

## DdI-J20 ATTACHMENT J.2 - VALUE ENGINEERING GUIDE

### Navy Value Engineering Guide for Contractors

#### 1. Introduction.

The Navy has revitalized its Value Engineering (VE) program based on direction from the highest levels within the Department. This renewed VE effort is evident in the annual VE savings goals and training requirements already promulgated throughout the Navy Contracting System. To monitor and enhance the effectiveness of this initiative, the achievement of VE objectives has been incorporated, where appropriate, into Navy personnel performance appraisals. The policy of realizing maximum VE application in Navy contracts is being implemented and carefully reviewed throughout all levels of the Department of the Navy. However, to ensure this program's success, the active support, cooperation, and participation of the contractor community is required. We strongly invite your interest and involvement in the VE program, and believe that the mutual benefits realized thereby will be readily apparent in the following overview of VE methodology and procedures.

#### 2. Definitions, Policy and Procedures.

a. VE is a process of systematically analyzing functional requirements to achieve the essential functions in the most cost effective manner consistent with requisite performance, reliability/maintainability, and safety standards. It shares the same basic objectives and philosophy as other value improvement terms such as Value Analysis, Value Control, Value Management, etc. As a management discipline, VE has been successfully applied across the entire spectrum of the acquisition and support process. Its application is not and should not be limited by the term "engineering" to hardware design and production. VE is a fundamental approach which challenges even basic premises (including the need for the product's existence) in light of viable substitutes. Because of this perspective, VE may be applied to systems, equipment, facilities, procedures, methods, software and supplies. VE's application in these various areas has resulted in more suitable products, cost savings and increased profits to the contractors.

b. Contractors participate in the Navy VE program by two (2) means:

(1) Voluntarily suggest methods for performing more economically and share in any resulting savings. Known as the "incentive" approach.

(2) Comply with contract clauses which require a specific program be established to identify and submit to the Government methods for performing more economically. This requirement is incorporated as a separate priced line item of the contract and must meet minimum requirements of MIL-STD-1771. Known as the "Program Requirement" or "Mandatory" approach.

c. Basic policies for the VE program are set forth in FAR 48.102. Key features include:

(1) Agencies shall provide contractors a substantial financial incentive to develop and submit VECP's.

(2) Agencies shall provide contractors objective and expeditious processing of VECP's.

(3) Agencies shall encourage subcontractors to submit VECP's by requiring the prime to incorporate VE clauses in appropriate subcontracts.

(4) VE incentive payments do not constitute profit or fee within the limitation imposed by 10 U.S.C. 2036(d) and 41 U.S.C. 254(b).

d. VECP's can significantly increase profit. Contractors may share up to 55% of net savings, 50% of royalties and 20% of annual collateral savings when their cost reduction idea are adopted.

e. VE program output can be considerably improved through the formal training of the personnel involved. Such training is available on-site from private VE consultants and varies from straight classroom instruction to actual "hands-on" in-house VE projects guided by the instructor. This type of training may be tailored to the company's needs. The Government has two VE courses available. The "Contractual Aspects of VE" (CAVE), taught by the United States Air Force Institute of Technology School of Systems and Logistics at Wright Patterson Air Force Base; and the "Principles and Applications of VE" (PAVE), taught by the Army Management Engineering Training Activity at Rock Island. Both the CAVE and PAVE courses are open to Government contractor personnel on a space available basis and attendance is encouraged.

### 3. VE Methodology.

It is unnecessary for contractors to "reinvent the wheel" by making large investments of time/energy/money to develop formal VE analysis techniques. A formal methodology consisting of seven (7) distinct elements has already been developed, tested and proven in extended use over the years. This methodology (as shown in the DOD Manufacturing Management Handbook for Program Managers) may be applied from the component level up to and including entire systems. In specific cases, some elements may be considered "givens" and rigidly following the elements in sequence may not be necessary. These seven (7) elements are :

(1) VE Project Selection - The choice of system, service, hardware, component, requirement, etc., for VE application.

(2) Determination of Function - Analysis and definition of the function of the selected VE project to answer the question. "What does it do?" The function itself may be questioned (i.e., is it necessary?).

(3) Information Gathering - Collection and assembly of all necessary information concerning the VE item selected. Allows the VE personnel to become intimately familiar with the item while answering the questions, "What does it cost?" and "What is this function worth?"

(4) Development of Alternatives - Perhaps the most important element of the seven. Where an alternative is being sought, the use of free imagination, tempered with experience, will develop the best ideas. In initial "brainstorming" sessions, all ideas, even the wildest, should be duly recorded and considered. Don't constrain yourself to a conservative approach at this time. This element will provide an answer to the question, "What else can perform this function?"

(5) Analysis of Alternatives - Through this analysis, it is possible to "weed out" those ideas which appear technically or financially unfeasible. This analysis permits the selection of an alternative(s) for further feasibility testing based on the resulting cost estimates. This element answers the question, "What is the cost of the alternative(s)?"

(6) Feasibility Testing and Function Verification - Determines that the selected alternative(s) can perform the required function and are technically feasible. A variable alternative must provide the essential functional performance and be capable of being implemented. This element provides answers to the questions, "Are the alternatives technically feasible?" and "Does the alternative provide the essential function?"

(7) Preparation and Submission of Proposals - The final section, documentation and formal VECP preparation of the alternative. The VECP must be prepared and submitted in accordance with the requirements of the contract.

Additional detailed guidance in utilizing formal VE methodology may be found in DOD Handbook 5010.8-H "Value Engineering" as well as in courses called out in paragraph 2e above.

### 4. Sharing Mechanisms.

VE shall be implemented in Navy contracts by clauses identifying either the "incentive" or "mandatory" methods discussed in paragraph 2b above. The following table summarizes possible sharing arrangements under the different methods and by type of contract.

GOVERNMENT/CONTRACTOR SHARES OF NET ACQUISITION SAVINGS  
(figures in percent)

Sharing Agreement

Incentive (Voluntary)	Program Requirement (Mandatory)				
	Instant contract rate	Concurrent and future rate	Instant contract rate	Concurrent and future rate	
Fixed-price (other than incentive)		50/50	50/50	75/25	75/25
Incentive (fixed-price or cost)		*	50/50	*	75/25
Cost-reimbursement (other than incentive)		75/25	75/25	85/15	85/15

\*Same sharing arrangements as the contract's profit or fee adjustment formula.

\*\*Includes cost-plus-award-fee contracts.

A contractor may be entitled to share in VE savings in two (2) different ways. The first results from savings on the acquisition of the product. Acquisition savings may accrue on your current contract, on other concurrent contracts where the VECP savings applies and on future contracts which incorporate the VECP. The other type of savings is collateral savings. Collateral savings are those in any other area such as logistics support, operations or other ownership savings which accrue to the Government as a result of accepting a VECP. The contractor is entitled to share in both acquisition savings and collateral savings. The extent of the sharing and types of savings shared are to be negotiated on a case-by-case basis depending on the nature of the VECP and subject to the sharing limits of the above table.