



# *A Strategic Plan for Value Engineering in DoD*

**December 2003**



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ACQUISITION,  
TECHNOLOGY  
AND LOGISTICS

## THE UNDER SECRETARY OF DEFENSE

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WASHINGTON, DC 20301-3010

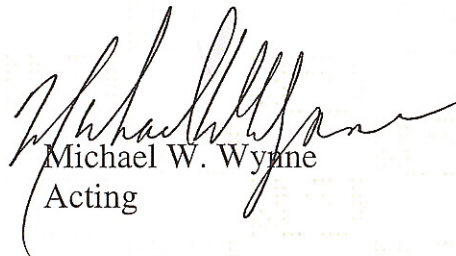
### FORWARD

The Reduction of Total Ownership Cost (R-TOC) Initiative is a key component of the Department's efforts to transform the way in which systems are developed, acquired, operated and supported. R-TOC seeks to control the ever-increasing costs of DoD systems while improving readiness. The principles of Value Engineering (VE) and Lean Enterprise Value are important elements of R-TOC; DoD has documented more than \$27 billion in Value Engineering savings in the past 20 years; \$2.5 billion in FY02 alone. With this proven record of success, it is imperative that we continue to exploit the discipline inherent in the VE methodology and techniques, within the government and in partnership with industry, to help improve quality, better manage program risk, and reduce cost across the Defense Department.

This document establishes a number of stretch goals and objectives for the Value Engineering program. In terms of cost savings, we should strive to achieve annual cost savings and avoidance of 1.5 percent of total obligation authority by FY06.

Everyone's active support is essential for furthering these efforts. We have to transform how we behave by seeking innovative ways to improve warfighting capability at lower cost. While some significant results have been achieved, we must continue to improve and thereby accelerate the benefits of transformation.

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## Introduction

The Department of Defense's (DoD's) Value Engineering (VE) program reduces cost, increases quality, and improves mission capabilities across the entire spectrum of DoD systems, processes, and organizations. It employs a simple, flexible and structured set of tools, techniques and procedures that challenge the status quo by promoting innovation and creativity. Furthermore, it incentivizes government participants and their industry counterparts to increase their joint value proposition in achieving best value solutions as part of a successful business relationship.

The Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)) has established goals and metrics to transform how the entire AT&L enterprise executes its mission. Pursuing these goals helps achieve the ultimate outcome: providing the warfighter with the means for mission success. VE, as one of the disciplines of Systems Engineering and as a component of the Reduction in Total Ownership Cost (R-TOC) initiative, plays a part.

The first AT&L goal is “acquisition excellence with integrity.” A number of the metrics within this goal focus on reducing operating and support (O&S) costs for defense systems. The DoD Value Engineering community has established its own goal within the context of this broader enterprise goal. Broadly stated, **VE Goal 1** is to *improve the value proposition for defense systems*. Within the context of Value Engineering, this means that programs should take a methodical approach to examining the functions being performed and identify and implement ways to improve them.

An “industrial base strengthened” is also an AT&L goal. The purpose of this goal is to ensure that the industrial base (both prime contractors and their supply chains) will be in a viable position to meet defense needs rapidly and efficiently. The **VE Goal 2** contribution is to help *align industry and government value propositions in defense systems*. VE efforts provide value to the government by reducing program costs while increasing capability. VE simultaneously generates value to industry by allowing shared savings to increase profit margins.

Another AT&L goal is a “motivated, agile workforce.” Workforce training in key skills is one of the metrics used to evaluate success. **VE Goal 3** pursues this AT&L priority by making efforts to *increase Value Engineering expertise*. Education and training will become elements of an intensive outreach effort to communicate the opportunities Value Engineering provides and how to take advantage of those opportunities.

The three Value Engineering goals are interrelated. **Goal 1** promotes the widespread usage of the VE methodology, both within the government and across government-industry business relationships. **Goal 2** attempts to overcome several barriers that inhibit the implementation of the improvements generated from using the VE methodology. Specifically, pursuit of this second goal provides a source of engineering and other resources to expedite technical review and technical approval of proposals generated by industry and expedites the administrative approval process. Finally, **Goal 3** deals with the outreach process needed to inform government and industry program managers (PMs) and their staffs on how to capitalize on the potential benefits offered by the VE program. The following sections discuss each goal individually.

## **Goal 1: Improve the Value Proposition for Defense Systems**

A program's value proposition includes lowering cost, reducing cycle time, improving readiness, and increasing warfighting capability. Improving this value proposition across the board is a complex endeavor. It starts with an understanding of the value for all customers and stakeholders. It then considers all processes that affect the delivery of this value and seeks both to eliminate waste (non-value added activity) and to create additional value. Special attention is paid to the interfaces between processes, where the greatest opportunities for improvement are often found. Consequently, the effort is not limited to business process reengineering. Tradeoffs are conducted so that not only is the job done right; but also they ensure that the right job is done. When exercised among functions that are not controlled contractually, the outcome of the Value Engineering process is often a Value Engineering Proposal (VEP).

This goal can be accomplished through broad and rigorous application of the Value Engineering methodology by all program managers. The VE methodology (sometimes called the VE job plan) is a systematic process to find ways to enhance the value proposition. It is virtually identical to the process used by the Lean Enterprise Initiative to enhance lean enterprise value. Basic steps of the methodology are:

- Frame the problem; obtain top management support
- Establish partnerships among the system developer, system supporter, user, PM, etc.
- Reach a consistent understanding of the system or process
- Analyze required functions (map the enterprise value stream)
- Determine resources (e.g., costs, cycle time) currently consumed for those functions
- Conduct function and resource trade-offs
- Identify value mismatches and seek innovative solutions
- Implement solutions.



The methodology is often applied in the context of a Value Engineering workshop (or *kaizen* event) designed to build continuous improvement and conducted by a trained facilitator. Such workshops act as a catalyst for change. When held outside the context of the office, they help break the cycle of patterned behaviors. They bring together professionals who may have rarely had an opportunity to meet collectively and participate in such a comprehensive analysis of the process.

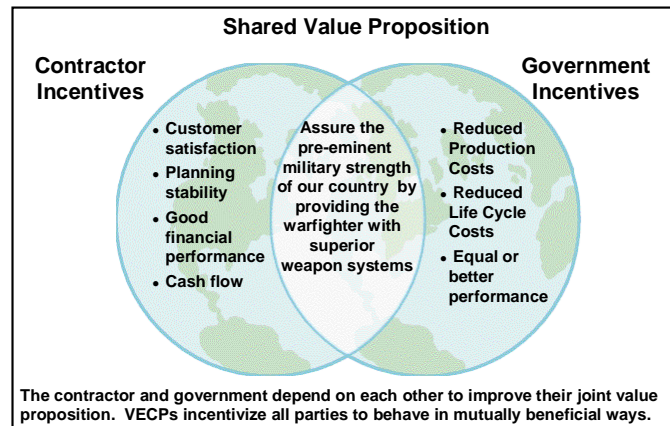
Thirty Pilot Programs have been established to reduce FY05 O&S cost by 20 percent.

Additional special interest programs may also be named. To demonstrate their effectiveness, VE workshops will be offered to several of these programs. As results are developed, other R-TOC programs and all major defense acquisition programs will be encouraged to utilize a similar approach.

## **Goal 2: Align Industry and Government Value Propositions in Defense Systems**

The objective for **Goal 1** targeted the government's value proposition. However, the government and its industry partners (both prime contractors and their supply chains) are dependent on each other for the creation of value and success. Based on partnering, communication, trust, and mutual understanding of the acquisition business case, incentive strategies can be applied that demonstrate to the contractor that its objectives can best be met by successfully meeting the government's objectives. In reality, effective incentive strategies may include multiple concepts; however, industry's value proposition is almost always improved by achieving an adequate return on investment.

There are both direct and indirect advantages to industry for submitting Value Engineering Change Proposals (VECPs) that change its contract with the government. Of course, the most obvious advantage is the fact that the contractor receives a substantial share of the cost savings that accrue from the implementation of VECPs. In addition, development costs are reimbursed on approved VECPs and they may provide usable technology on other product lines. Perhaps even more important than the financial reward of shared savings on successful VECPs, an active VE program also improves a contractor's competitiveness and helps establish a reputation as a cost-conscious producer. Several contractors have been selected as outstanding VE contractors and have been recipients of the Department of Defense's VE Achievement Awards. Consequently, use of VECPs aligns industry and government value propositions for defense systems.



Despite the above advantages, VECP usage has been quite small in recent years because of several fundamental problems. PMs are sometimes reluctant to divert their limited engineering resources to the task of technical evaluation of contractor-initiated VECPs. This leads to lengthy processing times and potentially unhappy customers from an industry perspective. In fact, the entire VECP approval process can be difficult and cumbersome.

To mitigate this situation, the DoD is in the process of establishing a flexible source of funding for projects that reduce the life cycle cost of defense systems. This would provide start-up funds for engineering and other efforts needed to implement such initiatives. In addition, an effort will be made to obtain Department-wide visibility of all submitted VECPs to obtain insight into the VECP process and provide assistance, if necessary, for timely execution.

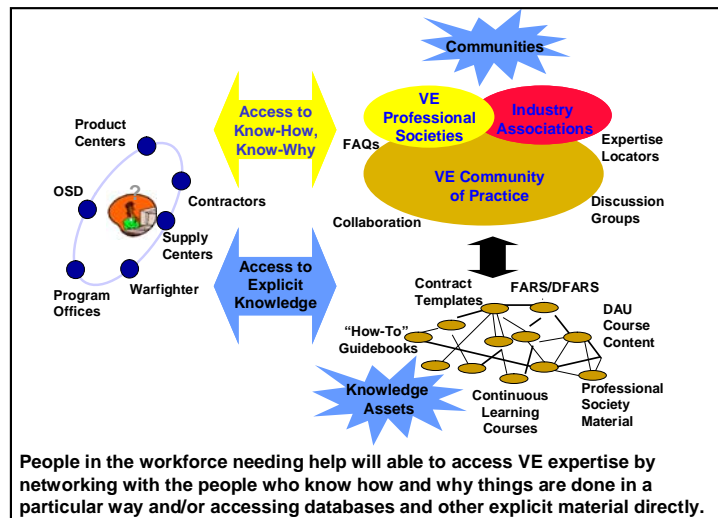
### Goal 3: Increase Value Engineering Expertise

All VE customers and stakeholders must improve their knowledge about what to do, how to do it, and the attainable benefits. An *increase in Value Engineering expertise* is therefore an important enabler for **Goals 1 and 2**. There must be continuous education and training of the AT&L workforce to ensure that there is access to the necessary expertise. The rationale for the strategy, goals, and metrics will be disseminated through all acquisition courses and other mechanisms. Industry will be encouraged to include the strategy and goals in training it provides its workers. A VE community of practice (CoP) will be brought together to share and to learn from one another face-to-face and virtually. This community will be bound by a common goal and purpose that is supported by a desire to share experiences, insights, and best practices.

Activities in pursuit of this goal include:

- The VE community must engage in continuous process improvement. There will be organized interaction among VE customers and stakeholders through workshops and other similar fora to obtain a better understanding of VE barriers and to identify corrective actions.
- VE workshops will be conducted and results studied to identify and promulgate lessons learned on the types of activities, programs, and processes that can derive the greatest benefit.
- Defense Acquisition University (DAU) coursework will be reviewed annually to ensure that the VE content is adequate and up-to-date. New continuous learning modules will be created to guide people through the VE methodology and the VECP process from both an industry and government perspective. Illustrative case studies will also be developed.

- The VE CoP will become the basis for a knowledge management approach to Value Engineering. Knowledge management is being intentional about the use of intellectual assets to improve organizational performance through increased efficiency, effectiveness, and innovation. It is aimed at linking knowledge seekers with knowledge sources (both written and experiential). Initially the CoP will be primarily focused on VECPs in support of **Goal 2**; it will help navigate the VECP process, provide assistance and answers to technical questions, and serve as a voluntary mechanism for obtaining VECP visibility. Eventually, the CoP will help industry and government better understand and use the VE methodology. PMs will also be able to obtain an appreciation of the benefits other PMs have realized.



- There will be a broad outreach campaign. VE successes will be highlighted in a broad range of publications to expose the benefits and opportunities to wide audiences ranging from contracting officers to industry and government program managers. Similarly, VE community participation in conferences and seminars will be used to gain further exposure.
- VE awards will be presented in annual ceremonies recognizing outstanding achievement in both government and industry. Such leadership recognition will encourage people to increase VE usage.

## **Implementation**

The Systems Engineering Directorate in Defense Systems will review and provide guidance on vital systems engineering-related matters within DoD. It will interface with senior leadership throughout the Department to provide a cross-functionally integrated focal point to address issues spanning the acquisition life cycle from operational requirements generation to fielding, operations and support, and retirement. The VE program will assume an important position on the Directorate's agenda.

The following stretch objectives are indicative of goal achievement:

- Net government savings and cost avoidance resulting from VE should be at least 1.5 percent of total obligation authority by FY06.
- Ninety percent of VECPs received should be fully processed (either approved and awarded, or rejected) within 180 days by FY06.
- At least 500 people will have completed DAU offered VE continuous learning module by FY06.
- A VE knowledge management community of practice will have at least 250 members by FY06.

The Directorate will monitor the goals and objectives articulated in this document as well as the activities being undertaken to achieve them. Meeting these goals depends on the cooperation, support and leadership of the systems engineering principals in DoD. They must work to ensure that VE is appropriately considered within program offices, especially major defense acquisition programs. In addition, these principals must work to remove barriers that inhibit VE applications. Finally, they also must ensure that trained expertise is available to enable program offices to capitalize upon VE opportunities.

Value Engineering has been used effectively for more than 50 years in countries and companies throughout the world. Following the concepts depicted in this strategy will lead to continued growth and value creation as part of the Department's overall transformational efforts.