



Plan for a Value Engineering Study

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What is Value Engineering?

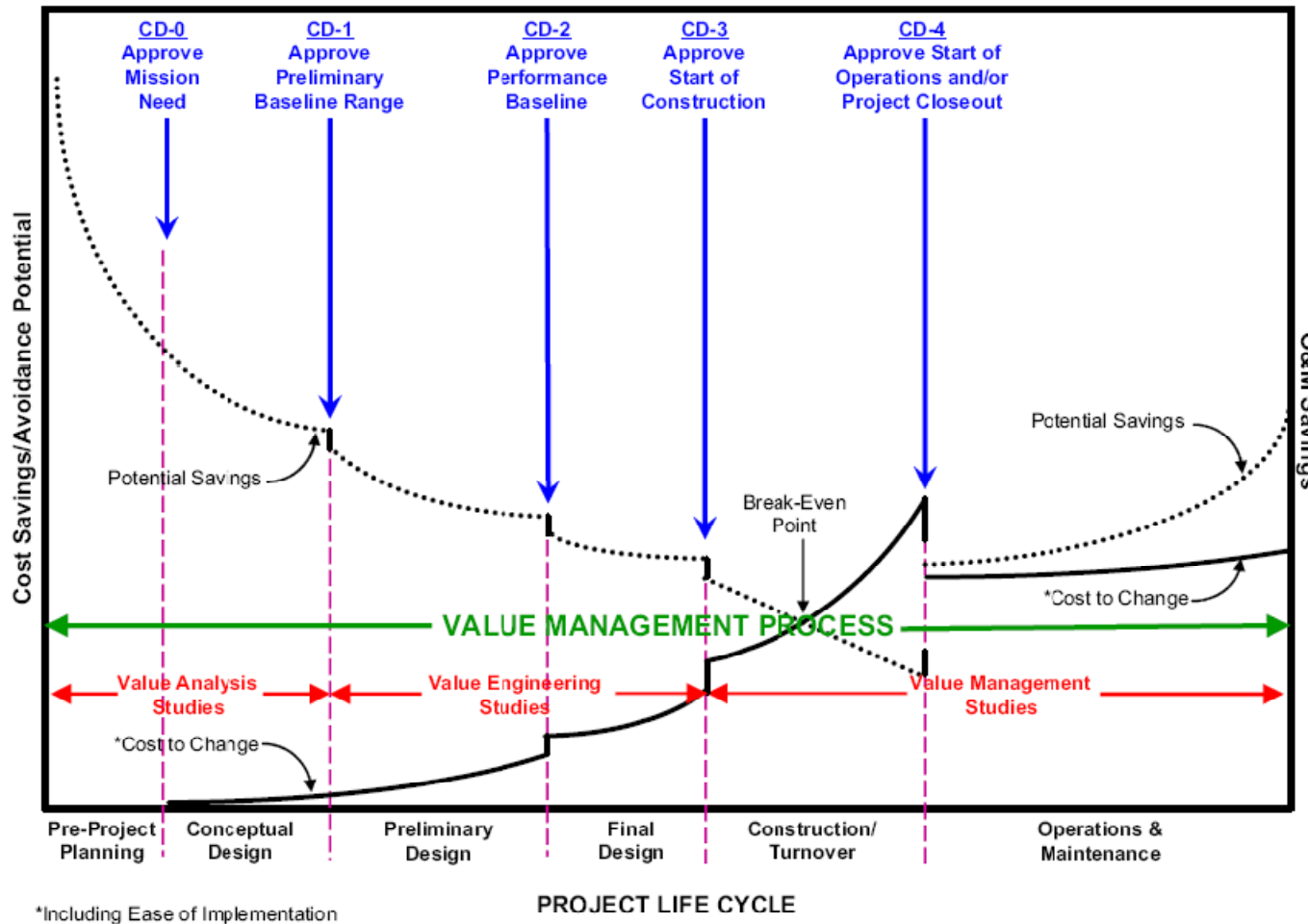
- **Value Engineering (VE) is defined as an organized effort directed at analyzing the functions of systems, equipment, facilities, services, and supplies for the purpose of achieving the essential functions at the lowest life-cycle cost consistent with required performance, quality, reliability and safety.**
- **VE is a technique directed toward analyzing the functions of an item or process to determine “best value,” or the best relationship between worth and cost. In other words, “best value” is represented by an item or process that consistently performs the required basic function and has the lowest total cost.**

Source: OMB Circular A-131, Value Engineering, May 23, 1993



Potential Benefit Returns vs. Project Life Cycle

APPLY VALUE MANAGEMENT THROUGHOUT THE DOE PROJECT LIFE CYCLE



*Including Ease of Implementation



Overall Steps

- Select facilitator / schedule meeting
- Develop Charge w/ facilitator
- Select participants / invite participants
- Develop and distribute Information packets – 2 weeks before meeting.
- Hold VM Study (2 ½ to 3 days)
 - **Information Phase**
 - **Function Analysis Phase**
 - **Speculation Phase**
 - **Analysis Phase**
- Development Phase – Depending on level of effort, new work packages may be required.
- Presentation Phase



VM Study Scope

- The scope of the study should allow the meeting portion of the process to be completed in 1 ½ to 3 days.
- Information and project requirements needs to extend beyond the study focus area in order that the root functions and requirements can be understood and therefore challenged.
- The number of participants should be kept to less than 30 people



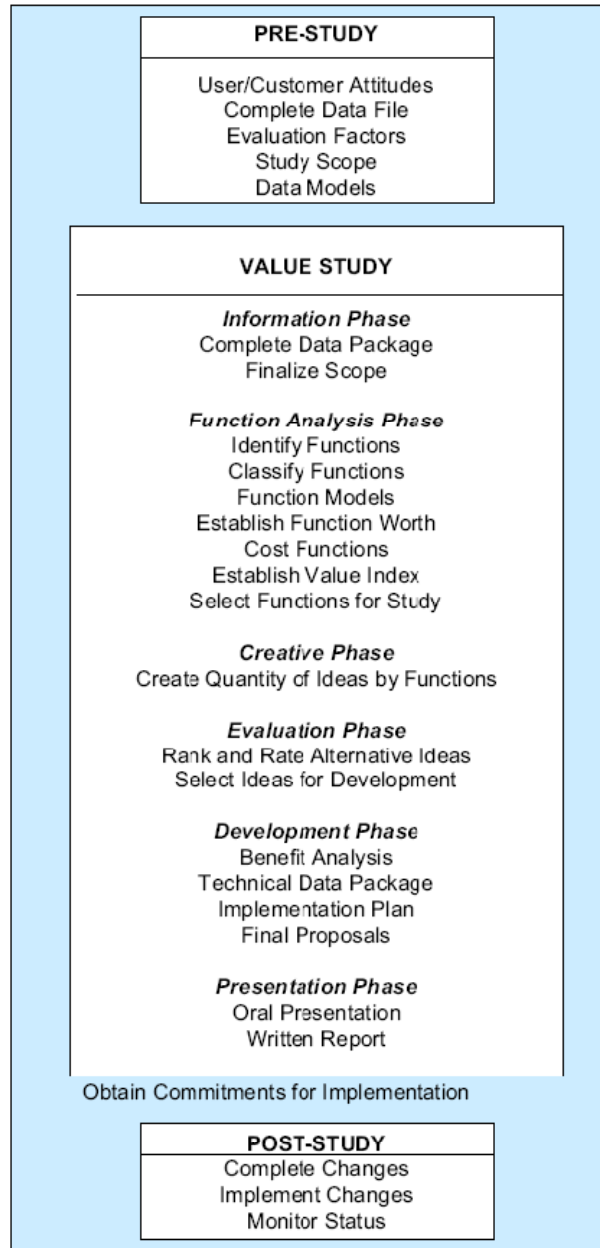
Developing the Charge

- Determining the scope that the study will focus on is important to its usefulness.
 - If the focus area is too narrow, say just Process Water, “best value” ideas may not be presented; Impacts on other areas may not be realized.
 - Too large a focus area may not allow the required in-depth analysis that is desired.
- **Suggest we focus on the power and cooling systems and their impacts on the tunnels, caverns, shafts, surface areas including buildings, utilities and impacts on the surrounding communities.**



Participants (Team Members)

- Facilitator: US Corp of Engineers has a department (Ovest) that is trained/certified to facilitate VM studies. (Currently booked until December 07) Large A&E firms such as Parsons also have certified / experienced VM facilitators.
- Participants need to have broad enough experiences to generate new and interesting ideas.
- Participants need to be realistic but have an open mind to look at new ways to solve old problems. (deal with the nay-sayers in the development phase)



**US Army Corps
of Engineers**

OVEST

A Results-oriented Approach

Value Engineering offers a platform to find and explore other ways of doing things. It is done by employing the VE methodology, which contains six phases.

Information Phase

Information is extracted from many sources. It is dependant primarily on team composition and what information the team members bring to the Study. Obviously, this information can take many forms, from documents (design, planning, estimating, diagram, acquisition, system, organizational, etc.) to the experiences, thoughts, discussions and communications of the team members.

Function Analysis Phase

The purpose of this phase is to clearly identify the function of the Project (or Issue at hand), and to formulate a concept from which new directions can be taken. A Function Analysis Study Technique (FAST) Diagram is an end product of the Information Phase.

Speculation Phase

The Study Team then embarks on a brainstorming session. Quantity and "Free wheeling" are the goals of this speculation phase. Criticism is not allowed during this phase. The product of the Speculation Phase is a listing of ideas

Analysis Phase

The Analysis Phase reduces the speculation list by evaluating each idea. Those ideas that become technically sound must withstand the "Value" test.

Development Phase

Those feasible ideas that survive the analysis phase are then developed into proposals. Usually, more research and in-depth resolution is pursued to substantiate the proposal. Sometimes this attempt to substantiate the proposal results in the modification or even elimination of the original idea. Development generally takes the form of a written document that clearly expresses the proposed idea, usually a "Before" and "After" depiction.

Presentation Phase

A presentation is made to those who have an interest in the outcome of the proposals.

OVEST's Special Qualifications

Basically, the foregoing process is adequate to perform a VE study. However, achieving *results*, using the VE methodology, is another matter. The methodology is merely the vehicle and road map. One still needs to learn how to drive it, how to read the map, and especially, how to determine the destination of all this activity. These are skills that can only come about after 22 years of performing successful (over 500) VE studies.

Who We Are

What We Do

How We Do It

Track Record

Working With Us

Reaching Us

E-mail OVEST



- Information Phase – Presentations that describe the current baseline designs for the accelerator and conventional facilities
 - **This should be about one hour**
- Function Analysis Phase - Presentations are made to define the accelerator requirements and how those requirements have been converted to the criteria for the Conventional Facilities, and particularly the functions of the power and cooling systems.
 - **This phase may take 4 to 6 hours with presentation and question and answers**

- Speculation Phase – lead by the facilitator the group uses brainstorming to generate ideas
 - **This phase will take place for the rest of the first day and most if not all of the second day**
- Analysis Phase – Once the brainstorming is over, the group reviews the ideas; combining, eliminating and discussing their value potential
 - **This should take 3 to 4 hours**



- Development Phase – While the bulk of the work to develop the ideas that survived the analysis phase will occur in the weeks and months after the meeting, responsible parties and schedules need to be determined. New work packages and design costs are discussed.
 - **This phase can be accomplished in a few hours**
- Presentation Phase – Some items may have impacts that require change control, others may be distributed via email to affected parties. If the development phase is done correctly there should be no surprises.



Strawman Cost Estimate for VM Study Meeting

	# of Persons	Unit Cost	Extended Cost
Facilitator	2	\$6,500	\$13,000
Expertise from Industry	6	\$6,500	\$39,000
Expertise from other Laboratories	5	\$2,000	\$10,000
Project Members 50% traveling	12	\$2,000	\$12,000
Misc. Expenses (1 lot)		\$500	\$500
	25		\$74,500

2 1/2 day meeting

Unit costs include Billing rate + Expensives