VALUE ENGINEERING

The Nearly Lost Art of Saving Taxpayers Money

BY GREGORY A. GARRETT AND TOM REID

Value engineering is a proven-successful method of saving taxpayer dollars while truly doing more with less.

IN 1996,

there was a big push by the U.S. federal government, especially the Department of Defense (DOD), to save taxpayer money through the promotion and application of "value engineering" (VE). Specifically, DOD developed, staffed, and provided extensive VE training to thousands of government contracting officers, contract specialists, contracting officer's technical representatives, program managers, and numerous industry representatives to educate these acquisition professionals on the art and science of VE and the detailed contractual aspects of preparing, evaluating, negotiating, and implementing "VE change proposals" (VECPs).

As a result, during the late 1990s, a significant number of VECPs were submitted, accepted, and implemented, resulting in billions of dollars of savings to the U.S. government, industry, and for the U.S. taxpayers. So, the question is why is it that in this time of unprecedented national budget deficits, need for reduced federal budgets, and calls for doing more with less, that nearly no one mentions VE as a proven tool to save taxpayers money while fulfilling the purchasing needs for our nation?

Going back to September 2007, James I. Finley, the deputy under secretary of defense, wrote a memo on the subject of VE, stating:

> In the Department's VE strategic plan (December 2003), under secretary of defense (acquisition, technology & logistics) established an annual cost savings and avoidance goal of 1.5% of total obligation authority. In fiscal year 2006, DOD reported $1.6 billion in savings and cost avoidances through VE (which represented annual cost savings of 0.3% of total DOD obligations). Although this is a significant accomplishment, it is well below the established goal. With your help, I believe we can increase our reported VE savings and reach our goal in the next few years.[1]

Unfortunately, from fiscal year 2007 through fiscal year 2010, the annual cost savings via VE decreased to about 0.2 percent of total DOD obligations.

How VE Works

The Office of Management and Budget defines *VE* as follows:

> An organized effort directed at analyzing the functions of systems, equipment, facilities, services, and supplies for the purpose of achieving the essential functions at the lowest life-cycle cost consistent with required performance, reliability, quality, and safety. These organized efforts can be performed by both in-house agency personnel and by contractor personnel.[2]

The *Federal Acquisition Regulation* (*FAR*) at 48.201(a) requires that a VE clause (found in FAR 52.248-1) be included in all contracts for supplies and services exceeding the simplified acquisition threshold with the following few exceptions:

- Research and development contracts other than full-scale development,
- Engineering services from not-for-profit or non-profit organizations,
- Personal services,[3]
- Product/component improvement already on contract,
- Commercial products not involving packaging specifications or other special requirements/specifications, and
- When the agency head exempts a contract or class of contracts.

The *FAR* VE clause[4] may also be included in contracts of lesser value when its use is deemed appropriate.

Using VE on a contract is voluntary, unless it is determined that "substantial savings to the government may result from a sustained [VE] effort of a specified level."[5] In such cases, the *FAR* provides the clause 52.248-1 (Alternate I) for a mandatory VE program requirement.

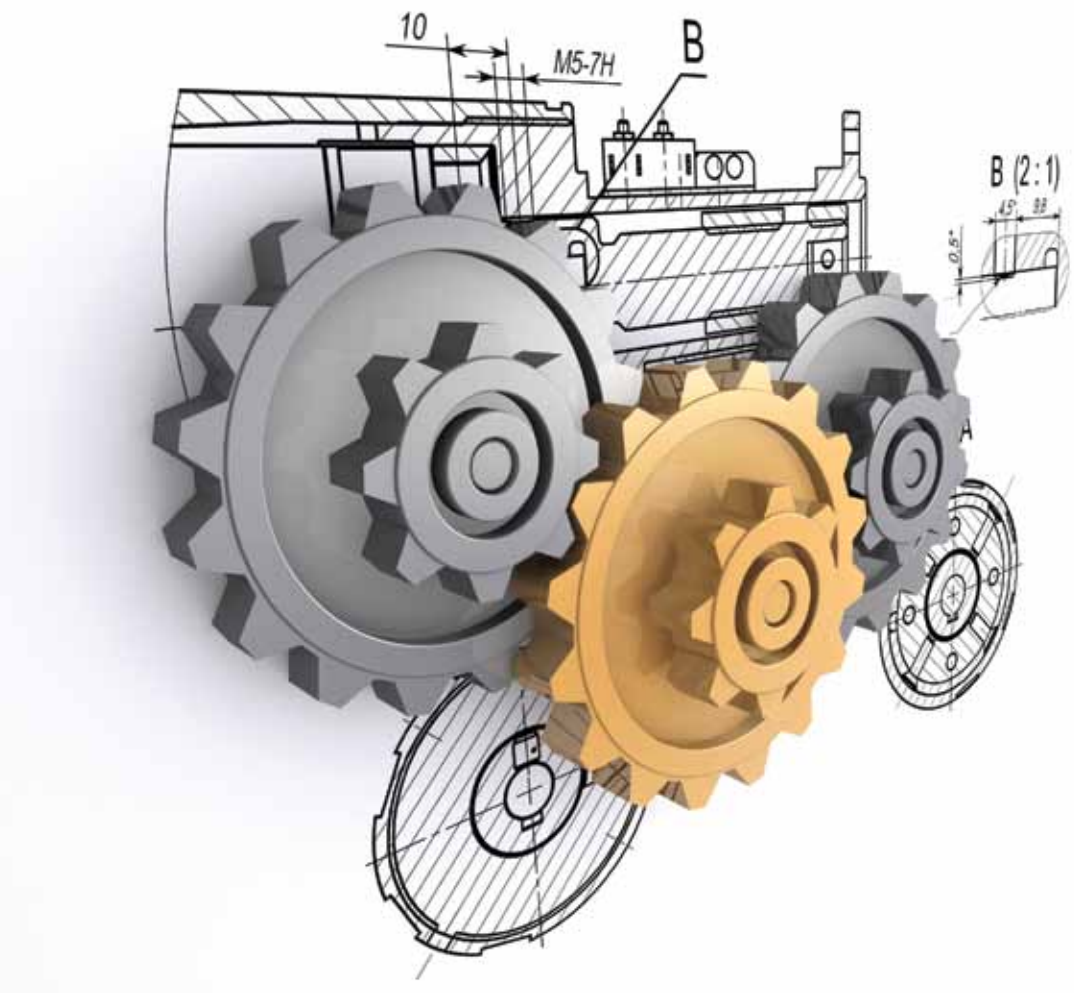
VE is implemented by approval of either a "VE proposal" (an internal government action) or a VECP submitted by the contractor in accordance with the VE clause in the contract.[6] The following discussion focuses on VECPs.

A VECP proposes a change that, if accepted and implemented through a contract modification, provides an eventual, overall cost savings to the government and provides the contractor with a substantial share in the savings accrued as a result of the acceptance of the change. The VECP provides a vehicle through which contract costs can be reduced while the contractor's rate of return is increased.[7]

The contractor submits a VECP using the format prescribed by the appropriate *FAR* VE clause contained in its contract.[8] Any changes made must be technically compatible with contract requirements. While cost savings are required, the change may not impair essential functions or characteristics, and they may not be required by another contract provision.

While a VECP is submitted only under the current (also termed "instant") contract that authorized the work being changed, savings may be shared under other mechanisms as well—concurrent contracts, future contracts, and collateral savings—that will be impacted by the VECP:

- "Concurrent contracts" for the same items are ongoing at the time of VECP acceptance;
- "Future contracts" (as follow-on to the instant contract) have not been awarded—they include the exercise of an option to buy follow-on lots; and
- "Collateral savings" are typically for operations, maintenance, training, logistics support, or government-furnished property.



The reason for sharing savings on these other contracts is that a VECP may not provide for substantial savings on the instant contract (e.g., if there are nonrecurring engineering or other expenses that add costs that must be offset before savings can be shared). While sometimes the government requires and pays for VE as part of a mandatory VE program with a specific line item for the cost under a contract, for the most part, the government encourages contractors to invest in VE using their own resources (the incentive program).[9]

Benefits of VE to the Government and Industry

The government and its contractors depend upon each other to improve their joint value proposition. While the value propositions are different, there is overlap; actions that benefit one can benefit the other. Typically, incentives are included in the contract to encourage the contractor to behave in a way that will enhance both value propositions. VE provides and is based on a shared value concept through incentives for the government, incentives for the contractor, and the equally shared incentive of providing the best possible capabilities, systems, and facilities to the government within the context of a successful business relationship. VE motivates industry to use its best engineering talent in a way that helps solve problems that are important to the government.[10]

As stated earlier, VE generates more than a billion dollars in savings and cost avoidance annually for the federal government, which is a good start, but just a small drop in a huge bucket of real potential savings. In addition, the dollar savings/assets made available through VE successes may be reapplied to finance approved but previously unfunded requirements. From the contractor's perspective, the benefits of using VE are also substantial.
The contractor:

- Shares in the savings that accrue from implementation, in that the VECPs provide a source of profit not available under other provisions of the contract and are excluded from profit limitations on government contracts;
- May increase the work to be performed on the contract if the government share is placed back on the contract for previously unfunded efforts;
- May secure a price advantage during system reprocurement after implementing a successful VECP on a previously completed system/item;
- Establishes a reputation as a cost-conscious supplier (DOD presents VE Achievement Awards to contractors);
- Improves communication with the customer;
- Receives reimbursement of development cost on approved VECPs;
- May obtain usable technology for other product lines; and
- Enhances the retention and growth of corporate technical expertise through advanced technology insertion and fostering a positive working environment.[11]

VE Implementation Challenges

According to the most recent Government Accountability Office (GAO) report on VE:

- The VE program has made a minimal contribution to cost reduction within DOD.
  - DOD typically uses VE during production and support. Best practices suggest that opportunities to reduce costs are greatest during early system design.
  - There is limited VE activity outside of U.S. Army.
- Program managers use various cost-savings strategies:
  - A range of approaches, including VE, are used to reduce costs.

- Changes in the acquisition environment and administrative burdens have contributed to the minimal use of VE, including:
  - Performance specifications have increasingly replaced military detailed specifications, giving contractors more latitude than design specification and possibly resulting in fewer contract changes. VECPs are tied to contract changes.
  - Constrained service budgets have resulted in lower procurement quantities creating difficulties in achieving acceptable returns on investment for VECPs.
  - A reduced DOD workforce has resulted in a loss of engineering and technical support expertise and dedicated VE staff.
- Reported VE administrative burdens include:
  - VECP contractual process is complex, lengthy, and resource-intensive.
  - Contractors view VECPs as high-risk investments because proposals may not be approved.
  - Funding availability and "color of money" issues affect willingness to pay for operations and support cost reductions.
  - The VECP process puts the funding burden on program managers for development and implementation costs.
  - Program managers lose motivation when savings are removed from future program budgets.
  - Senior management has not emphasized VE.
  - Problems with using VE in services contracts.
  - Difficulties in identifying appropriate savings calculation methods.[12]

Recommendations to Increase Savings via VE

- Expand outreach to government employees and government contractors to promote VE;
- Simplify FAR Part 48, "Value Engineering," and the *FAR* VE clauses so they are easier to understand and implement;
- Update the 2003 DOD VE strategic plan;
- Expand and promote VE awards programs throughout all U.S. federal government agencies;

- Expand VE education, training, and staffing across all federal government agencies, especially the DOD acquisition workforce;
- Collect data on the accomplishments of the VE program;
- Form an interagency VE steering group to share lessons learned and best practices;
- Provide development funding for VE cost savings programs;
- Get the chief acquisition officers, senior procurement executives, and senior program executives to promote VE; and
- Reward people for the successful implementation of VECPs.

Summary

VE is an organized/systematic approach directed at analyzing the function of systems, equipment facilities, services, and supplies for the purpose of achieving their essential functions at the lowest life-cycle cost consistent with required performance, reliability, quality, and safety. The implementation of the VE process on a problem typically increases performance, reliability, quality, safety, durability, effectiveness, or other desirable characteristics.

VE is not primarily centered on a specific category of the physical sciences; it incorporates available technologies, as well as the principles of economics and business management, in its procedures. When viewed as a management discipline, it uses the total resources available to an organization to achieve broad management objectives. Thus, VE is a systematic and creative approach for attaining a return on investment by improving what the product or service does in relation to the money spent on it.

It is important to keep in mind that the *FAR* encourages contracting officers to be innovative. FAR 1.102-4(c) states:

> If a policy or procedure, or a particular strategy or practice, is in the best interest of the government and is not specifically addressed in the *FAR* nor prohibited by law (statute or case law), executive order, or other regulation, government members of the team should not assume it is prohibited. Rather, absence of direction should be interpreted as permitting the team to innovate and use sound business judgment that is otherwise consistent with law and within the limits of their authority. Contracting officers should take the lead in encouraging business process innovations and ensuring that business decisions are sound.

VE is a proven-successful method of saving taxpayer dollars while truly doing more with less! Why is it that we are not hearing about or doing more with VE? **CM**

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The opinions stated in this article are solely those of the authors, and do not necessarily reflect those of AST LLC, Navigant Inc., or NCMA.

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ENDNOTES

1. James I. Finley, memorandum, "Value Engineering," *available at* **http://ve.ida.org/ve/documents/FinleyMemo.pdf**.
2. Office of Management and Budget, "Value Engineering" (May 21, 1993), *available at* **www.whitehouse.gov/omb/circulars/a131/a131.html#4**.
3. A "personal services contract" is one that, through its expressed terms or as administered, makes the contractor personnel appear to be, in effect, government employees by creation of an employer-employee relationship. Agencies must have specific statutory authority to obtain personal services by contract.
4. FAR 52.248-1.
5. *See* FAR 48.201.
6. While the submission of a VECP is the responsibility of the contractor, many good VE ideas may also come from subcontractors.
7. "Value Engineering and Services Contracts," Institute for Defense and Analysis (June 2009).
8. There are separate clauses for "Construction" and "Architectural Engineering" contracts, which will not be discussed in this article.
9. When using the mandatory provisions of the VE clause (FAR 52.248-1, Alternative I), VE becomes a contract line item number in the contract and requires the contractor to propose VE changes that will save money. If only Alternative I is used, the contract would only have the mandatory VE requirement. Using Alternative II provides both the mandatory program and the incentive program.
10. *See* note 6.
11. *See* note 7.
12. *Derived from* GAO-03-590R, "Value Engineering: Findings on the Use of VE within DOD."