

1993 SAVE PROCEEDINGS

VALUE ENGINEERING PARADIGM THAT REDUCES SAVINGS Giuseppe Sgroi

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ABSTRACT

This paper provides an insight on increasing savings to the government and contractors, by eliminating the VE paradigm. The paradigm is the belief that VE can only be performed during the production stage of the contract. This is achieved by defining the VE baseline and using the VE Program Requirement Clause in contracts prior to production. This paper addresses the contractor program.

INTRODUCTION

In Fiscal Year 92, the Department of Defense (DoD) share of savings from the Value Engineering (VE) program was greater than \$500 million. These savings were generated through the internal, "government", and the external, "contractor", VE program. Although the savings were substantial, they could have been greater if a VE paradigm did not exist. The paradigm is the belief that VE can only be used during the production phase of a system. For contractors to participate in the VE program, they must first have the Federal Acquisition Regulation (FAR) VE clause 52.248-1 in their contract. The clause allows the contractors to submit Value Engineering Change Proposals (VECPs) to the government. A VECP is a cost saving proposal to the government. For a proposal to qualify as a VECP the FAR states: *...a VECP means a proposal that:*

- (1) *Requires a change to this, the instant contract, to implement: and*
- (2) *Results in reducing the overall projected cost to the agency without impairing essential functions or characteristics; provided that it does not involve a...*

These requirements basically state that it must change the contract and there must be overall benefits for the government, for a proposal to qualify as a VECP.

Once the VECP meets the requirements it is submitted to the government for evaluation and settlement. The most misunderstood requirement is *... Requires a change to this, the instant contract....* This is being interpreted that, you can only change a contract by changing the government controlled configuration managed, functional baseline. A functional baseline is a firm definition of design criteria and objectives that cannot be changed except through a formal change procedure. The effect of this misunderstanding can be seen in the VECPs that have been submitted to the government throughout the years.

Comparison of VECP Submittals

The Army Material Command (AMC), a Major Command within the Department of the Army, compiles the Value Engineering Analysis and Reporting System (VEARS) data base. VEARS accumulates all of the VE activity from the Major System Commands that comprise AMC. One of the events that

the database tracks is whether a VECP is submitted prior to production or after production. Prior to production means any VE activity that occurs during concept formulation, and design and development prior to initiation of pilot or full scale production. Since Fiscal Year (FY) 80 the following data has been accumulated:

PRIOR TO PRODUCTION	AFTER
143	2,933

The disparity between the distribution is clearly evident: most of the VECPs are submitted after production starts. One possible reason why contractors submit VECPs during production is that the functional baseline is established. The VECP meets the FAR requirement. *change to this contract..* by changing the functional baseline.

An analysis of the VE FAR clause 52.248-1 shows that there is no mention of changing the functional baseline to perform VE or to submit VECPs. This misunderstanding of the requirement of the FAR clause, has created a paradigm- that VE can only be used during the production stage of a contract when a functional baseline exists. The AMC data reflects this misconception that perhaps both the government and contractor personnel have.

Defining VE Baseline

To change this misconception several steps should be taken. The first recommendation is, defining the VE baseline. The VE baseline is established at the time the contract is awarded. All government requirements, performance standards, data items and test requirements are baselined and require government approval to change. Anything that changes the cost of the contract could also be included in the VE baseline. One has to keep in mind that when a contract is awarded and negotiated the government is receiving the best price at the time of negotiation. If a contractor has a VECP that would reduce the cost and meet all of the FAR requirements why should the government lose the opportunity to save money? By establishing the VE baseline early in the program both the government and contractor would benefit, see figures 1a-1c.

An assumption has been made in the development and implementation costs for both examples the \$50K and \$200K. The cost is based on personal opinion. Although this is a simple example, you can realize how this would benefit both parties.

By the contractor performing VE before production begins one would reduce the development and implementation costs i.e. retooling, long lead items, obsolete parts, changes in production lines and retrofitting. These costs eat away savings that could be achieved on the instant contract. An additional benefit would be an earlier implementation of the change. The number of units that would include the VECP would increase, this would mean greater savings for both parties.

PRIOR TO PRODUCTION

CONTRACT PRICE	\$1,100,000
PROFIT 10%	\$100,000
GROSS VECP SAVINGS	\$400,000
DEVELOPMENT & IMPLEMENTATION COST \$50,000	
NET SAVINGS	\$400,000
	<u>- \$50,000</u>
	\$350,000
CONTRACTOR SHARE OF SAVINGS:	
	50% • 350,000 = \$ 175,000
CALCULATION	\$1,000,000
	<u>- \$350,000</u>
	\$650,000
	+ \$100,000
	<u>+ \$175,000</u>
NEW CONTRACT PRICE	\$925,000

FIGURE 1A

AFTER PRODUCTION STARTS

CONTRACT PRICE	\$1,100,000
PROFIT 10%	\$100,000
GROSS VECP SAVINGS	\$400,000
DEVELOPMENT & IMPLEMENTATION COST \$200,000	
NET SAVINGS	\$400,000
	<u>- \$200,000</u>
	\$200,000
CONTRACTOR SHARE OF SAVINGS:	
	50% • 200,000 = \$ 100,000
CALCULATION	\$1,000,000
	<u>- \$200,000</u>
	\$800,000
	+ \$100,000
	<u>+ \$100,000</u>
NEW CONTRACT PRICE	\$1,000,000

FIGURE 1B

COMPARISON

	<u>PRIOR TO PRODUCTION</u>	<u>AFTER PRODUCTION</u>
DEVELOPMENT AND IMPLEMENTATION COST	\$50,000	\$200,000
CONTRACT PRICE	\$925,000	\$1,000,000
PROFIT	\$275,000	\$200,000
PROFITABILITY	<u>30%</u>	<u>20%</u>

RETOOLING, LONG LEAD ITEMS, CHANGE IN PRODUCTION ETC

FIGURE 1C

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VE Program Requirement Clause

The second recommendation is to increase the use of the VE Program Requirement Clause (VEPRC) prior to production. This clause is a government funded line item that requires a contractor to perform VE early in the program. A VE Statement of Work (SOW) is inserted in the contract which establishes milestones, workshop requirements, reporting requirements and areas where the VE effort should be concentrated. The SOW recommends that a VE workshop facilitated by a Certified Value Specialist (CVS) be held within 90 days of contract award. The workshop is geared on learning the VE methodology while working on the actual equipment. The result of a successful VE workshop is the submission of VE Proposals (VEPs). A VEP is a potential VECP, it discusses changes and forecasted savings. The government reviews the proposal for its feasibility. After acceptance by the government, the VEP can be turned into VECPs.

On a recent U.S. Army Communication Electronics Command contract, the VEPRC was used prior to the establishment of a functional baseline and government acceptance of configuration management, the contractor submitted six VECPs saving the government \$632,000. The VECPs submitted on the program, were mainly concerned with the elimination of unnecessary costs such as reduction of test requirements, reduction in number of faulted modules due to built in test, and other items like data reports. The experience gained on this program indicates clearly that the submissions of cost savings VECPs does not have to be restricted only to hardware changes.

Summary

In these times of decreasing budgets, it is more important than ever to utilize VE to its full extent. By eliminating the paradigm that VE can only be used during production, both the government and the contractors would benefit. The government would get needed savings to be utilized on their program i.e. to buy additional equipment or to fund unforeseen costs. The contractor would be more profitable and competitive.

REFERENCES

1. *FEDERAL ACQUISITION REGULATIONS (FAR) Part 48 - Value Engineering Part 52 -Solicitation Provisions and Contract Clauses 52.248-1 Value Engineering*
2. *ARMY REGULATION 70-37, (Appendix A, paragraph A-7a).*