition program based upon the ability to demonstrate overall performance improvement;

- evaluate the Pilot Program in Education criteria;
- determine the capability of the evaluation system, including volunteer experience, availability, and time commitment;
- test the appropriateness of eligibility rules;
- determine the value of feedback to the Pilot Program in Education participants; and
- determine the likely influence of a Malcolm Baldrige National Quality Award for Education on sharing of best practices information, cross-sector cooperation, and elevation of educational standards.

The Secretary of Commerce and the National Institute of Standards and Technology (NIST) are given responsibilities to develop and manage the Pilot Program in Education. Currently, NIST is working with the ASQC to administer the Pilot Program.

Baldrige Pilot Evaluation Teams — Composition and Responsibilities

The Baldrige Pilot Evaluation Teams consist of quality experts primarily from the educational sector. Not only do they evaluate Pilot applications, but also prepare final Feedback Reports. Members are selected by NIST through a competitive application process. All evaluators attend an intensive Preparation Course and are designated either Evaluators or Senior Evaluators.

What's Ahead?

We anticipate feedback and final evaluation of our 1995 application by mid-December 1995. During the interim, DSMC has appointed Professor Jesse Cox, Academic Programs Division, to oversee the College's assessment process using the Baldrige criteria.

EDITOR'S NOTE

Calendar year 1996 is currently projected to be another pilot year.

Defense Industrial Supply Center (DISC)

ED PAWLAK

Recent acquisition reform is not limited to elimination of unwarranted specifications and quality requirements. As a major field activity of the Defense Logistics Agency, the Defense Industrial Supply Center (DISC) in Philadelphia is responsible for the procurement of spare parts industrial hardware for the Military Services.

Specifically, DISC manages over 1.1 million National Stock Numbers, of which 64 percent are weapon system items. The wide range of these items includes engine bearings, miscellaneous hardware, barstock (raw material) and fasteners.

Divided into Commodity Business Units that enable a team of inventory, cataloging, technical, quality, and procurement personnel to act as a unit instead of the old "stovepipe" bureaucracy, DISC has reinvented procurement with a Qualified Manufacturer/Qualified Supplier (QM/QS) initiative. Originally established in Federal Stock Class 9500 (barstock) to provide a source of qualified suppliers, the initiative has been recently expanded into Class 3 fasteners. Class 3 fasteners have the greatest use in the aerospace industry. Procurement of these fasteners often requires additional assur-

ances such as Product Verification Testing and tighter surveillance at the contractor's facility. These drive costs up and impact delivery.

The concept of a Qualified Manufacturer List/Qualified Supplier List (QML/QSL) is to expedite procurement by eliminating unnecessary requirements while maintaining the quality needed for such critical components. Two separate criteria exist: one for suppliers and another for manufacturers. Both must apply to the program and agree to utilize the electronic data interface required in the procurement process.

This computer-generated system allows a contractor to access the active solicitation bulletin board and provide a quotation directly on-line. To be listed as either a supplier or a manufacturer, a company must submit a documented quality assurance manual that is indicative of the company's commitment to quality. This manual is reviewed for compliance to the QML/QSL criteria. The criteria have strict requirements regarding product traceability from the original material to the end item. An added assurance requires a qualified supplier to only offer material manufactured by a QML company.

Additional criteria requirements include record retention for 10 years and process control (including Statistical Process Control) by manufacturers. When required, the Defense Contract Management Agency surveys companies for conformance. In essence, a contractor not only has to "talk the talk," but must "walk the walk." Only those companies approved are then listed on the QML/QSL.

The QML/QSL companies awarded contracts are then relieved from extraneous testing and inspections and ship directly to the military customer. In addition to random audits and surveillance visits at the contractor's plant, DISC personnel monitor QML/QSL performance through a Customer Depot Complaint System. Plans are currently underway to expand the program to other Federal Stock Classes (FSC) managed at DISC, with the current emphasis on wire and cable (FSC 6145).

EDITOR'S NOTE

Mr. Pawlak is a Quality Assurance Specialist at the Defense Industrial Supply Center and a Quality Assurance Auditor certified by the American Society for Quality Control.

H A T ' S O F F . . .

TO PROGRAM MANAGER'S CHIEF OF DESIGN AND LAYOUT, PAULA CROISETIERE. WITH THIS ISSUE, YOU'LL NOTICE THAT WE HAVE A NEW LOOK — LIGHTER, SHARPER, AND ULTIMATELY MORE EYE APPEALING. PAULA IS THE BEHIND-THE-SCENES POWERHOUSE BEHIND THIS MAGAZINE'S DESIGN, LAYOUT, GRAPHICS, AND CONCEPTUAL ART. IF YOU LIKE WHAT YOU SEE, IT'S BECAUSE PAULA'S IMPRINT AND INFLUENCE ARE TO BE FOUND ON EVERY PAGE. THOUGH SELDOM RECOGNIZED IN ASSOCIATION WITH THE MAGAZINE, THE DSMC PRESS WOULD LIKE OUR READERS TO KNOW THAT THIS TRAIN DOESN'T RUN WITHOUT PAULA.



Some Considerations for Implementing Risk Management in Defense Programs

A Faithfully Followed, Structured Risk Management Process is Critical to Maximizing Program Success

EDMUND H. CONROW • MARK A. FREDRICKSON

Risk management is mandated for defense programs in several Department of Defense (DoD) directives and initiatives, including: DoDD 5000.1, *Defense Acquisition Management*, February 23, 1991; DoDI 5000.2, *Defense Acquisition Management Policies and Procedures*, February 26, 1993; DoDD 5000.2-M, *Defense Acquisition Management Documentation and Reports*, March 5, 1993; and DoDD 4245.7-M, *Transition from Development to Production*, September 1985. For example, DoDD 5000.1 states:

Risk areas to be assessed at milestone decision points include: threat, technology, design and engineering, support, manufacturing, cost, and schedule.¹

In addition, Defense Systems Management College publications, including *Risk Management Concepts*



Dr. Conrow is an independent management and technical consultant in Redondo Beach, Calif., specializing in defense and large-scale commercial projects. He has authored numerous articles for Program Manager and Acquisition Review Quarterly, and was recently awarded the David D. Acker Award for Skill in Communication at the DSMC-sponsored Acquisition Research Symposium, 1995. Mr. Fredrickson is a systems engineering program manager at Science Applications International Corporation, Torrance, Calif.

and Guidance (1989), provide approaches for assessing and managing program risk. Despite these guidelines and reference documents, the risk management process has been inadequately implemented in some defense programs. For example, the Air Force Acquisition Process Review Team on Clear Accountability in Design stated:

The contractor and government program management team overestimates technology readiness, downplays potential problems, and fails to plan and perform adequate risk management at

program initiation and throughout the program, resulting in unexpected cost overruns, schedule delays, and technical compromise. Initial impacts surface as early as Demonstration/Validation (DEM/VAL) and continue throughout succeeding program phases. These effects exist on all programs to varying degrees.²

In this article we will discuss some typical deficiencies associated with risk management processes for DoD programs. We will also examine in greater detail how the risk management pro-

cess was improved for one DoD program.

Some Common Risk Management Deficiencies

The following paragraphs briefly describe four risk management deficiencies observed in several DoD programs that were in the DEM/VAL or Engineering and Manufacturing Development (EMD) program phases.

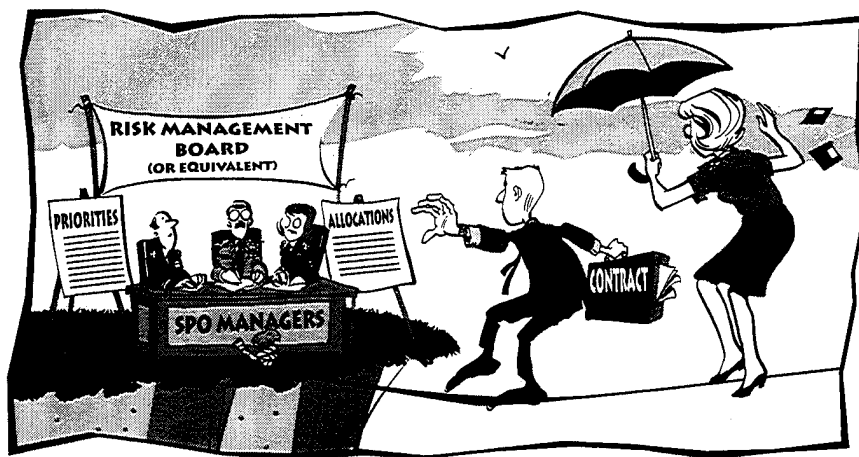
First Deficiency. The risk management process is often weakly structured or 'ad hoc' for both the government and contractors. There may be no clearly delineated mechanism in-place for managing program risk (e.g., organizational responsibilities, analyses, products, etc.), or if a risk management process exists, it may be present on paper only.

Second Deficiency. The risk assessment portion of the risk management process is often too subjective and not adequately documented.

- The prescribed risk assessment categories may be overly broad (e.g., management, technical), leading to difficulty in evaluating results and implementing a viable, measurable risk mitigation strategy.
- A weak risk assessment methodology may be used, which introduces considerable doubt as to the accuracy and value of the results for senior management use.
- Ordinal risk assessment scales are often incorrectly applied. Mathematical operations cannot be applied to scores obtained from uncalibrated ordinal risk assessment scales. Risk values generated by mathematical operations are generally meaningless and may hide true risk issues.³
- The risk assessment results may be summarized into broad categories (e.g., low, medium, and high) without sufficient backup to understand the nature of the risk present.
- The government and contractors may use different, incompatible risk assessment methodologies making comparing results difficult, if not impossible.

Inadequate risk management by contractors and government program management teams results in unexpected cost overruns, schedule delays, and technical compromise.





The government and each contractor team used widely dissimilar and incompatible risk assessment methodologies, making comparison of results very difficult.

Third Deficiency. The emphasis of the risk assessment process is generally on the uncertainty associated with a specific event occurring, with less attention given to the consequence of the event occurring. Risk is often inaccurately referenced as only the uncertainty term. However, it is the product of the uncertainty and consequence terms that yields risk.^{4,5} In addition, both the uncertainty and consequence terms require evaluation and tracking over time.

Fourth Deficiency. Program risk assessments and mitigation plans are often unlinked. In addition, they may be prepared on an as-needed basis with limited tracking against key program milestones.

Risk Management Implementation in One DoD Program

The following paragraphs discuss how the risk management process was improved for one major DoD program during the DEM/VAL phase. (Four

prime contractor teams initially existed during this program phase. Two contractor teams remained following a down-selection approximately 2 years later.)

Initial System Program Office (SPO) Risk Management Status. Risk management activities began early in the DEM/VAL program phase to assess whether or not critical program technologies existed or a viable path to their availability was in-place. Initial risk management activity was done in an "ad hoc" fashion by relevant experts. Organizations and individuals supporting risk management were not initially identified, nor were the analyses or products structured or maintained. The first program risk assessment was generated by a non-SPO organization. It did not adequately reflect the program's Work Breakdown Structure (WBS) nor accurately reflect the level of risk present.

The government and each contractor team used widely dissimilar and

incompatible risk assessment methodologies, making comparison of results very difficult. Different ordinal scales with inadequate definitions were used in each risk assessment. Mathematical operations were performed on the risk scores, which rendered the results nearly meaningless. Insufficient back-up generally existed to permit independent understanding of the results. In addition, the government and contractor teams evaluated a somewhat different set of risk categories which made comparing results difficult.

The main emphasis was evaluating the uncertainty term of risk. In all cases except cost and schedule risk the consequence term was derived from an uncalibrated ordinal scale. When it was estimated, the consequence term was often multiplied by the uncertainty term. Although this should yield risk, the mathematical operation was invalid for all but cost and schedule risk since both the uncertainty and consequence terms were derived from ordinal scales.³ Finally, little emphasis was placed on developing risk mitigation plans.

Modified SPO Risk Management Process. The SPO director (O-6) recognized that deficiencies existed in the risk management process. As a result, the deputy SPO director (O-5) was named the focal point for program risk management. The deputy director formed a Risk Management Working Group (RMWG) composed of chiefs of the SPO system engineering, technology, and test divisions (O-4s and O-5s), the SPO focal point for producibility, and appropriate other government and support contractor personnel.

The purpose of the RMWG was to provide risk-related products and recommendations to the SPO director for decision and implementation approval. Some of the RMWG's key responsibilities included:

- establishment, adoption, and application of risk management methodology;
- identification of all program risks;

- generation, control, and update of all approved program risk assessments;
- coordination with government agencies, laboratories, and contractors for risk assessment inputs, updates, and reviews;
- integration and verification of risk assessment inputs and updates;
- validation of program risk assessments;
- documentation of risk assessments and risk mitigation plans;
- evaluation of the feasibility of proposed risk mitigation alternatives;
- tracking risk mitigation progress over time; and
- review of program contract-related items for content necessary to permit support of risk assessment activities.



Of key importance was how the risk mitigation plans were implemented over time, and whether suitable progress was being made to reduce the identified level of risk present.

Membership on the RMWG was limited in size to facilitate working in a "shirt sleeve" environment. Over time, RMWG membership evolved to reflect changes in SPO organizational structure and the addition of new risk categories requiring evaluation. As needed, RMWG splinter groups were formed to resolve issues and action items that required specialized attention.

The responsibility for generating cost risk assessments remained with the SPO Program Control Division. (Both the government and contractors had suitable software tools for performing cost risk assessments.)

Initial RMWG meetings occurred to generate SPO-position risk assessments. The appropriate WBS level to perform the risk assessment varied between risk categories. For example, threat risk assessments were typically performed at a high WBS level (e.g., level 2), while technology risk assessments were typically performed at lower WBS levels to reflect key assembly items or parts (e.g., levels 5 or 6).

The reason for performing the risk assessments was twofold. First, it provided suitable material for the SPO director to respond to requests for risk assessments by DoD personnel. Second, it permitted the identification of

moderate- and high-risk items potentially present in the contractor designs. This facilitated the generation of a prioritized list of risk items critical to the program. It also permitted the SPO director to apply available resources and defend the need for additional resources for critical supporting programs both within and outside the SPO's jurisdiction.

The RMWG operations concept was to have a small splinter group develop strawman risk assessments for each item identified in the baseline design. These strawman assessments were then evaluated by technical experts associated with each hardware or software WBS area. A 1-day RMWG meeting was then held to generate final risk assessment scores and supporting rationale. An advantage of using this tiered assessment approach was that reliable risk assessments were generated in a relatively short period of time while placing only a slight burden on personnel. The period of time typically necessary to perform a program risk

assessment was less than 3 calendar weeks, with most of the work performed in less than 1 week.

The risk assessment process was part of a larger multi-step SPO risk management process. Risk assessment outputs were inputs to a supporting program assessment, necessary to identify critical technology and manufacturing programs needed for the program. Items identified as having high design and engineering, manufacturing, or technology risk would likely require a breadboard, prototype, and prototype qualification to eventually lead to a low risk level, while items identified as moderate risk would likely require a prototype and prototype qualification. Potential Milestone II exit criteria were evaluated against various program options to identify critical issues and develop suitable implementation plans. A risk mitigation plan was developed for technology and manufacturing supporting programs, and an issue resolution plan was developed for test experiment programs.

Technical performance measurements were identified and used to aid in tracking the risk mitigation process for design and engineering, manufacturing, and technology risk issues. Of key importance was how the risk mitigation plans were implemented over time, and whether suitable progress was being made to reduce the identified level of risk present. (For example, were planned experiments performed on-time, and were the results achieved from the experiments consistent with anticipated performance goals?)

Critical to the success of the risk management process was the derivation and acceptance of risk assessment ground rules and assumptions. A key ground rule necessary for any risk assessment is the reference time frame. We assumed that the risk assessment represented the current [today's] status for each item evaluated, and not a projected status at some future time. Future time frames generally have too many uncertainties to permit an accurate, consistent evaluation. In addition, several assumptions had to be developed and applied across the board to the risk assessment process. These assumptions included information pertaining to:

- mission objective requirements;
- threat evolution;
- design life and mean mission duration;
- parts quality;
- hardness levels;
- technology freeze and initial operational dates; and
- annual production rates and total production quantity.

Existing design and engineering, manufacturing, and technology ordinal risk (uncertainty) scales were modified to reduce inconsistencies and improve assessment accuracy. Supporting text, including definitions of key terms, was generated to further assist risk analysts. Surprisingly, even a common term such as "prototype" may represent different levels of hardware maturity between the Services and other government agencies.



**Those responsible
for program
risk management
must recognize
that having a
faithfully followed,
structured risk
management
process is critical
to maximizing
program success.**

A matrix of risk scores composed of each WBS item and category was generated and reported. Thresholds were identified for summarizing risk assessment results to low-, moderate-, and high-risk levels, and a set of summary charts condensing the risk results into these categories was developed. Detailed results were presented in quad charts to provide senior SPO management with information to make rapid, accurate, high-confidence decisions regarding resource allocation and critical program-level decisions.

Risk assessment summary level charts, detailed matrix charts, and quad charts were successfully used by the SPO director on several occasions to brief the program to higher-level DoD and Service management. They were also used to measure the claims of outside technology programs in terms of how they benefited the program. In some cases the risk assessment results shaped the direction of outside technology programs to increase the likelihood that they would yield products useful to the program. Finally, DoD recommended that related programs consider implementing the risk management process developed by this program.

The SPO risk management process was provided to the contractors at a major program milestone. The contractors were given some of the risk (uncertainty) assessment scales and supporting rationale to interpret the scale definitions. We found that without supplemental clarifying information, analysts often assigned incorrect risk scores. The contractors were instructed not to perform mathematical operations on uncalibrated ordinal risk scales (as each had previously done). They were, however, encouraged to investigate using enhanced risk assessment approaches if possible (e.g., quantitative analyses based on cardinal numbers). The contractors were contractually required to submit annual Risk Assessment Reports, including detailed risk assessments and risk mitigation plans for any item identified as

having a moderate or high score for the required risk categories.

Several follow-ups were needed with each contractor team over the next year to insure that the risk management process had been properly assimilated. One key SPO concern was that artificially low risk scores and overly optimistic risk mitigation plans might result since the two remaining contractor teams were still in competition. The contractors were instructed that realism in assessing and documenting risk and generating suitable risk mitigation plans was of paramount importance. Artificially low risk scores and unrealistic risk mitigation plans were unacceptable to the SPO.

Risk (uncertainty) assessment methodologies were also developed for a number of risk categories. Ordinal scales were developed for evaluating design and engineering, support, and technology software risk, support risk, threat risk, hardware/software integration risk, and test procedures risk. Ordinal scales were also developed for assessing the ability to meet mission objectives.

In addition, several ordinal scales initially developed to categorize mission failures associated with a historical database were transformed to consequence of occurrence scales. The resulting consequence of occurrence scales were far better suited for use by the program than the single scale used earlier by the RMWG.

We used ordinal scores in assessing all but cost and schedule risk. (Cost and schedule risk were assessed using Commercial Off The Shelf software that yields risk — encompassing both the uncertainty and consequence terms.) Although suitable ordinal scales can clearly be developed for the required risk categories, some substantial limitations exist in their use.

First Limitation. Ordinal scales yield a rank-ordered list of risk (uncertainty) ratings with generally nonlinear scale increments.

Second Limitation. Since the scores are ordinal, they are not mathematical probabilities, which are cardinal numbers.

Third Limitation. Some correlation may exist between risk subcategories and categories.

Fourth Limitation. The scale categories may not be composed of a complete set of subcategories.

Fifth Limitation. It is not mathematically possible to generate confidence intervals for ordinal scales.³

Future Direction

An enhanced risk management process was derived based upon experience obtained from two separate programs. Here, the RMWG functions have been split into a Risk Management Advisory Group composed of analysts, which develops, reviews, and revises risk assessments and risk mitigation plans, and a Risk Management Board composed of senior SPO managers, which is responsible for prioritizing risks and allocating resources to mitigate risks. Improved methods for performing risk assessments, planning risk mitigation, and reporting results were also developed for use by government and contractor analysts.

Closing Comments

The risk management process and information available to senior management for critical decision making was substantially improved over a 3-year period. However, as one would expect in this difficult program management area, some deficiencies can still be identified. Most of these deficiencies relate to cognitive issues associated with the reluctance to address program risk in an unbiased fashion. These problems are generally difficult to solve or even identify. For example, the National Research Council stated that the risk assessment process can be adversely impacted by:

- an inappropriate reliance on limited data;

- the tendency to impose order on random events;
- the tendency to fit ambiguous evidence into predispositions;
- the tendency to systematically omit components of risk; and
- overconfidence in the reliability of analyses.⁶

In addition, when faced with ambiguous or uncertain information, people have a tendency to interpret it as confirming their preexisting beliefs; with new data they tend to accept information that confirms their beliefs but to question new information that conflicts with them.⁷

Those responsible for program risk management must recognize that having a faithfully followed, structured risk management process is critical to maximizing program success. However, for the risk management process to yield worthwhile results it must be embraced by the senior SPO leadership and applied in an unbiased fashion.

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Strategic Planning in Government — The Key to Reinventing Ourselves

Let's Get Out of the Firefighting Mode and Into the Fire Prevention Game

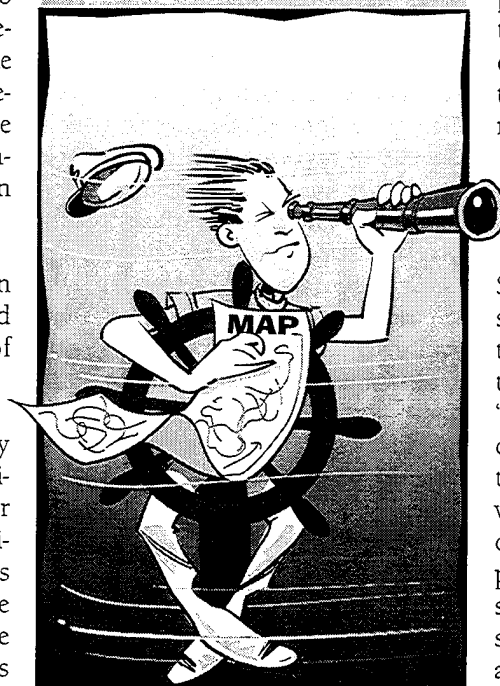
BERWYN E. JONES

The most frequent criticism of reinvention, reengineering, and quality improvement processes in government is the alarmingly low success rates they seem to have. Lack of top- or middle-management support is responsible for some failures, but another factor is often present as well: the lack of comprehensive strategic planning, both for the reinvention effort and for the organization as a whole.

Strategic planning is the identification of a desired long-range outcome and the development of a sequence of actions to achieve it, based on analysis of the organization's resources and its environment. Although military strategy dates back for centuries, business has used strategic planning for only about the last 30 years. Its application to civilian government activities is even more recent. Many of us have not come across the concept until the Government Performance and Results Act (GPRA) of 1993 mandated strategic planning and performance measurement in all federal agencies beginning September 30, 1997.

Strategic planning is easiest to do in a stable environment, where one can make assumptions about the future with great certainty, but planning is most necessary in periods of great stress and upheaval. In calm seas with gentle breezes, a sailor can safely set a

Reassessment and Readjustment



A clear understanding of one's destination and strategies needed to reach it are as important in government as in sailing.

course, lash the wheel, and take a nap. In rough seas, the sailor must make constant reassessment of position and readjustment of headings to maintain progress toward the desired destination. A clear understanding of one's destination and the strategies needed to reach it are as important in government as in sailing.

In traditional government organizations, strategic planning is solely the responsibility of top management. Since the managers make all the decisions, no one else has a need or a right to know the plan. Modern organizations, particularly those staffed with "knowledge workers," tend to involve a cross-section of the staff in preparing the strategic plan, to bring together wisdom from all levels and areas of the organization. By involving many people, management also obtains broader support for the plan and wider understanding of agency and unit purposes and goals.

Steps in the Planning Process

There are at least as many strategic planning models as there are consultants in the field. This particular model, although simpler than some, still involves a number of sequential steps that must be executed in order. The "Ready, Fire, Aim" technique just does not work in strategic planning, particularly when done in a team setting. The steps in this model are:

Dr. Jones is the National Quality Management Coordinator for the Water Resources Division of the U.S. Geological Survey. Dr. Jones holds a Ph.D. in Analytical Chemistry from Kansas State University and has published numerous research papers, a Quality Assurance Manual for the National Water Quality Laboratory, and a textbook on Analytical Chemistry.

- **Mission.** What basic agency activity do we exist to provide? Whom do we serve? What do we do for them?
- **Vision.** What sort of world will we live in 10 years from now? What position should we occupy in that world? Do we want to be the Rolls Royce or the Volkswagen of our industry?
- **Critical Success Factors.** What are the *few major* keys to achieving our vision? The things that, if we have them, it doesn't matter what else we lack; but if we don't have them, it doesn't matter what else we have.
- **Assessment of the Present.** In each of the Critical Success Factors, how well do we measure up today? How does (and will) the external environment affect our ability to succeed?
- **Strategic Objectives.** Knowing what we must have to succeed, and what we have today, what goals must we reach to close the critical gaps?
- **Tactics.** What is the best way to reach those critical goals, given our current resources and environment? Did we remember to consider people's feelings in our plans for change?
- **Action Plans.** Who will carry out the planned tactics? When? What resources must be provided? Don't forget to manage the feelings of people caught in upheaval! How should we measure our progress toward these goals? Will we know when we have reached our destination?

Mission

A mission statement constantly reminds us of our basic purpose. If it isn't accurate, we will be firing at the wrong target. It needs to address how we serve a need for our customer, not what we want from the customer. An American automaker once decided that its business was making money, not making automobiles. Some say that's when its troubles began.

A mission statement should not focus too narrowly. If, for example, your product is "carburetor," you will fail to see "fuel injection" when it comes along, and someone will take your market away. The true product here is "fuel-air mixtures." Think about the customer and the outcome, not about the technology now used to achieve the outcome.

Vision

A vision represents the highest aspirations of the organization. It must challenge and inspire its members. Some examples of well-written visions are:

Making the world safe for
Democracy.
Putting a man on the moon by the end
of the decade.
A land flowing with milk and honey.
We build great ships.

The best vision statements are brief and memorable. Explanations may accompany it, but the vision itself needs to be short.

The first step in creating a vision of the future is to make specific, explicitly stated assumptions about the future environment. This requires the fine art of "futuring," which is admittedly a risky proposition. For example, do you remember all the talk about the "leisure society?" How much leisure have you had lately? Since the plan will rest on one's assumptions, the plan must change if the assumptions prove invalid. An annual (or more frequent) check of the validity of the assumptions is the best way to decide when to reassess the plan.

The second part of visioning is creating a picture of the ideal organization to deal with this assumed future. I like to use the technique of "structured visioning" (which I learned here at the Defense Systems Management College) to develop this picture. I find that even the most hard-headed geologists, who deal in "just the facts, ma'am," can describe their ideal work environment. It usually includes a very altruistic view of service to the nation. The trouble

comes when different members of a management team have radically different visions, and they discover that they have been working at cross purposes for years. Before creating a plan, resolution of these conflicts is extremely important.

Critical Success Factors

The first step toward achieving the vision is to identify the key factors necessary for success. For example, a portion of my personal vision is to take advantage of the free ski passes given to those over 70 years old. If I plan to be around and in shape to do that, I need to start working on it now. Physical conditioning becomes a Critical Success Factor, not just something nice to have. Also, I'd be a little foolish to accept a job in Alabama. My location, one hour from Breckinridge, Keystone, and Winter Park, is a strategic advantage.

One of my colleagues says that Chief Executive Officers (CEO) of outstanding companies can readily identify a small number of critical corporate factors that promote success in their business, but CEOs of failing companies can usually name 35-50 "key factors." The art of focusing one's efforts on a few critical factors is essential to the development of a worthwhile plan. No consultant can tell you what these factors are in your company; you must identify each one. We can, however, help you focus your efforts — a task that may appear deceptively simple, but is actually harder than it seems.

Assessment Of the Present

The planning team should assign a team of knowledgeable stakeholders to assess each critical factor. These teams gather data and reach decisions about the strengths and weaknesses of the organization in their assigned factor, and evaluate opportunities and threats from outside. This is the classical SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis. It requires data and analysis. Too many teams want to whip this task off the

top of their heads in half a day. However, its importance merits more than superficial treatment.

Strategic Objectives

The SWOT assessment helps the team develop strategies to close the critical gaps between what exists today, and what must be "futures" to meet the critical success factor. Even with unlimited resources, most teams could produce endless lists of strategies! This is a mistake. The art of selecting strategies is to distinguish the "critical few" strategies from the "trivial many" — the "Pareto Principle."

The team then states each of the critical few strategies in a specific, measurable form called a Strategic Objective. The word "objective" implies a specific, measurable point in time and space. Rather than a general statement such as, "We gotta improve customer satisfaction," it specifies and quantifies that, "We will decrease new model development time from 60 months to 24 months within the next 5 years."

Strategic objectives should be long-range, roughly comparable to the planning horizon itself. They do not change within that horizon, unless the underlying assumptions do not prove to be true. Again, the Pareto Principle is crucial. Postulating a thousand strategic objectives will only dilute efforts to achieve the critical few.

Tactics

Tactical planning answers the "how-to-do" questions raised by the "what-to-do's" in the strategic objectives. They are shorter in duration, more specific, and subject to change if they don't work as planned, or if they meet unanticipated resistance. Each strategic objective will require a few well-coordinated tactical actions.

Planning teams often delegate each tactic to one or two organizational sub-units that have specific responsibilities in the area in question. The Japanese have a technique they call *Hoshin kanri*, translated roughly as "catch-ball." The term describes the act of tossing



the plan back and forth between the steering team and the sub-units, to negotiate the contribution of each sub-unit to the achievement of the strategic objective. Coordination of effort, while still allowing each sub-unit to use its creativity and professional knowledge, is the object of this process.

Once a year or so, the planning team should assess progress on each tactic, and alter the plan if things have not progressed as anticipated.

Action Plans

The final stage of planning involves the details of executing the tactics and the plan for measuring progress. The for-

mer is familiar to all of us: the who, what, when, where, and how of the plan. The latter is not typical in most government operations and needs some explanation.

Measurements in government have seemed to concentrate mostly on the size of budget and staff. These are *input* measures, and in the past have determined the importance and the pay grade of management. The second type of measure is the *output* measure, such as how many pieces of paper we process, or how many meetings we attend. These data are easy to produce and tend to demonstrate our busyness but not our success. In the long run, what really matters is whether all these resources and all these outputs cause any positive results. Now we are talking about *outcomes*, which are what GPRA demands and what any reasonable organization uses to justify its existence.

The proper measure of effectiveness of a government organization is not its consumption of resources, or the weight of paper it puts out, but the effect it has on society. Unfortunately, outcomes are hard to identify and hard to quantify. For example, a legend tells that Saint Patrick drove the snakes out of Ireland. The absence of snakes there might support this assertion, unless we find that the fossil record shows there never have been any snakes in Ireland! As in any good scientific experiment, the measurement process consists of the sequence, "Measure baseline, make a change, measure result, compute outcome." The classic system requires that changes be made one at a time, so that an outcome can be linked directly to a single cause. Try that in government! A newer technique called "design of experiments" makes it possible to study several variables simultaneously and to estimate the relative effect attributable to each (as well as the collective effects of combinations of variables).

A final word on the human side of the equation. We whose backgrounds are

in the technical areas tend to feel that a good strategic plan will sell itself to the people — *not so*. Managing the feelings of people involved in the great changes brought about by most good strategic plans is an integral part of the planning process. In many cases it is the single most critical determinant factor of whether a plan succeeds or fails. So bring the Human Resources people into the process early, and give them a chance to participate.

Techniques For Planning

The Total Quality Management teachers have developed many useful techniques for planning teams. For example, facilitators are critical for planning teams (especially in first-time planning efforts), although their role is somewhat more directive than in a quality improvement team. I therefore call this person a *coach* rather than a *facilitator*, to suggest a more active role in directing process, although not in directing outcome. The Seven Planning and Management Tools taught by Michael Brassard of Goal/QPC¹ are invaluable, but not easy to learn. Sequential team meetings with intervals between for data collection, consolidation, and review, which is used in



most Total Quality Management processes, are also useful for strategic planning teams. Unlike some consultants, I consider that expecting to complete a plan in a single 3-day workshop is unrealistic and counter-productive.

Conclusion

My closing thought is for those managers who say, "I don't have time to plan!" One of the best managers I know says, "Managing is planning. Not to plan is not to manage!" I believe that for too many years, most of us managers have been spending our days running around our shops putting out fires. We get a lot of encouragement in this activity from our superiors, who kindly allow us to help fight their fires, too. Anyone associated with a good municipal fire department knows that a tremendous emphasis is placed on fire prevention and on disaster planning. I think we need to follow that example. Let's get out of the firefighting mode (too bad — it's really exciting!) and get into the fire prevention game.

REFERENCE

Brassard, Michael, *The Memory Jogger Plus+*, Goal/QPC, 13 Branch Street, Methuen, Mass. 01844

ALL ABOARD...

ON OCTOBER 17, 1995, ABOUT 15 DSMC STAFFERS, SPOUSES, AND SIGNIFICANT OTHERS TOOK A DAY'S LEAVE AND TRADED STRESS, TRAFFIC, AND DAY-TO-DAY ROUTINE FOR A CHANGE OF PACE — A RIDE ON THE WESTERN MARYLAND RAILROAD'S "MOUNTAIN THUNDER" STEAM LOCOMOTIVE. DEPARTING FROM CUMBERLAND, MARYLAND, DURING THE PEAK OF "LEAF TURNING," THE TRAIN WOUND ITS WAY ACROSS MOUNTAINS AND VALLEYS TO THE PICTURESQUE TOWN OF FROSTBURG, MARYLAND. RIGHT (STANDING): TIM DECKER, BRAKEMAN; 3RD FROM RIGHT (STANDING): HOWARD NOVATTER, ENGINEER; CENTER (STANDING): RAY LARSON, FIREMAN.



DSMC'S Navy Chair Honored at Hispanic National Achievement Awards Conference

COLLIE J. JOHNSON

The Defense Systems Management College (DSMC), Fort Belvoir, Virginia, is proud to announce the selection of one its own as a winner in the Hispanic Engineer National Achievement Award competition. Professor Gibson G. LeBoeuf, Navy Chair, DSMC Executive Institute, was selected as one of the best and brightest of the nation's Hispanic engineers and scientists for 1995.

Winners in each category were determined by an independent selection committee comprised of representatives from industry, government, and academia. Professor LeBoeuf won in the category of Professional Achievement, Military, and was honored at the annual Hispanic Engineer National Achievement Award Conference (HENAAC) on October 14, 1995, at the Hyatt Regency Hotel, Houston, Texas.

A popular professor and colleague around the DSMC Fort Belvoir campus, "Gib" is a recognized professional as well as an outstanding representative of his Hispanic heritage. Born and raised in San Juan, Puerto Rico, his native language is Spanish, which he speaks and writes fluently. English is his second language — a fact not readily discernible due to his mastery of the printed and spoken nuances of the English language.

Professor LeBoeuf earned his Bachelor of Science Degree in Mechanical



Professor Gibson G. LeBoeuf, Navy Chair, DSMC Executive Institute, was selected as one of the best and brightest of the nation's Hispanic engineers and scientists for 1995.

Engineering in 1969 from the University of Detroit, and holds a graduate certificate in Engineering Management from American University, which he received in 1974. He also completed the Harvard Advanced Management Program in 1985.

After graduation from college, he accepted an assignment as a project engineer with the POLARIS FBM Project Office, Department of the Navy. Professor LeBoeuf has more than 25 years' experience in marine, naval architectural, and mechanical engineering disciplines, including acquisition of major complex weapons systems. Prior to his appointment as the Navy Chair at DSMC, he was on the staff of the Honorable Malcolm Wallop, United States Senate, where he was a Senior Legislative Fellow primarily involved with Senate Armed Services Committee defense-related issues.

A member of the Senior Executive Service and American Society of Engineers, Professor LeBoeuf currently serves on the Secretary of the Navy's Hispanic Council and is a member of the Senior Executive Association and the Harvard Business Club of Washington, D.C. He is also a member of the National Association of Hispanic Federal Executives and serves on the DSMC Corporate Leadership Board. Professor LeBoeuf is listed in *Who's Who in America*.

Ms. Johnson is Managing Editor, Program Manager, DSMC Press.

A N N O U N C I N G

DSMC Press Announces Publication of 1994-1995 Research Fellows Report

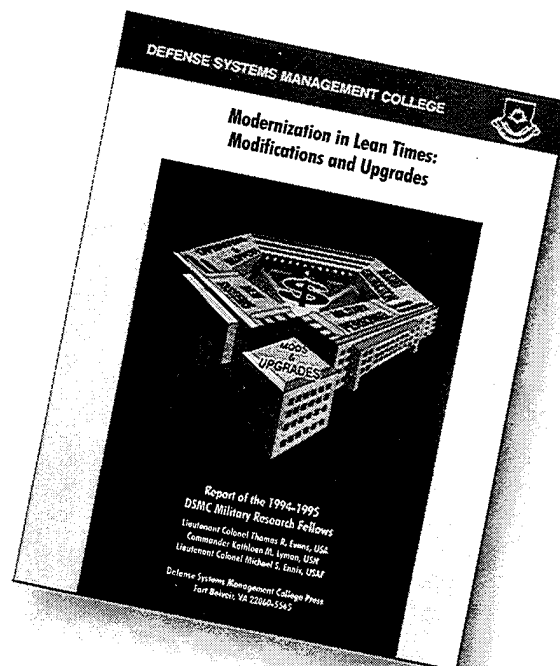
Modernization in Lean Times: Modifications and Upgrades

This report, written by three military research fellows at the Defense Systems Management College (DSMC), summarizes research efforts during their 11-month fellowship program. The Services selected Lt. Col. Thomas R. Evans, USA; Cmdr. Kathleen M. Lyman, USN; and Lt. Col. Michael S. Ennis, USAF, to attend this annual military research fellowship program and offer their varied expertise in the area of systems acquisition.

This program, sponsored under the auspices of the Under Secretary of Defense for Acquisition & Technology (USD[A&T]), has two goals. First, it provides an advanced professional education for selected military officers from the Army, Navy, and Air Force at the Harvard Business School's Program for Management Development; and second, it provides an opportunity for research in an area of interest to the Department of Defense (DoD) acquisition community. The DSMC, in keeping with its role as the center for systems management excellence within the DoD and cooperating with the Harvard Graduate School of Business, provided the means for conducting this fellowship.

The 1994-95 Fellows' research topic was modifications and upgrades. As the replacement cycle for weapon systems grows and the turnover in technology shortens, one answer to maintaining an effective weapon system is through modifications or upgrades. This report provides a concise, top-level review of the DoD regulations, policies, and guidance pertaining to major weapon systems' modification and upgrades. Since modification and upgrades are normally handled at the Service level, this report offers a review of each Service's policies and procedures. The report was not constrained to the DoD only; the fellows studied the modification and upgrade procedures for industry, other countries, and one other government agency in an effort to provide an insight into how others perform this process.

Government personnel interested in obtaining a copy of this report may send a written request to the following address:



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ATTN AS PR
9820 BELVOIR RD
SUITE G38
FT BELVOIR VA 22060-5565

Government personnel may also telefax their requests on official stationery to (703) 805-3726.

Nongovernment organizations and employees may order the report by contacting the Government Printing Office at (202) 512-1800. Request **GPO Stock Number 008-020-01366-8** - Cost: \$10.00. Telephone credit card orders can be made 8 a.m. to 4 p.m. eastern time, to (202) 512-1800. Orders can also be telefaxed 24 hours a day to (202) 512-2250.

Should you have any other questions regarding the 1994-1995 Research Fellows Report or how to obtain a copy, please call (703) 805-4366 or DSN: 655-4366.

Acquisition Reform Communications Center (ARCC) Broadcasts First Program via Satellite

Interim FASA-94 Rules

MARY ACKERMAN • MARY LOU BENZEL
THOMAS J. DOLAN, JR.
COL. SHAROLYN I. HAYES, USA
DIANA MAYKOWSKYJ • VICTORIA MOSS

By now most of our professional acquisition workforce is aware that Congress passed and the President signed into law on October 13, 1994, the Federal Acquisition Streamlining Act (FASA) of 1994, which made fundamental changes to the federal acquisition system. Specifically, FASA requires that all acquisition changes be implemented no later than October 12, 1995. Special teams of federal employees, under the guidance of the Department of Defense and the General Services Administration (GSA), have produced rules to implement the provisions of FASA.

ARCC Presents First Broadcast

On June 28, 1995, the Acquisition Reform Communications Center (ARCC) of the Defense Acquisition

University (DAU) presented the first in a series of satellite broadcasts to distribute information on the new rules. Originating live from the Army Logistics Management College at Ft. Lee, Va., the broadcast reached over 15 thousand people. Included in the audience were contracting officers and

contracting specialists, purchasing agents, small business specialists, legal representatives, auditors, contract educators, and their industry counterparts.

The broadcast focused on several key areas: the simplified acquisition threshold; micro-purchasing; the use of the



Ms. Ackerman is a State Department employee and member of the FASA Simplified Acquisition Procedures/FACNET Team.

Ms. Benzel is a General Services Administration employee and Director of Customer/Vendor Relations, Service Acquisition Center, Federal Supply Service.

Mr. Dolan is a Visiting Professor, DSMC, and the ARCC Broadcast Moderator.

Col. Hayes, USA, is the Director, Acquisition Reform Communications Center (ARCC), Defense Acquisition University.

Ms. Maykowskyj is a Defense Logistics Agency employee and Team Leader of the FASA Simplified Acquisition Procedures/FACNET Team.

Ms. Moss is a General Services Administration employee and Team Leader of the FASA Small Business Team.

government purchase card; simplified acquisition procedures; electronic commerce, electronic data interchange (EC/EDI); the Federal Acquisition Computer Network (FACNET); and small business set-asides. Lasting approximately 2½ hours followed by a 1½-hour question-and-answer period, the session was presented by the team leader and other experts involved in the development of the interim rules.

The following highlights were covered during the broadcast:

Simplified Acquisition Threshold/Simplified Acquisition Procedures

The FASA established the simplified acquisition threshold at \$100K and established simplified acquisition procedures for procurements up through this threshold. Procurements under the simplified acquisition threshold are exempt from 15 specific acquisition statutes and related provisions/claus-

es. Procurements exceeding the micro-purchase threshold (\$2500) but not exceeding \$100K are reserved for small business concerns. It was emphasized during the broadcast that the simplified acquisition threshold (\$100K) does not equal simplified acquisition procedures. In other words, a contracting office does not automatically have the authority to use simplified acquisition procedures for acquisitions up through \$100K. In order to have this authority, the contracting office must be interim FACNET-certified.

Electronic Contracting/Electronic Data Interchange (EC/EDI) — FACNET

The FACNET is the government electronic commerce/electronic data interchange systems architecture for the acquisition of supplies and services that provides electronic data interchange of acquisition information. Accordingly, FACNET will provide

contracting offices the electronic data interchange capability to post widespread notices of contracting opportunities, to issue solicitations to receive quotes, to permit industry access to notices and solicitations, and to permit industry to submit quotations. Once a contracting office is interim FACNET-certified, it may use simplified acquisition procedures at the simplified acquisition threshold

The broadcast focused on the simplified acquisition threshold, micro-publishing, the government credit card, simplified acquisition procedures, EC/EDI, FACNET and small business set-asides.



(\$100K). The requirement to post contract notices or publish in the *Commerce Business Daily* does not apply to contract actions that are processed via FACNET. The DoD Electronic Commerce Office is presently distributing information on the interim FACNET certification procedures.

PREPARING FOR THE FIRST ARCC SATELLITE BROADCAST ON JUNE 28, 1995, FROM LEFT: VICTORIA MOSS, GSA, TEAM LEADER OF THE FASA SMALL BUSINESS TEAM; COL. KEVIN O'BRIEN, USAF, MEMBER [LEGAL] OF THE SIMPLIFIED ACQUISITION PROCEDURES/FACNET TEAM; DIANA MAYKOWSKY, TEAM LEADER OF THE FASA SIMPLIFIED ACQUISITION PROCEDURES/FACNET TEAM; DAVID DRABKIN, OFFICE OF THE DEPUTY UNDER SECRETARY OF DEFENSE FOR ACQUISITION REFORM; MARY ACKERMAN, STATE DEPARTMENT, MEMBER OF THE FASA SIMPLIFIED ACQUISITION PROCEDURES/FACNET TEAM; THOMAS J. DOLAN, JR., VISITING PROFESSOR, DSMC, AND BROADCAST MODERATOR; MARY LOU BENZEL, GSA, DIRECTOR OF CUSTOMER/VENDOR RELATIONS, SERVICE ACQUISITION CENTER, FEDERAL SUPPLY SERVICE. SEATED: LARRY LERER, DEFENSE ACQUISITION UNIVERSITY, BROADCAST DIRECTOR. BEHIND CAMERA: COL. SHAROLYN HAYES, USA, DIRECTOR OF THE ACQUISITION REFORM COMMUNICATIONS CENTER (ARCC).



GENERAL INFORMATION

For further information on Interim FASA-94 Rules,
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Industry participants were advised that they must register with the Centralized Contractor Registration Office in Columbus, Ohio, in order to do business with the government electronically. They were advised that further information on EC/EDI could be obtained by contracting the EC/EDI hot line at 1-800-EDI-3414.

Micro-Purchases

Included in this section of the broadcast was information on the new micro-purchase threshold, which has been established at \$2500. The interim rule on micro-purchasing was published on December 15, 1994, and was effective on the date of publication. Micro-purchases are not required to be set aside for small business concerns and are exempt from the Buy American Act. The government-wide Commercial Purchase Card is the preferred method for micro-purchases. In using the purchase card, one must comply with FAR Part 8, Required Sources of Supply. Finally, individuals who are delegated micro-purchase authority and who are unlikely to exceed \$20K in any 12-month period are not considered procurement officials for purposes of the Procurement Integrity Act.

Small Business Set-Asides

The FASA reserved acquisitions between \$2500 and \$100K for small businesses. An acquisition must be set aside if there are two or more small businesses that can meet the government's needs and are competitive with market prices with regard to quality and delivery. Detailed information on small business reservations was covered during the broadcast.

Government Purchase Card

The session on the Government Purchase Card included several topics of interest under FASA. Current statistics were presented that showed a significant increase in the use of the card since the passage of FASA in October of 1994. The history of the program was discussed as well as the benefits and controls embedded into the program as part of the contract between

GSA and Rocky Mountain BankCard Systems. Discussion of the development of agency internal procedures as well as comprehensive purchase card training were also presented. Current restrictions were addressed along with the requirement to first check mandatory source of supply items before using the card to purchase on the open market. The GSA's acceptance of the purchase card at its Customer Supply Centers was also mentioned.

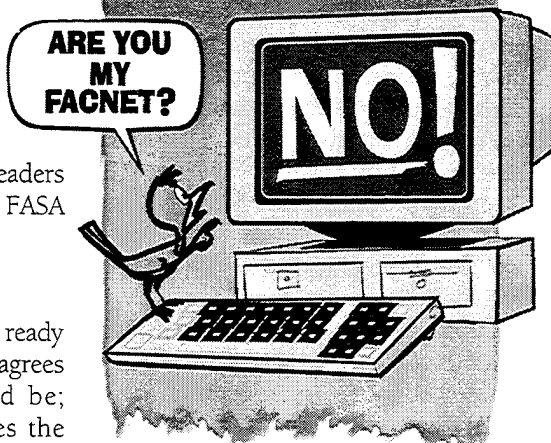
FASA Broadcast — A Team Effort

Putting a FASA broadcast together is a team effort. That team is made up of DoD (Army, Navy, Air Force, Defense Logistics Agency), the many civilian agencies of the federal government, our industry partners, schools, and communication facilities that make all the uplinks, downlinks, and keep us on-line. Lest we forget, another vital link is all the people who make the changes happen. From the leaders and members of the individual FASA teams come the "new" rules.

Getting Started

The first step is getting a rule(s) ready for publication. Once the team agrees on what the changes should be; argues, discusses, and resolves the

FACNET will provide contracting offices electronic data interchange capability to post contracting opportunities, to issue solicitations for quotes, to permit industry to access solicitations and submit quotations.



issues internally (as an example, within the Simplified Acquisition Procedures/FACNET team); then the "proposed" rules are put out for public comment...usually 30-60 days. The team reconvenes, reviews, and prepares responses to *all* the comments. If necessary, the rules are rewritten taking into account the public comments. The rules are then sent back to agencies for re-comment. Once agreed upon, the rules are sent to the Federal Procurement Council for review and approval. Once approved, the rules are sent to the Office of Management and Budget for review; and finally, the rules are sent to the Office of the Federal Register, National Archives and Records Administration, for formatting and publishing.

Future Broadcasts

The publication of a rule in the *Federal Register* is the driver behind putting a broadcast together, and serves you, the audience, in two ways: keeping you informed, and providing initial training. As new rules are published in the *Federal Register*, the DUSD(AR)/DAU/ARCC will conduct additional future satellite broadcasts on the rules covering the FASA 94. The ARCC expects to issue information on the time and date for these broadcasts as they are finalized.

ARCC CONTINUES GETTING THE WORD OUT

The Defense Acquisition University's Acquisition Reform Communications Center (ARCC), headed by Col. Sharolyn I. Hayes, USA, continues its mission to communicate fundamental changes in the federal acquisition system. Pictured: FASA-94 team members rehearse at the Department of Agriculture in Washington, D.C., for their August 23, 1995 satellite



broadcast to the professional acquisition workforce. From left: Mr. John Galbraith, FASA-94 Team Leader, Contract Finance/Payment; Mr. Craig Hodge, FASA-94 Team Leader, Protest and Disputes; Lt.

Rider, FASA-94 Team Leader, Contract Award; Mr. Clarence Belton, FASA-94 Team Leader, Cost Principles; Mr. Al Winston, FASA-94 Team Leader, Truth in Negotiations Act (TINA).

Col. Julius Rothlein, USA, FASA-94 Team Leader, Ethics; Mr. Robert Sebold, Counsel for FASA 94, Special Contracting Methods Team; Mr. Daniel Tucciarone, FASA-94 Team Leader, Audit; Mr. David Drabkin, ODUSD(AR), Program Manager for Implementation of FASA-94; Col. Larry Trowel, USAF, FASA-94 Team Leader, Commercial Contracting; Ms. Melissa

Innovative Program Office Restructuring — Where to Begin

EELV Program Director Relates His Experiences in Developing a Streamlined Organizational Structure

ROBERT K. STEELE

The pace of change in the acquisition environment is continuing to accelerate. At times it's difficult to keep up with the latest innovations and streamlining opportunities, and yet we must take advantage of them in order for our programs to survive and prosper in the new climate. More and more program directors are being pushed toward smaller, more streamlined program office manning structures. This push toward reduced manning is not an arbitrary desire to shrink government manning levels, but is a result of personnel drawdowns, budget reductions, and a need to redefine the role of the government in acquisition to focus our efforts where we will have maximum impact. As has been stated by senior management, we are now being asked to do less with fewer resources.

Acceptance — The Beginning

When a program director begins the process of analyzing how to reduce the program's resource requirements in the case of an existing program, or what the structure will look like for a new program, there are several phases the organization's management will pass through. First is denial — the mid-level managers will simply refuse

to accept the mandate for change and will assert that it is impossible to dramatically reduce the manpower required to manage the given program. This is clearly the wrong answer. However, after the expressions of anger and outrage and with great consternation and hand wringing, the managers will begin to progress to the next phase of the analysis: token reductions. Here, minor reductions will be proposed, but these changes do nothing to alter the fundamental program management role. Rather than innovation, these proposals for reduction are a mere "belt-tightening." Without being unduly pejorative, they are mainly cosmetic.

Finally, the realization sets in — this is no longer the old way of doing business. Many of the managers will fall on their swords and decry the new environment, but there will also be the positive thinkers that will embrace the change as a new challenge. Once the organization's management reaches this point, the important decisions can now be made with respect to those activities that are required and necessary for the program to function.

As the managers enter discussions of the new structure, senior management

must provide the ground rules for the exercise. We defined a minimum set of rules as follows:

- No area is exempt from examination/re-examination of its needs and requirements.
- We defined the new paradigm as a shift away from government oversight of contractor products to government insight into the contractors' processes. Fundamentally, if we have confidence the contractors are using the appropriate processes, regardless of the area of the program (whether in a technical sense or budget development, configuration management or earned value measurement), we will feel some level of comfort that the products will be acceptable.

Start with a Clean Sheet

The best way to go about the analysis necessary to devise a streamlined structure is to start with a clean sheet. This approach is preferable to taking the current organization and trying to pare down the positions, which most often leads to concerns about individuals — not the new approach to acquisition management. The clean sheet affords the opportunity to lay out the tasks that must be accomplished and

Mr. Steele is the Deputy Program Director for the Evolved Expendable Launch Vehicle (EELV) program at Los Angeles Air Force Base, Calif. The program has been designated an Air Force Lead Program for acquisition streamlining. Currently, it is a \$2 billion development program with a production potential of \$20 billion.

then at a later time, match people with positions.

As we went through this process, we found the best way to start is by identifying the basic needs. We accomplished this by asking each functional area to develop a listing of what they believed were the mandatory tasks that must be accomplished to support the program and meet all statutory and regulatory requirements. Once these lists of tasks or functions were developed, the group met to begin defining the level of manning that would be available for each functional area.

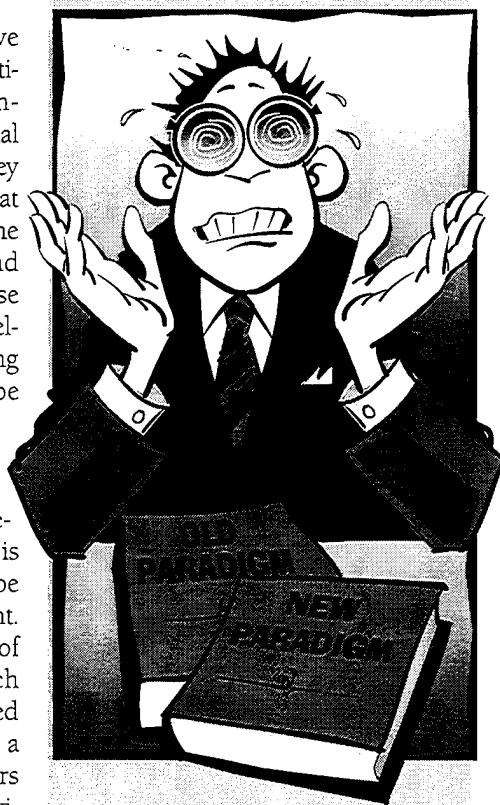
Obviously, there are numerous mandatory administrative requirements for which each organization is responsible. Clearly, these have to be accounted for and addressed up front. But rather than blindly accept all of the current overhead burden, each office should evaluate these perceived mandatory requirements as well. In a world of shrinking resources managers must determine which of these activities has limited value or benefit, and look to reduce this burden as well. We found there were numerous "nice-to-have" requirements for personnel that are actually good candidates for not only streamlining, but also finding other ways to get these tasks accomplished. There are numerous examples of resources that program directors feel more comfortable with, but are not required (e.g., computer support and manpower/manning).

The Pain Begins

Once the specific functional tasks have been identified, the pain begins. When entering this restructuring process, the program director will undoubtedly be given some guidelines as to the threshold of total manning permissible or deemed reasonable by senior management. The initial breakout of manning levels will be dependent on the overall number of people allowed as well as the specific acquisition phase of the program.

In our case, we were given a specific manning threshold for a program that

Denial



First is denial – the mid-level managers will simply refuse to accept the mandate for change and will assert that it is impossible to dramatically reduce the manpower required to manage the given program.

was entering a combination of concept development and demonstration/validation. With the limited numbers of spaces available to programs, few if any will be able to have the level of technical expertise that has been traditionally enjoyed by defense acquisition programs. We made the conscious decision that we needed to empower the contractors on technical issues regardless of how many individuals we targeted for inclusion in the technical element of the program office. With this in mind, we ensured that enough people were allocated to the contracting, program control, and acquisition development areas to minimize those risks as the program progressed.

Sorting out The Work

After the initial allocation of spaces, the functional managers took the lists of tasks and first prioritized these activities, then evaluated the impact of the manning numbers on their defined workloads. We developed a common set of terminology to identify the level of responsiveness the office would be able to achieve with the manning constraints identified. The terminology included: robust, minimally acceptable, degraded, severely degraded, and defer/transfer.

After the functional managers completed the prioritization and evaluation of activities, the group met again. This time the goal was to ensure the level of detail of activity definition was consistent across functional areas and that the rating of work that could be accomplished seemed to correspond to the manpower constraints identified.

By using the ratings of sufficiency, we were able to do a rational, fair comparison of the priority of tasks across the program. Based on these results, the group then made some modifications to the manning levels tentatively assigned to each functional area. At this point, some functions were actually transferred between

elements of the organization to gain benefit from synergy and reduce the requirement for manning.

The Concept of "Off-Loading"

For those elements that the program would not have sufficient resources to address, other ways had to be found to accomplish them. When pressed to accomplish the task, and constrained in resources, we found numerous opportunities to find help in getting the tasks done. We identified those activities that could reasonably be deferred to a later phase of the program, and those that could be "off-loaded" to other organizations.

Our group identified the majority of the off-loading activities in the technical support areas dealing with detailed specialty functions, specifically engineering. When identifying elements for off-loading, we are not talking about abdicating responsibility or "hiding" personnel in other organizations. We defined this approach as limited support or help in critical program areas where we lacked resident program office personnel. In other words, when the group surfaced a specific issue that needed to be addressed, we asked for consultation help from the experts. This can be thought of as a "Distributed Organization."

Outside activities will be asked for support when specific critical activities requiring functional expertise not contained in the program office are required. This will keep the program from relying on underutilized specialists that might not be fully employed during the entire phase of the program and necessarily keeps the program office from becoming too involved in the details of the contractor's work. Not only does this fall in line with the mandate to move from oversight to government insight, but it has the added benefit of providing support and validation to laboratories and other organizations where this specialty work rightfully belongs.

Reluctance



However, after the expressions of anger and outrage and with great consternation and hand wringing, the managers will begin to progress to the next phase of the analysis: token reductions.

In the spirit of innovation and streamlining, the lists of activities on those items that cannot be actively pursued or completely covered within the manning constraints also provide an excellent breeding ground for ideas on how to eliminate or minimize activity. We were amazed at the number of opportunities we saw to reasonably streamline out of the program activities that we had previously accepted as necessity simply because we have always done them and had never before considered elimination. One very good example of an opportunity to streamline is in reporting. With only minor tailoring (and of course the wherewithal to convince the report recipients of the change), multiple, previously unrelated reports can be satisfied with a single report format, saving countless hours of developing independent but similar reports.

Defining The Risks

By completing the process of task identification, prioritization, and rating, a clear picture emerges of the programmatic areas that present the most risk. At this point it is the responsibility of the program director to assess this risk and determine its acceptability. Risk resides in every program; the key is to ensure the risk lies in areas that are reasonable and that the level of risk is acceptable. The program directors' evaluation may lead to some further minor refinements in the distribution of resources.

With this information in hand, the senior decision makers have a clear view of the issues and what is to be accepted if the program structure is approved. Additional benefits accrue in that the rankings and ratings of the tasks provide a roadmap for risk mitigation as well as an already defined blueprint for future increases in resources or decrements in available personnel. Rather than the thrashing through of activities when personnel are added (or deleted), marginal increases or decreases have already been planned for, and the senior deci-

sion makers have superior insight into the impact of changes to personnel resources for the programs.

Clearly, the activities and risks will not remain constant. Programs change, the contractors' activities change, and the areas of risk within the program fluctuate on a constant basis. Thus, the reassessment of activities, priorities, and responsibilities must be accomplished from time to time. This should come as no surprise, although as a general rule, tradition tells us that programs add personnel to areas that become more critical without ever reducing the resources in areas that became less critical. The present environment will not allow for the continual growth of program offices. As programs transition from one acquisition phase to another, these are excellent opportunities for revision to the task lists.

Challenges to Management

The actual steps outlined are relatively easy to accomplish. A certain amount of soul searching and stubby pencil work is involved, but defining the tasks is simply a matter of defining the job responsibilities. The major challenge to management will come from changing the mindset of the individuals involved. Most often, the senior levels of management in a program office have been sensitized to the need to reduce and innovate. Our experience is that the mid-level managers don't understand the pressures to streamline. As was discussed, the steps of denial, reluctance, and ultimately acceptance of the new paradigm are necessary.

The revolution in program management is to trust the contractors. This thought is the most difficult for many to accept, particularly in light of some of the individual's past experiences with the same contractors. But the reality is that in the new order, not only will the government acquisition personnel be more trusting, but it is also incumbent on the

Acceptance



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contractors to do everything in their power to engender more trust and accept responsibility for the technical aspects of the program. Under this construct, program directors must learn to manage the new organization model much the way a conductor leads an orchestra, ensuring that the diverse parts work together harmoniously.

One other point needs to be made. When the exercise is to restructure an existing organization, senior management must understand that when the organization is finalized, there will likely be individuals who do not fit into the new framework. Constraining the number of people working on a program requires each individual to be more experienced. Those already in place in existing organizations may not have the correct grade/rank, experience, or skill. In order to avoid decimating morale during the perturbations, program directors must carefully explain that manning changes are based on the new organization and not on the worth of the individuals involved. This will likely be the most painful part of the whole process, but it is a necessary activity to achieve the streamlined results that have been mandated.

The Final Reality

The reality is there will be difficulties on acquisition programs. Risks will not be mitigated as planned; areas that were not evaluated as "risky" will in fact create problems; people will make mistakes. But rather than be paralyzed by the fear of mistakes, we need to trust ourselves, our superiors, and our subordinates — trust they have the knowledge and experience to avoid the major program-threatening catastrophes. The job of program directors is to minimize the opportunities for mistakes and optimize the resources at their disposal. Every function is subject to scrutiny and analysis in this effort, but the long-term benefits are critical — *continued survival in a changing acquisition environment.*

Defense Manufacturing Council (DMC) Chairman Sponsors 2-Day PEO/SYSCOM/PM Conference at DSMC

Council Continues Its Work to Keep U.S. Defense Capability No. 1

COLLIE J. JOHNSON • DIANE M. WRIGHT

Undertaking an ambitious agenda, the Defense Manufacturing Council (DMC) Chairman, Hon. R. Noel Longuemare, Principal Deputy Under Secretary of Defense (Acquisition and Technology), hosted a 2-day PEO/SYSCOM/PM Conference at DSMC's Scott Hall, October 11-12, 1995. Participants included the DMC Executive Council, the Component Acquisition Executives, Service Program Executive Officers, System Command Commanders, and other key DoD acquisition personnel.

Background

The DMC was chartered by the Deputy Secretary of Defense on October 27, 1994 to oversee the implementation of an integrated Department of Defense (DoD) strategy for achieving affordable weapon systems that meet all essential performance requirements. The conference represented the Council's efforts to promote cross-Service enrichment in a forum designed to disseminate information about DMC activities. Additionally, its goals included soliciting comments and agreement from the DoD acquisition community leaders on DMC strategies and enhancing the implementation of acquisition initiatives at the program level.

Topics and speakers for the conference were selected using the Services'

input and direction. As examples for other program managers, the agenda also highlighted programs whose managers have achieved success implementing key DMC strategies.

In his opening remarks, Secretary Longuemare stated that he called the conference to "focus on ways that we can improve our products...and find a mechanism to graphically reference and institutionalize that improvement process." Referring to his priorities regarding the outcome of the conference, Secretary Longuemare told the conferees to focus on implementing

THREE MEMBERS OF THE DoD SENIOR ACQUISITION LEADERSHIP WERE HIGHLY VISIBLE AT THE CONFERENCE. FROM LEFT: HON. R. NOEL LONGUEMARE, PRINCIPAL DEPUTY UNDER SECRETARY OF DEFENSE (ACQUISITION AND TECHNOLOGY); MS. DARLEEN A. DRUYUN, ACTING ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITION; AND VICE ADM. WILLIAM BOWES, USN, PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE NAVY (RESEARCH, DEVELOPMENT, AND ACQUISITION).



Ms. Johnson is Managing Editor, Program Manager, DSMC Press.

Ms. Wright is a Staff Specialist, Air Warfare, Office of the Under Secretary of Defense (Acquisition and Technology).

two significant initiatives as they go back to their jobs: common processes and cost control.

Status of Acquisition Documentation and Authority

The first day of the conference began with several briefings to update the conferees on the status of acquisition documentation and authority.

DoD 5000 Rewrite. For 25 years DoD Directive 5000.1 and Instruction 5000.2 have been the centerpiece of defense acquisition policies and procedures. As part of our acquisition reform efforts, this Directive and Instruction are being updated. Mr. John Smith outlined the specific changes to the document. Streamlined in length and complexity, the rewrite incorporates new laws and policies, separates mandatory policies and procedures from discretionary practices, and integrates weapon systems and Automated Information Systems acquisition. Copies of the draft rewrite were provided to the conferees for review. A display of the "on-line" access capabilities of the new DoD 5000 was also set up at the Conference.

Assessing Defense Industrial Capabilities. Mr. John Goodman spoke about the process of maintaining the defense industrial capabilities during the drawdown. Committing scarce DoD resources to preserve industrial capabilities requires a deliberate decision by the responsible procurement authority. To this end, a handbook was developed as a guide for reasoned, objective, and consistent decisions regarding industrial capabilities. The key is to correctly identify endangered DoD-unique capabilities and manage specific instances where sub-tier suppliers are at risk.

Other Agreements Law. Mr. Rick Dunn and Mr. Tim Arnold spoke about authority currently available to the Advanced Research Projects Agency (ARPA), which affords statutory relief and broad streamlining of the acquisition process. They discussed

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tion Systems
acquisition.**

the success that they have had in using this authority for the Tier II+ and Tier III- Unmanned Aerial Vehicle programs. Legislation in the 1995 authorization is expected to continue the ARPA authority and potentially extend the authority to the Services and other DoD organizations.

Best Practices

The remainder of the day focused on "Best Practices" – actively practicing the best and most cost-effective processes and procedures, government or commercial, to acquire affordable weapon systems that meet all essential performance requirements.

Tools and Techniques. Mr. Edward Bair, the session chairman, introduced

the session. Dr. Ken Oscar began the session by focusing on the use of performance specifications that allow the contractor flexibility and responsibility for the design. He emphasized the use of past performance to ensure the selection of a qualified contractor, reduce program risk, and reduce contract administration. Dr. Oscar also mentioned some spares procurement initiatives, which are underway at the Army, underscoring the key concept that acquisition reform can be applied to all that we buy.

Mr. Bob Macfarlane followed with a presentation on alternatives to litigation for promoting a healthy business climate and reducing cost, disruption, and schedule delays. Fast, fair, effective, and inexpensive results have been demonstrated using alternative disputes resolution. Improving the debriefing process has also been a model for achieving better partnering between the contractor and government.

Mr. Thomas Meyer discussed the practice of using oral proposals in lieu of written proposals. Oral presentations and discussions have been very beneficial as a supplement to written proposals and to clarify questions.

To conclude the morning session, Mr. Ernie Renner discussed the best Manufacturing Practices Center of Excellence, which serves as an archive of successful manufacturing practices, methods, and procedures in the areas of design, test, production, facilities, logistics, and management. Their "on-line" service, available to the government and contractors, provides a place to obtain information about available resources to help make advances and improvements without making costly mistakes.

Software Acquisition Best Practices Initiative

A display of the Software Acquisition Best Practices Initiative was available for the conferees to view during breaks. This initiative, directed by Secretaries Longuemare and Paige, identi-

flies software practices from both government and industry, and expands and supports the efforts now underway by the Software Program Managers Network to identify and convey the practices, training, and tools to the acquisition community.

Tracking Success

During lunch, the conferees listened to program managers from each Service discuss their metrics for tracking the success of recent acquisition reform initiatives. The programs briefed were: Fire Support Combined Arms Tactical Trainer (FSCATT); Joint Direct Attack Munition (JDAM); and the New Training Helicopter. Metrics are considered essential for measuring progress and setting goals for future improvements. The key, however, is knowing what to measure. A subsequent panel discussion was led by Mr. Bill Mounts.

Application of Commercial-like Practices

To improve quality, reduce cost, and reduce cycle time, the Defense Manufacturing Council established a Common Process Facility Initiative. Mr. John Burt explained the initiative and the need for a systematic reduction of government-driven requirements, oversight, and documentation.

Lt. Gen. Dick Scofield reported on the recommendation from the Joint Aeronautical Commanders Group Non-Governmental Standards Integrated Product Team. He spoke about the major elements of acquisition reform: establishing a performance-based business environment; motivating and rewarding efficiency and effectiveness in our supplier base; and training the workforce.

Mr. Robert Scott spoke about the Defense Contract Management Command's (DCMC) role as the integrating player for the government/contractor team implementing common processes. The government will no longer dictate the manufacturing process to be used across all Defense contractor plants. Instead, each contractor will propose processes, which are

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common to all of their products, to be instituted within their facility. Upon government review, the contractor is free to implement the process with minimal surveillance.

Mr. George Williams highlighted the success that he has had with this initiative in the Raytheon plant. This success story encompasses three Services, the Defense Plant Representatives Office, DCMC, Defense Contract Audit Agency, and the contractor. It has resulted in reduced manufacturing and business processes, accelerated transition to commercial practices, and reduced schedule and cost. The Raytheon plant makes extensive use of contractor internal process control, audits, and data; simplified testing and acceptance; and uses contractor-controlled technical data.

The guest speaker for the dinner was Mr. Henry A. Shomber, a current consultant to Boeing, and former Boeing Engineer and Program Manager with

nearly 40 years' experience. Mr. Shomber shared his experiences in leading the Design Build Team and Product/Process Integration Development and Implementation on the Boeing 777 Program, from its outset in late 1989, through airplane certification in May 1995.

Integrated Product Teams (IPT)

The morning session on the second day focused on the topic of Integrated Product Teams — a concept endorsed and directed by Dr. Paul G. Kaminski, Under Secretary of Defense (Acquisition and Technology), in his April 28, 1995 Report, "Reengineering the Acquisition Oversight and Review Process."

I direct an immediate and fundamental change in the role of the OSD and Component staff organizations currently performing oversight and review of acquisition programs. In the future these staff organizations shall participate as members of integrated product team or teams, which are committed to program success. Rather than checking the work of the program office beginning 6 months prior to a milestone decision point, as is often the case today, the OSD and Component staffs shall participate early and on an on-going basis with the program office teams, resolving issues as they arise, rather than during the final decision review.

—Hon. Paul G. Kaminski

The IPT session of this conference was included on the agenda to follow up on questions from the July 1995 IPT Offsite and to share recent IPT implementation experience.

Led by the session chairman, Mr. John DeSalme, a panel of Service members with Overarching Integrated Product Team (OIPT) and Working-Level IPT experience fielded questions from the audience. Following the panel, conferees attended smaller breakout groups

A Reliable Indicator Of Team Success

CYNTHIA LEA TOOTLE

Teams are receiving much attention these days — whatever the problem, teams are the answer. But all of us know of teams that have functioned well, written good reports or recommendations, and then, nothing happened. Why do some teams succeed and not others? Recently, I attended a lecture by Deborah G. Ancona, Associate Professor of Organizational Studies, at MIT Sloan School of Management that provided an interesting answer to that question — an answer that reinforced my own experiences throughout my 24-year career in Army acquisition.

Professor Ancona's studies show that the most reliable indicator of a team's effectiveness is how well the team handles "boundary management." She reports that boundary management activities for a team include linking to the power structure, coordinating laterally

within the organization, and scouting for information throughout the organization. Create more effective teams by putting people on the team that are known for doing these activities well and by making these activities part of the charter of the team.

Managers should ask these questions of teams: Are you keeping top management aware and supportive of your work? Have you spoken to the other offices in your organization about what you are doing? Have you gained their support? How far outside of your organizations have you gone to gather information that could be useful?

EDITOR'S NOTE

Ms. Tootle is a Strategic Planner for the U.S. Army Research Laboratory, Adelphi, Maryland.

to discuss specific elements of the IPT process and implementation. The smaller groups focused on OIPT operations and responsibilities; Working-Level IPT operations and responsibilities; barriers to IPT implementation; and metrics for measuring IPT success.

Mrs. Colleen Preston, Deputy Under Secretary of Defense (Acquisition Reform) addressed the conference at lunch on the second day. She provided status updates on legislation and acquisition reform efforts.

Cost As An Independent Variable

The final session of the conference focused on Cost As An Independent Variable (CAIV). Secretary Longuemare presented a brief overview, followed by presentations of the JDAM, AIM-9X, and Comanche programs,

which have successfully implemented the CAIV concept. Dr. Spiros Pallas, who led the CAIV Working Group, defined the CAIV concept and the policy recommendations. Following the session presentations, the speakers and session chairman, Mr. Harry Schulte, fielded questions from the floor.

Secretary Longuemare and the Service Acquisition Executives concluded the conference with a wrap-up and question-and-answer session. Speaking of past successes and his anticipation of even greater future progress in acquisition reform, he remarked, "It is interesting to see how far we have come since the last time we were gathered. At that time, we were struggling to figure out what topics we should talk about. Now we are way beyond that

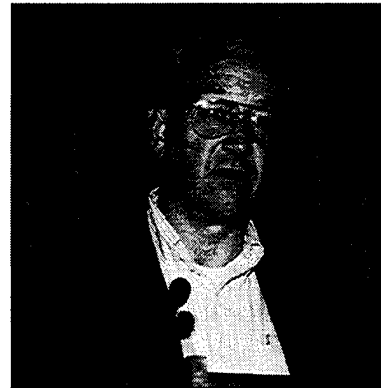
point. We are talking about how we can accelerate a large number of thrusts. We've discovered that reasonable ideas are actually working, and it's up to us to develop the mechanisms to bring those ideas to the forefront."

Secretary Longuemare then noted that the Council anticipates holding these conferences semiannually. In closing, he thanked the conferees for their enthusiastic participation and urged them to provide feedback. "We hope you leave here with a better understanding of the new approaches to acquisition. The reforms we've discussed during the last 2 days will only be successful if we are able to fundamentally take these changes and institutionalize them, make them everyday practices, and implement them across the board."

PEO / SYSCOM / PM

HELD AT DSMC, OCTOBER 11-12, 1995

The Defense Manufacturing Council (DMC) Chairman, Hon. R. Noel Longuemare, Principal Deputy Under Secretary of Defense (Acquisition and Technology), hosted a 2-day PEO/SYSCOM/PM Conference at DSMC's Scott Hall, October 11-12, 1995. Participants included the DMC Executive Council, the Component Acquisition Executives, Service Program Executive Officers, System Command Commanders, and other key DoD acquisition personnel. The conference represented the Council's efforts to promote cross-Service enrichment in a forum designed to disseminate information about DMC activities. Additionally, its goals included soliciting comments and agreement from the DoD acquisition community leaders on DMC strategies and enhancing the implementation of acquisition initiatives at the program level.



◀ HON. PAUL G. KAMINSKI, USD(A&T), WRAPS UP THE FIRST DAY OF THE PEO/SYSCOM/PM CONFERENCE.

▶ MRS. COLLEEN PRESTON, DUSD(AR), SERVED AS LUNCHEON SPEAKER ON THE SECOND DAY OF THE CONFERENCE, PROVIDING STATUS UPDATES ON LEGISLATION AND ACQUISITION REFORM EFFORTS.

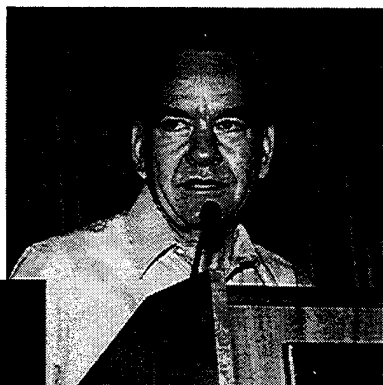
▶ LEFT TO RIGHT: HON. GARY L. SMITH, ACQUISITION EXECUTIVE, U.S. SPECIAL OPERATIONS COMMAND; VICE ADM. WILLIAM BOWES, USN, PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE NAVY (RESEARCH, DEVELOPMENT, AND ACQUISITION); HON. PAUL G. KAMINSKI, USD(A&T); MS. DARLEEN A. DRUYUN, ACTING ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITION; HON. GILBERT F. DECKER, ASSISTANT SECRETARY OF THE ARMY (RESEARCH, DEVELOPMENT, AND ACQUISITION); AND HON. R. NOEL LONGUEMARE, PDUSD(A&T).



▶ ONE OF SEVEN BREAKOUT GROUPS DISCUSSES THE OPERATION AND IMPLEMENTATION OF INTEGRATED PRODUCT TEAMS.



CONFERENCE



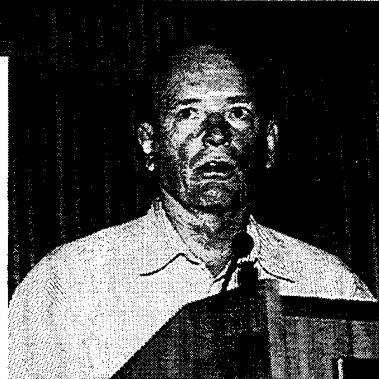
◀ HON. R. NOEL LONGUE-MARE, PDUUSD(A&T), DELIVERED THE OPENING REMARKS FOR THE PEO/SYSCOM/PM CONFERENCE.



◀ MR. HENRY A. SHOMBER, A CURRENT CONSULTANT TO BOEING AND FORMER BOEING ENGINEER AND PROGRAM MANAGER WITH NEARLY 40 YEARS' EXPERIENCE, WAS THE GUEST SPEAKER AT DINNER ON THE FIRST DAY OF THE CONFERENCE. MR. SHOMBER SHARED HIS EXPERIENCES IN LEADING THE DESIGN BUILD TEAM AND PRODUCT/PROCESS INTEGRATION DEVELOPMENT AND IMPLEMENTATION ON THE BOEING 777 PROGRAM, FROM ITS OUTSET IN LATE 1989, THROUGH AIRPLANE CERTIFICATION IN MAY 1995.



◀ MR. GEORGE C. WILLIAMS, PROGRAM EXECUTIVE OFFICER, TACTICAL MISSILES, HIGHLIGHTS THE SUCCESS OF THE COMMON PROCESS INITIATIVE AT THE RAYTHEON PLANT.



◀ LT. GEN. TOM FERGUSON, USAF (RET), A CONSULTANT FOR IDA, SERVED AS CONFERENCE MASTER OF CEREMONIES.

▲ COST AS AN INDEPENDENT VARIABLE (CAIV) PANEL. LEFT TO RIGHT: DR. SPIROS PALLAS, PRINCIPAL DEPUTY DIRECTOR, STRATEGIC AND TACTICAL SYSTEMS; MR. DARRELL L. HARRISON, DEPUTY PROGRAM MANAGER, COMANCHE; CAPT. THOMAS L. MACKENZIE, PROGRAM MANAGER, PMA-259 AIR-TO-AIR MISSILE; MR. TERRY LITTLE, PROGRAM DIRECTOR, JOINT DIRECT ATTACK MUNITION; AND MR. HARRY E. SCHULTE, PROGRAM EXECUTIVE OFFICER, AFPEO/TS.



◀ RIGHT: HON. PAUL G. KAMINSKI, USD(A&T), REVIEWS LITERATURE DISPLAYED AT THE SOFTWARE ACQUISITION BEST PRACTICES EXHIBIT WITH MR. NORM BROWN, SOFTWARE INITIATIVE COORDINATOR.

Military Specifications (MILSPEC) Reform

Change is Underway in the Way We Write and Apply Standards Prescribing Management and Manufacturing Practices

WALTER B. "BRAD" BERGMANN II

The DoD is engaged in radical reform of the way it conducts its acquisition business. The timing for radical reform is not only right, but world events have made it essential. The end of the Cold War has had a dramatic impact on the DoD. Declining requirements and budgets are resulting in fewer purchases of defense-unique products. Between 1985 and 1995, our procurement accounts will have fallen by more than 60 percent from over \$100 billion to \$45 billion. In addition, the defense-unique industrial base on which the United States has historically relied is undergoing profound changes. The defense industry is restructuring, consolidating, and diversifying. In some cases, companies have left the industry entirely. The bottom line is that the DoD can no longer afford to rely solely or primarily on defense-unique capabilities.

New Policies and Strategies

The DoD is responding to its rapidly changing political and economic environment by developing new policies and strategies to make sure we equip our troops with weapon systems that are reliable, technologically advanced, and affordable. Our acquisition reform efforts are not just a noble endeavor — these efforts must succeed to ensure that we have the industrial and technological capabilities we need to meet current and projected national security requirements. Our goals are threefold:

- First, reduce the cost of the weapon systems and other materiel that we buy. We must eliminate military-unique requirements and procedures that drive up acquisition costs without adding value.
- Second, remove impediments to getting state-of-the-art technology into our weapon systems. While we drove technology developments for many years, this largely is no longer the case. For many leading-edge technologies critical to battlefield success — such as information systems, telecommunications, and microelectronics — the greatest advances are occurring in the commercial sector. This is because the bulk of the research and development money is now spent in the commercial sector. In 1965, for instance, the DoD and the commercial industrial sector spent approximately the same amount on research and development. By 1990, the industrial sector outspent the DoD by nearly two-to-one.
- Third, facilitate the diversification into commercial markets of firms that have traditionally produced goods primarily, if not solely, for Defense. To do this, we must enable firms to shed the overhead caused by our regulations so that they can competitively price their products.

What are the Reforms?

Secretary Perry directed that specifications and standards reform produce three results:

- establish a performance-based solicitation process;
- implement standardization document improvements; and
- create irreversible cultural change.

The Defense Standards Improvement Council, which I chair, oversees implementation of the Secretary's direction. The Council is composed of Senior Executives from each of the Military departments, the Defense Logistics Agency, and the Office of the Secretary of Defense. It meets twice a month to establish policy and procedures; review progress; review selected, high-impact documents; and direct actions necessary to ensure full implementation of the Secretary's direction. A brief discussion of the status of each of these challenges follows:

Performance-based Solicitation Process

A 1976 study by the Defense Science Board found that the single largest problem with MILSPECs was improper application. It recommended changes in the way we write and apply the standards that prescribe management and manufacturing practices. While many changes were made as a result of that study, nearly 20 years later, program offices still place standards on contracts with little effective tailoring and without clearly understanding why. Certainly, no one intentionally includes requirements that do not add value. But program offices, like many other offices, have more

Mr. Bergmann is the Director, Acquisition Practices, Office of the Assistant Secretary of Defense (Economic Security). He is responsible for providing policy and planning direction for DoD programs related to Commercial/Defense Industrial Base Integration, Standardization, Commercial and Nondevelopmental Item Acquisition.

work than they can do. So they develop Requests for Procurement (RFP) at the photocopy machine — if it worked for the last contract, it will surely be good enough for this contract.

One of our first reform efforts was to break the paradigm of routinely imposing military specifications and standards. Even if we had a perfect set of specifications and standards, premature application, over-application, and inappropriate application would still be a problem. The Military departments have established procedures for "scrubbing" solicitations to ensure proper application of military specifications and standards. In one of the most controversial provisions of MIL-SPEC reform, program managers must now obtain a waiver to cite a military or federal specification or standard as a solicitation requirement in a major acquisition. While the waiver process has not been particularly popular, it has been effective at forcing people to stop, think, and identify their essential requirements. Our initial experience shows that often, program offices cannot explain why they impose specifications and standards. In some cases, only a sentence or two needs to be extracted from the document to achieve the real intent. And the change is beginning to yield results, shown in next column.

Document Improvement Process

There are many situations where MIL-SPECs will still be needed. But "business as usual" is being eradicated here too. The documents that will populate our index of specifications and standards in the future will bear little resemblance to those of the past.

With the largest library of specifications, standards, and related documents in the free world, making all of them conform to the new order is a daunting task. Department personnel are reviewing every military specification and standard to ensure that they support acquisition reform principles. The review is complex and full of different possible outcomes. However, we are involving users in the Military Depart-

ACQUISITION REFORM TODAY

- **Requirements are being described in performance terms in solicitations.**
- **Where military or federal specifications or standards are deemed to be necessary, waivers are being obtained.**
- **Solicitations for new acquisitions which do cite military or federal specifications or standards typically also contain language encouraging offerors to propose alternatives.**

ments and Defense Agencies, the DoD functional proponents, industry associations, and private-sector standards developing organizations to help us decide whether to: cancel a document; convert it to a performance-type document; replace it with a nongovernment standard; convert it to a guidance-type document; or retain it as is.

The review, of course, is labor-intensive, and will take until near the end of the year to complete. However, we have placed a priority on reviewing military standards before military specifications, and this review is nearly complete.

Our emphasis on military standards is for two reasons. First, there are only about 1,700 standards versus over 28,000 specifications. Second, they offer the best target for reducing weapon system cost. Many studies have concluded that standards have the greatest potential to incur the most non-value added cost by imposing excessive reporting and auditing requirements on industry. The DoD's use of these standards is one of the more significant barriers to commercial acquisition and integration of commercial and military production lines.

To date, the Defense Standards Improvement Council has made decisions on the top 100 cost-driver standards. Nearly half of these documents have been canceled or declared "inactive for new design." Twenty percent of these documents will be converted to "for guidance only" handbooks or guides. Ten percent are being retained until an adequate nongovernment standard becomes available. Most of the remaining documents will be converted to a performance-type document.

Ultimately, the Defense Standards Improvement Council will decide the future of all existing military standards. While the review of the remaining 1,600 standards will not be as intense as that given the top 100, each of the Standards Improvement Executives is reviewing the standards for which they are responsible, with an eye toward elimination or replacement with a nongovernment standard.

The Council has already directed the cancellation of about 150 of the remaining standards, and the proposed cancellations are being advertised now in the *Commerce Business Daily* and on the World Wide Web for government and industry reaction.

Irreversible Cultural Change

A key to cultural change is effective communication. It really doesn't matter if we come up with all of the answers, if no one knows about them;

and admonitions to do things differently don't work unless people are given new tools.

The Acquisition Streamlining and Standardization Information System or ASSIST is an automated management tool capable of providing a complete index of specifications and standards used by the DoD and who is responsible for each; document tiering information; cancellation and replacement information; and much more. It will soon include an automated search standardization directory, so you can easily identify activities that are responsible for commodities or technology areas. We're also incorporating all of the questionnaire responses from the review of all documents, so you can get a feel for our direction. Planned incorporation of a project tracking system will let you know what action is being taken and the milestone dates.

We have also established a Homepage on the Internet that you can reach using browser software to access the World Wide Web. Our Homepage URL is: <http://www.acq.osd.mil/es/std/stdhome.html>. We also have a toll-free number for complex inquiries: 1-800-DAR-SPEC (1-800-327-7732).

The information on our Homepage is constantly expanding. Some material posted there includes: all of our policy memorandums; the Standardization Newsletter; status reports on Council decisions affecting selected specifications and standards; and answers to the most frequently asked questions on MILSPEC reform. We're also providing links to the related Homepages of the Military departments and Defense Agencies as they become available. We update the information at least every 2 weeks. That, in a nutshell, is where we are. Now some food for thought.

Nongovernment Standards Development

Many of our reinvention efforts are devoted to looking at alternatives to military standards in subject areas

ranging from systems engineering to configuration management to software to drawings. While I encourage these and other efforts, let me offer a little caution.

Our goal is not to merely transition from military and federal documents to nongovernment standards. Our goal is to reduce acquisition costs and remove impediments to commercial-military integration by emulating commercial buying practices wherever possible. Adopting "true" nongovernment standards is a means to that end. To take a document that is obviously military-unique and slap a nongovernment standard label on it undermines everything we're trying to do. The acid test for whether it's appropriate to replace a military document with a nongovernment standard is whether the replacement standard will actually be used by commercial industry. If the answer is no, then a replacement document is pointless and contrary to what we are trying to achieve.

A second point is that we are noticing competing standards-developing organizations developing duplicative nongovernment standards. This is becoming especially visible now as standards developers seek to replace military specifications and standards with their documents. Neither the DoD or industry has enough resources to waste on redundant efforts.

Reaping the Benefits of MILSPEC Reform

The Defense Contract Management Command (DCMC) and the Defense Contract Audit Agency (DCAA) have established a DoD Reinvention Laboratory aimed at reducing the cost of government oversight. Currently, there are 10 contractors participating in the laboratory, and there are plans to expand to more contractors.

The Reinvention Laboratory provides contractors the opportunity to propose alternatives to, or the elimination of, contract or regulatory requirements. At each site, Reinvention Teams made up of both contractor and gov-

ernment personnel are chartered to review requirements and operations, and propose alternatives. Also, at each site a Management Council is established to evaluate reinvention strategies, review proposals, authorize changes within local or program discretion, and recommend up-the-chain alternative proposals for approval. Each Management Council is comprised of the DCMC District Commander, the Defense Plant Representatives Office Commander, the Regional DCAA Manager, the resident DCAA auditor, the Program Managers and Program Executive Officers doing business with the facility, and top-level contractor representatives.

The Reinvention Laboratory concept provides an excellent forum for recommending elimination or substitution of military specifications and standards. All the major ingredients are together: a council of senior customers and DCMC, which meets to address changes, and a council that can look at individual contract requirements or contract requirements across a factory.

What's intriguing, however, is how few proposals have been submitted within the Reinvention Laboratory regarding specifications and standards. Although the Defense Standards Improvement Council has taken action to eliminate more than 50 documents, which industry asserted added cost without adding value, the only standards that are consistently raised in the Reinvention Lab are on quality and soldering.

It's time for industry to start putting solid recommendations on the table. The environment is right for change. We [Department of Defense professional acquisition workforce] understand industry's concerns and have taken action to eliminate long-standing problems. We also understand, however, that many companies can be as conservative about change as the DoD. However, it's time for industry to propose specific alternatives to military specifications and standards. Our joint credibility is on the line.

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Arms Unbound: the Globalization of Defense Production

Document From CSIA Studies in International Security No. 4

Brassey's (US)

BY DAVID MUSSINGTON

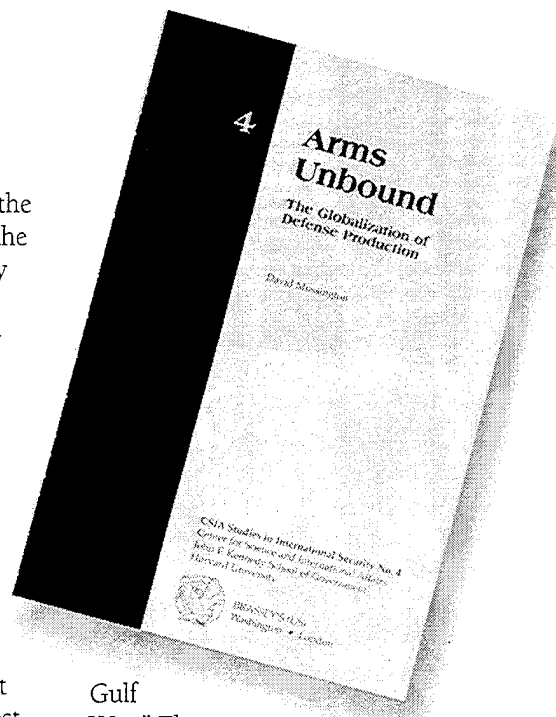
David Mussington begins his analysis of the proliferation of weapons of mass destruction from an economic perspective — surely the most reliable and logical vantage from which to examine the issue. At the very outset, Mussington opens strongly by weeding out the political rhetoric that usually entangles the issue of discriminatory controls on the most powerful armaments. He writes that, “New arms control initiatives in the major supplier nations inevitably confront the economic needs of their domestic firms.” In this way, the author rapidly arrives at the kernel of the matter: Regardless of treaties, protocols, and regimes, nonproliferation may be a losing battle because of the financial attractions of the global defense market, particularly in the selling of military wherewithal to the “second-tier” or the technologically acquisitive nations of the traditional Third World.

In examining the political economy of the arms trade, Mussington uses three methodologies: the Modern World System approach (the hierarchal, zero-sum game view of supplying weapons and dual-use technology, i.e., if we don't sell it to them, someone else will); the Theory of the Dual Economy (an analysis that focuses on the duality

of a nation's defense economy — the modern, progressive element vs. the traditional sector); and the Theory of Hegemonic Stability (one lead state provides benign control, stability, and rule enforcement over an essentially oligopolistic arms market structure). He uses these models in his discussion of market structure and product innovations; but his most important ideas are left to Chapter 4, “The Defense Economy in Transition.”

Mussington's discussion of export controls in this chapter will interest analysts in such organizations as the Defense Technology Security Administration and other Department of Defense agencies that focus on export control licensing and dual-use technology transfer. He discusses the Missile Technology Control Regime, Nuclear Suppliers Group, Australia (Chemical Suppliers) Group, Coordinating Committee for Multilateral Export Controls, and its Successor Regime. Mussington explains that “shirking local defense markets are generating aggressive export promotion efforts by the traditional leaders of the global defense sector. United States and United Kingdom arms sales to the Middle East, for example, have risen sharply since the 1991 Persian

Gulf War.” The economic incentive is even stronger than the will to maintain the “have” and “have-not” relationship between the developed and developing world — the insistence on the part of Russia to sell a nuclear power plant to Iran is a case in point. Additionally, China is “unwilling to engage in prior notification of arms sales” relating to arms transfer agreements, according to the author. The main reason, he posits, is that revenue from weapons sales is a compelling incentive to sidestep agreements — too powerful an attraction in the case of Russia and China. For these countries and others



Continued on page 40

John Brower is an analyst in the Luevano Outstanding Scholar Program with the Office of the Administrative Assistant to the Secretary of the Army and a student in Georgetown University's National Security Studies Program. Mr. Brower gratefully acknowledges the assistance of Debbie Reed and Patricia Tugwell, Research Librarians, Pentagon Army Library, in preparing this review.

(establish the decision baseline reference point).

- Estimate the overall cost impact of the various design and support options (compared to the baseline).

The decisions with the greatest chance of affecting LCC and identifying savings are clearly those impacting acquisition and Operating and Support (O&S) costs undertaken in the Pre-concept, Concept Exploration and Definition, and Demonstration and Validation phases. But, this idea should not imply that LCC trade-off analysis is not useful during later program phases. During the Production Deployment and Operating phases, the evaluation of actual readiness data and resource consumption information from "Maintenance Data Collection" systems regularly leads to identification of "bad actors" in need of corrective actions, such as improved reliability through an Engineering Change Proposal.

Description of a Useful LCC Model

Rodney Stewart describes the most valuable automated cost estimating tools as "the generic computer tools that can be used for any application."² Blanchard and Fabrycky³ assert that the model should encompass the following areas:

**The bottom line
of our efforts must
be focused on
these two key
quantifiable
requirements:
maximum mission
Readiness and
minimized total
Cost.**

- Be comprehensive and include all relevant factors, and be reliable in terms of repeating results.
- Represent the "dynamics" of the system or product being evaluated, and be sensitive to the relationships of key input parameters.
- Be flexible to the extent that the analyst can evaluate overall system requirements as well as the individu-

al relationships of various system components. In the analysis process, one may wish to view the system as a whole, identify high-cost contributors, evaluate one or more specific components of the system independent of other elements, initiate changes at the component level, and present the results in the context of the overall system.

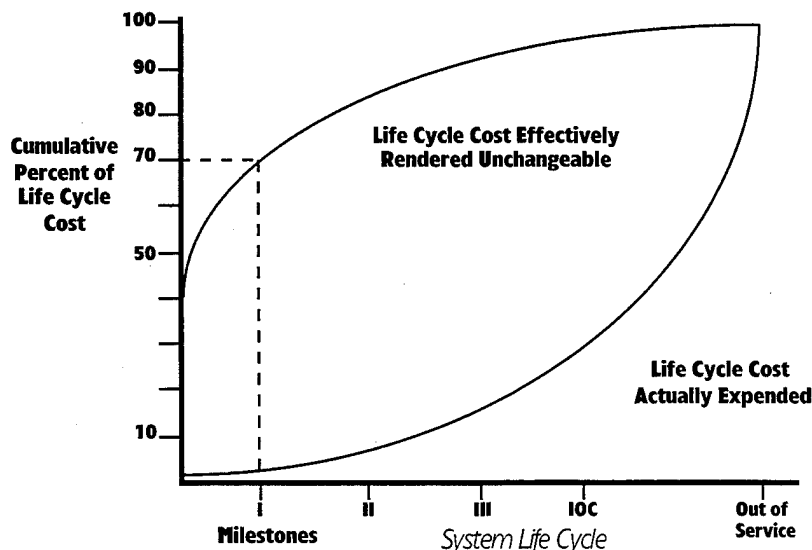
- Be designed in such a way as to be simple enough to allow timely implementation. Unless the model can be used in a timely and efficient manner by the analyst, it is of little value.
- Be designed such that it can be modified to incorporate additional capabilities. It may be necessary to expand (or tailor) certain facets of the cost breakdown structure in order to gain additional visibility (for example).

This article shows that the CASA model fits all of these requirements. Professor Blanchard recently stated that the CASA model is the best LCC model available today.⁴

Research has shown prior development of a wide variety of LCC models. Some are special purpose, and others are general purpose. The government regularly requires contractors submitting proposals to use the "government-approved" models in estimating the cost of ownership of the solution being proposed. This requirement ensures that all of the contractors and government LCC estimates are comparable, repeatable, and understandable. Many of these models are cataloged in the DoD Logistics Support Analysis (LSA) Techniques Guide distributed by the Logistics Support Activity (LOGSA), an agency of the Army Materiel Command that serves all of DoD in the area of LSA and related tools.

Interviews and surveys of many industry representatives resulted in a finding that many government models were considered unnecessarily complex and "input data hungry."⁵ Both industry and government program managers

Figure 2. Typical Life Cycle Cost Commitment



DSMC's CASA Model Still Going Strong

A Popular DoD Favorite, CASA is Still Distributed in the United States Free of Charge

JOEL M. MANARY

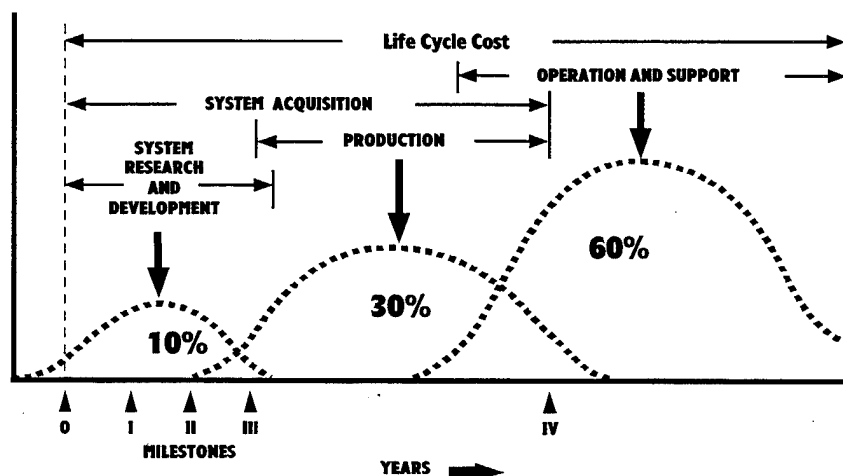
In response to a broad range of requirements gathered from many of the Services' acquisition program offices, the Defense Systems Management College (DSMC) developed the Cost Analysis Strategy Assessment (CASA) model. The CASA is a useful, general-purpose Life Cycle Cost (LCC) model that has been validated and used successfully by all three Services, industry contractors, and other government agencies such as the Federal Aviation Administration and the National Oceanic and Atmospheric Administration.

The model has evolved to the current 3.01 version, and more enhancements are planned as user requirements evolve. This article acquaints the reader with the CASA model, announces that the model continues to be available, and discusses planned model upgrades. Additionally, it summarizes the program manager's (PM) need for an LCC model, what constitutes a useful model, and contains a specific description of the CASA model that is distributed in the United States by DSMC free of charge.

The PM's Need for an LCC Model

Program managers need a tool that will focus the efforts of the Integrated Product Team. They need a concise method of assuring themselves and program management and decision makers at all levels that the reasonable decisions are being made.

Figure 1. Typical Life-Cycle Cost Distribution



Current DoD policies require that the PM ensure LCC influences system design, systems engineering, and the logistics engineering process during all acquisition phases. In accomplishing this goal, the PM requires a comprehensive, accurate, and current LCC estimate to support each management decision where cost is significant. Few decisions are made during a program's life cycle that do not affect LCC.

Similarly, a review of the policies, definitions, and objectives of Systems Engineering and Integrated Logistics Support in DoDI 5000.2 will lead to a conclusion that an effective Weapons Systems Support program is one that provides support resulting in achievement of the user's readiness requirement(s) using the most life-cycle-cost-effective approach.¹ The bottom line of

our efforts must be focused on these two key quantifiable requirements: maximum mission *Readiness* and minimized total *Cost*.

Maximum Mission Readiness and Minimized Total Cost

An LCC estimate should have sufficient accuracy to permit comparison of relative costs of design and acquisition alternatives under consideration by management. Specifically, LCC is a decision aid, and the LCC estimate should capture enough of total ownership costs to facilitate well-informed decisions. The two main goals of LCC analysis follow:

- Identify the total cost of countering a threat, achieving production schedules, and attaining system performance and readiness objectives

Mr. Manary is currently a Professor of Systems Acquisition Management, DSMC.

wanted a flexible model that could operate effectively with inputs tailored to the magnitude and/or impact of the decision being considered.

"An LCC estimate should have sufficient accuracy to permit comparison of relative costs of design and acquisition alternatives under consideration by management." This quote from the *DSMC Logistics Guide*⁶ means that an LCC model is a decision aid, and the model needs to capture enough (not necessarily all) of cost of ownership to facilitate well-informed decisions. The model developer identifies the main cost drivers of LCC and creates model algorithms to capture these costs. Ultimately, a general purpose model that captures the costs of a systems major end item in terms of production, initial support items, operation and also the recurring costs on all 10 ILS elements can be expected to produce a good LCC estimate.

The cost analysis process includes use of a detailed LCC model and aspects of risk, sensitivity, and data comparison analyses. Also, research, development, test, and evaluation (RDT&E) cost concerns as well as acquisition, operation, and support costs over the effective life of the system are included. Thus, a good LCC model covers the entire life of a system, from its initial research cost to those costs associated with yearly maintenance as well as spares, training costs, and other expenses incurred once the system is delivered.

The analyst formulates the problem statement to be analyzed; selects the appropriate model; collects the appropriate amount of model input data (some model data may be left blank if not relevant to the problem statement); runs the model, including selected sensitivities; and draws certain conclusions from the model outputs.

Cost Analysis Strategy Assessment (CASA) Model

The CASA model is basically a management decision aid based on LCC.⁷ In actuality, CASA is a set of analysis

tools formulated into one functioning unit. It collects, manipulates and presents as much of the total cost of ownership as the user desires. It contains a number of programs and submodels that allow the user to perform several tasks:

- generate program data files;
- perform life-cycle costing;
- perform sensitivity analysis;
- perform LCC risk analysis; and
- perform LCC comparisons and summations.

The model also includes a wide variety of preprogrammed output report formats designed to support the analysis process.

The CASA model covers the entire life of the system, from its initial research costs to those associated with yearly maintenance as well as spares, training costs, and other expenses incurred once the system is delivered. Currently, RDT&E and production costs are "throughput" costs, meaning they are not derived by the model — they are input and reported in some report outputs depending on their relevance to the analysis. The model calculates and

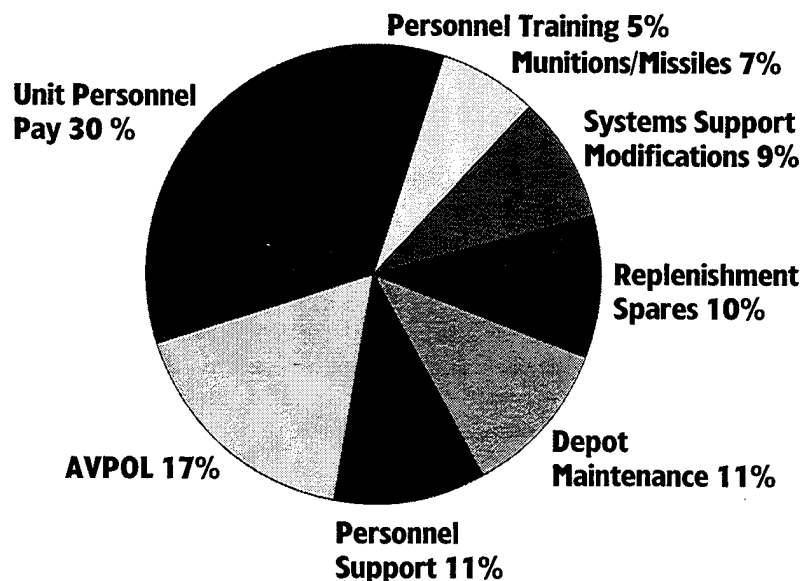
projects the O&S costs over the 20 to 30 years of operating the system. Currently, RDT&E and production cost estimating modules are being considered in response to numerous users' requests.

The CASA model employs some 82 algorithms with 190 variables. Only a small number of the inputs are mandatory. Most of the inputs are optional and are subject to tailoring to the needs of the analysis. The CASA model, therefore, is a relatively "compact" model designed to facilitate well-informed decisions while holding model input data gathering to a moderate level.

Specifically, CASA works by taking the data entered, calculating the projected costs, and determining the probabilities of meeting, exceeding, or falling short of any LCC target value. Offering a variety of strategy options, CASA allows you to alter original parameters to observe the effects of such changes on strategy options.

At any number of program junctions, inputs may be saved and calculations may be made to that point for later

Figure 3. **Typical Operating and Support Cost Distribution — Aircraft System Level**



Source: 1984 USAF/ASD/ALT B F-16 O&S Cost Breakout

evaluation. Furthermore, CASA will accept only correct inputs. It checks every entry as it is input; incorrect data will cause the cursor to refrain from movement and/or alert the user. The CASA model can be used for a wide range of analysis tasks:

- LCC Estimates
- Trade-off Analyses
- Repair-level Analyses
- Production Rate and Quantity Analyses
- Warranty Analyses
- Spares Provisioning
- Resource Projections (e.g., Manpower, Support Equipment)
- Risk and Uncertainty Analyses
- Cost Driver Sensitivity Analyses
- Reliability Growth Analyses
- Operational Availability
- Analyses with Automated Sensitivity Analysis
- Spares Optimization to Achieve Readiness Requirements
- Operation and Support Cost
- Contribution by Individual Components of the System

The CASA version 3.01 model is currently being distributed. This version expands the number of hardware items (repairable candidates) from 145 to 2,000. This feature, along with the LCC summation feature, virtually eliminates any limitation on the "size" of a system that can be analyzed.

The model runs well on modern 386/486DX PCs. It requires 4 to 5 megabytes of hard drive space depending on the size of hardware data files. The program currently runs best in a DOS environment since it requires 580K of RAM to operate properly. Conversion to a Windows environment is expected with the next revision. Several other model upgrades, such as the RDT&E and production cost estimation modules, are being considered to accommodate evolving user requirements.

Sources for Obtaining the CASA Model

The model comes compressed on two program file disks and one disk con-

taining the user's manual. A variety of sources distribute the model. Some distribute the model essentially free but can offer limited user support, and some distribute the model for relatively modest fees to recover distribution and technical support costs. The LOGSA is preparing to begin distribution of CASA as a module of the logistics managers tool set called Logistics Planning and Requirements System (LOGPARS). Two primary points of contact exist for internal U.S. distribution of the model:

Defense Systems Management College - Logistics Support Department, Telephone: (703) 805-2497

U.S. Army Materiel Command - Logistics Support Activity (LOGSA), Telephone: (205) 955-9886

For distribution outside the United States, contact OMEGA Logistics International, Telephone: (619) 697-2207.

ENDNOTES

1. DoD Instruction 5000.2, *Defense Acquisition Management Policies and Procedures*, February 23, 1991.
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such as "the new group of exporters" that sprang up in the late 1980s (Brazil, South Korea, Israel, and Taiwan), economic laws have overcome international ones.

Arms Unbound also analyzes the economics of strategic alliances in the production of arms. Shared interests in market access, desire by the developing countries to acquire new technologies, and the requirement to amortize defense research and development over large markets, combine to create a convenient marriage between the "first- and second-tier states." As a result, the offspring is "weapons-on-the-cheap." The author cites U.S. M1A1 Abram tank parts production in Egypt and F-16 assembly in South Korea as examples of this symbiotic relationship. Together with the "weaponization of commonly available technologies," Mussington suggests that a divorce between so enamored a couple is difficult to imagine.

Mussington concedes that the "transition to lower post-Cold War levels of defense spending may increase the proliferation of advanced weapons to developing countries"; but there is hope. He recommends that policy makers "modify the existing approach to technology restrictions through the removal of the disincentives that inhibit new states from joining established supplier groupings." Only by including second-tier defense producers "will the defense economy become more transparent and amenable to control." This study will be invaluable to export control analysts, in particular, and observers of the technology and arms transfer question, in general.

EDITOR'S NOTE

David Mussington is a defense research associate for a London policy studies institute. Ordering information follows: David Mussington, CSIA Studies in International Security No. 4, Brassey's (US), Cambridge, MA, 1994, \$14.00, pp. 88.

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FROM THE COMMANDANT

Hello again, and welcome to your corner of the DSMC world. Since we last met, several significant events have taken place. Earlier this year, DSMC submitted its application to participate in the education category of the Malcolm Baldrige National Quality Award. We were one of 19 educational institutions nationwide considered by Baldrige. DSMC made an initial cut to nine institutions; a second cut to three institutions, which included DSMC; and on October 23, 1995, Malcolm Baldrige examiners visited the main campus of DSMC. We were honored to have the examiners on campus, and we eagerly await their formal assessment of our progress in building a quality educational institution dedicated to serving you. When the formal assessment is in, I'll share the results with you.

In our consulting role, we continue working with many program offices. In addition, we have provided our services to Congress through our Congressional Fellows Program, to the Department of Defense Inspector General, and to several countries, including Romania, Great Britain, and Korea. In the past year, we have either been visited by or invited to visit several East European countries, Russia, Chile, Canada, and Australia to name only a few. Given the increasing emphasis on multinational acquisition, these visits are important to DSMC in meeting educational requirements in the multinational

area. In future editions of the *PM Magazine*, we will present an article detailing our work in the international arena.

Finally, let me say a few words about our work in the "joint" requirements area, particularly as it relates to acquisition education. As all military services increase and improve their joint operations, doctrine, and capabilities, it is incumbent upon the acquisition community to fully understand/comprehend the impact of joint requirements on acquisition management, combat effectiveness, and life-cycle cost. Over the next 2 months (November-December 1995), we will discuss this topic with service acquisition leaders, the Defense Logistics Agency, industry, and the Joint Requirements Oversight Council. I'll update you on this important topic in future *PM* editions.

That's a "quick and dirty" summary on the happenings at DSMC. We are having a great time serving you, and look forward to updating you in our next edition of the *PM Magazine*. Until then...

—Brig. Gen. Claude M. Bolton, Jr., USAF
Commandant

