

EXAMPLES OF VERBS

• Passive

- Provide support
- Permit parking
- Allow attachments
- Determine resolution
- Submit budget
- Develop exhibits
- Seek approval

• Active

- Support weight
- Park vehicles
- Attach components
- Resolve problem
- Budget expenses
- Exhibit products
- Approve procedures

FAST DIAGRAMMING

- FAST IS AN ACRONYM FOR functional analysis system technique, which was born out of the value engineering discipline.
- Basically Fast is a diagramming process which visually highlights the functions of a product, system, or service and their inter-relationship. It was developed by Charles W. Byetheway.
- FAST is a logical process and follows the VALUE ENGINEERING format of describing a function with two words – and active verb and a measurable noun.

Function Analysis System Technique (FAST)

- Purpose of FAST
 - Logically identifies, develops, and analyzes functions
- The FAST diagram
 - Specific function relationships
 - Validity test
 - Deepens understanding of problem
 - Show design
 - Supports creativity
 - Stimulates logical and organized thinking
- Uses
 - Communication
 - Understanding
 - Clarification
 - Interrelationships
 - Relative importance of functions
- **The basic difference between FAST Diagramming and other techniques is that FAST is function-oriented and not time-oriented.**

FAST MODEL/DIAGRAM

Types of FAST Models:

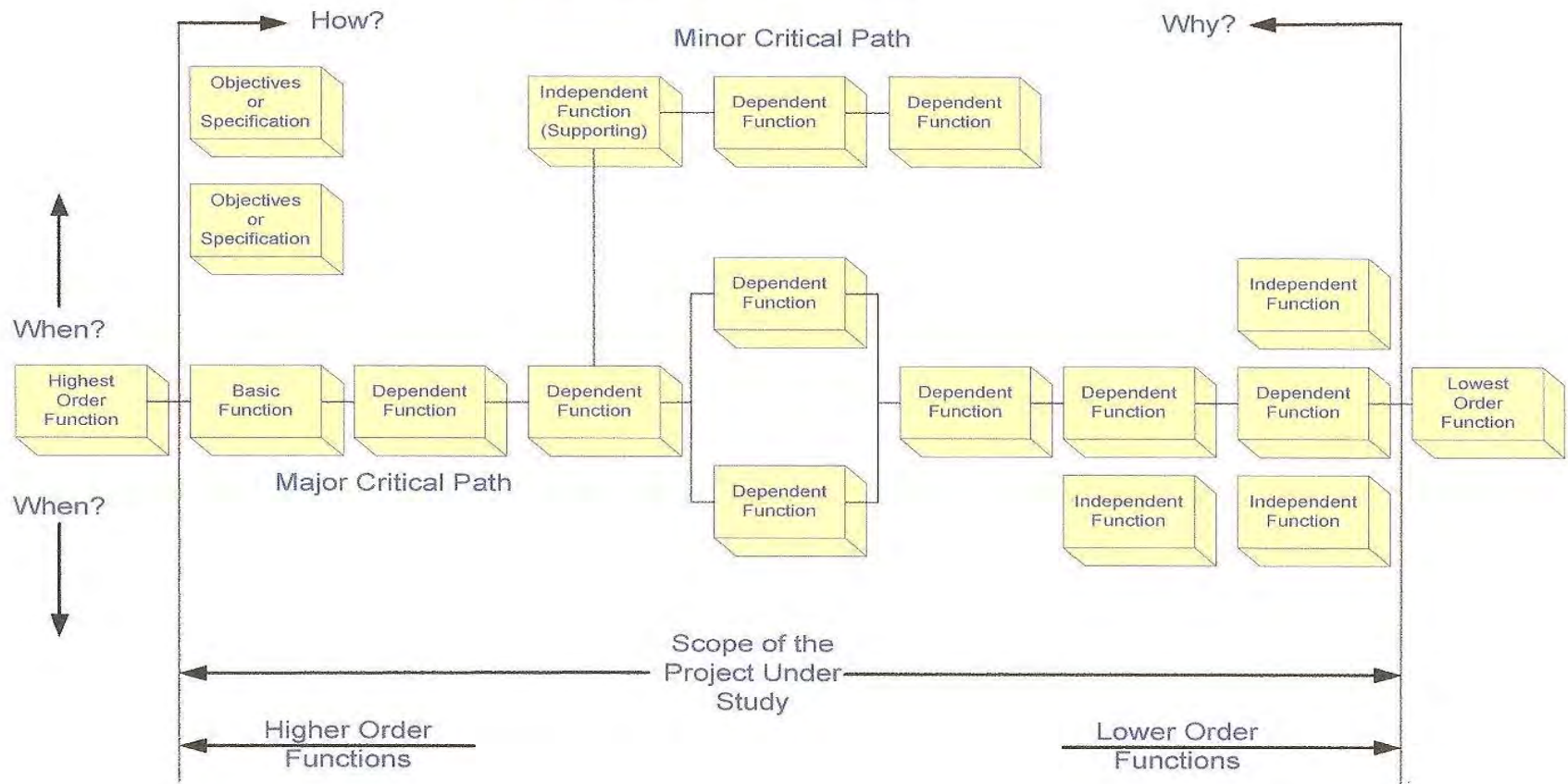
- Technical FAST Diagram
- Classic FAST Diagram
- Customer-Oriented FAST Diagram

MAJOR ELEMENTS OF A FAST DIAGRAM

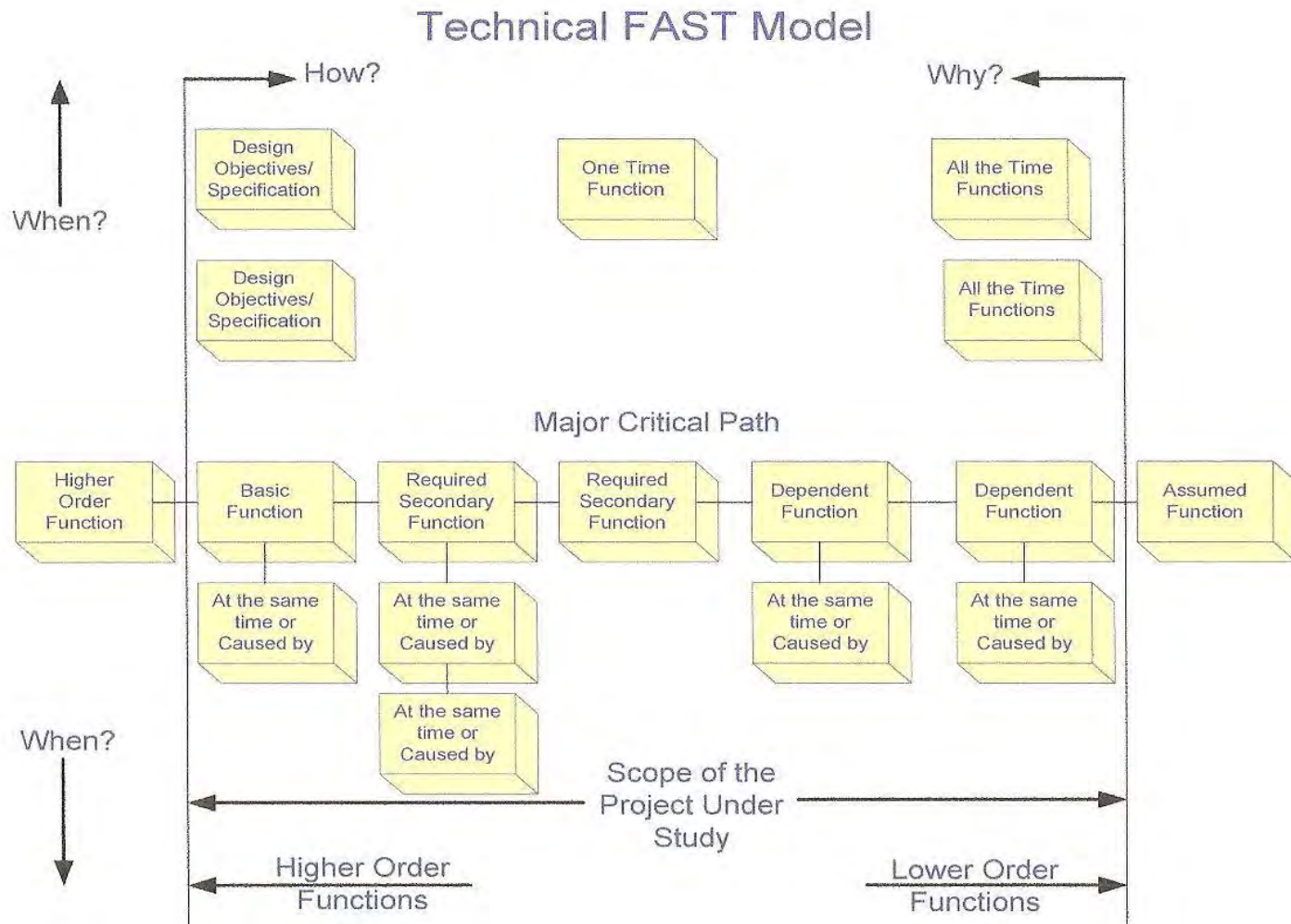
- Every FAST diagram has **two vertical scope lines**, one on the extreme left and one on the extreme right; everything in the study lies inside them.
- Every FAST diagram has a **critical path** running from left to right with a sequential arrangement of those functions to complete a required process of design.
- The **higher order function** lies outside the left scope line.
- The **basic function** lies immediately inside the left scope line.
- Functions of the highest order or level are at the extreme left of the diagram; lower level functions at the extreme right.
- The **assumed function** lies outside the right scope line.

CLASSICAL FAST MODEL

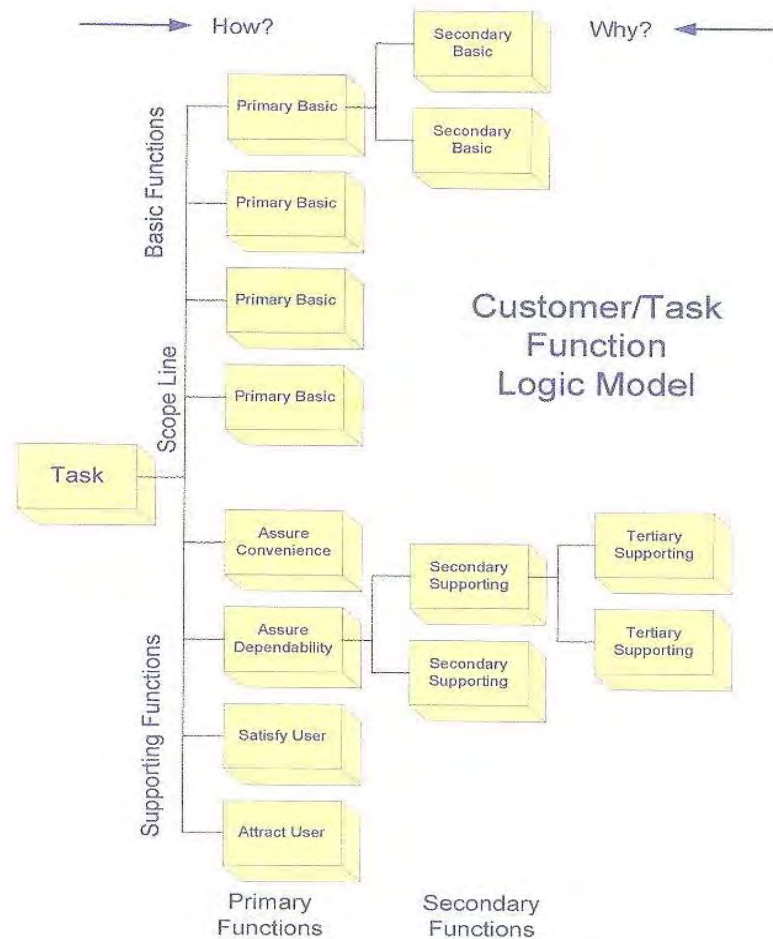
Classical FAST Model



TECHNICAL FAST MODEL



CUSTOMER FAST MODEL



HOW/WHY LOGIC

- On the critical path the functions are put in order by using a test of How/Why logic consisting of two questions: **How? Why?**
- In order to have logic, the diagram must satisfactorily answer these two questions:
 - When “**How?**” is asked of any function on the critical path, the answer must be found in the function immediately to the right.
 - When “**Why?**” is asked of any function on the critical path, the answer must be found in the function immediately to the left.
- If the order of the function **FAILS** this two-way test, a function is either **MISPLACED** or **IMPROPERLY DESCRIBED**.

Intuitive Logic

HOW? Left to Right

- Starting with the goals answers how to achieve the goals

WHY? Right to Left

- validate the intuitive logic of "HOW?"

WHEN?

- Independent Function, supplements intuitive thinking



FINAL POINTS TO KEEP IN MIND

- It is not necessary for the diagram to be 100% technically correct to be useful.
- A logic diagram can be a very quick, effective, and highly visible tool in communicating information.
- The process or creative stimulation that accompanies the creation of a logic diagram might be of greater benefit than the finished product.

COST/WORTH = VALUE INDEX

- This **ratio** is used to determine the opportunity for value improvement. It is usually identified in the function analysis phase, where:
- **COST:** The total expense of resources to produce a product, service, process, or structure;
- **WORTH:** The lowest expense believed to be necessary to perform a function(s) without regard to criteria or codes; or, the least expenditure required to attain the function or functions needed.

- $\frac{\text{COST}}{\text{WORTH}} = \text{VALUE}$
- $\frac{\text{COST}}{\text{WORTH}} > 1$, therefore a poor VALUE
- $\frac{\text{COST}}{\text{WORTH}} = 1$, therefore a good VALUE
- $\frac{\text{COST}}{\text{WORTH}} < 1$, therefore a great VALUE, or a bargain, (or WORTH was over estimated)

Value Index

The Basic Equation

$\text{Value} = \text{Function}/\text{Cost}$
 $\text{Value Index} = \text{Cost}/\text{Worth}$

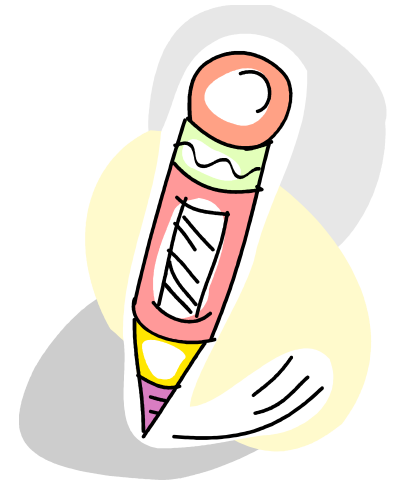


VALUE INDEX-PENCIL

- Worth – What is the least cost to perform the function “Makes Mark”?
 - Suggestion: Use a piece of lead rock
- What does that cost?
 - - Suggestion: \$0.30

$$\text{Value Index} = \text{Cost}/\text{Worth}$$

- Pencil Cost: \$2.92
- Least Cost: \$0.30
- Value Index= $\$2.92/0.30 = 9.7$
- VI more than 1; cost more than worth – VALUE MISMATCH – Opportunity for Improvement



Attributes of a Creative Person

- Problem Sensitivity
 - Being aware the a problem exists
- Idea Fluency
 - Being able to produce ideas in copious quantities
- Flexibility
 - Being adaptive in the approach to a problem
- Originality
 - Ability to produce a great number of new and unique ideas
- Constructive Discontent
 - Dissatisfaction with existing conditions with an attitude of mind which seeks to improve the conditions

Attributes of a Creative Person (continued)

- Observation
 - Alertness to the environment
 - Ability to combine and recombine information in a variety of ways
- Orientation
 - Develop proper frame of mind toward creativity
- Motivation
 - Mustering of the necessary energy to work toward goal-drive and energy
- Permissive atmosphere
 - Environment in which new ideas are encouraged

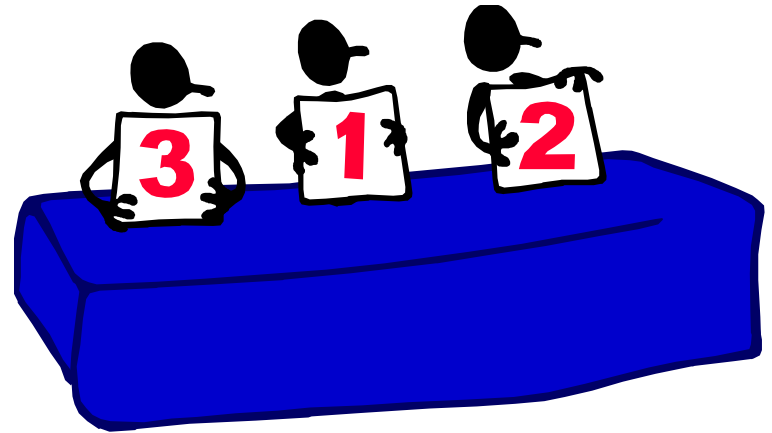
Group Brainstorming Rules (Creativity)

- Criticism is ruled out – Judgment is suspended until subsequent evaluation
- Free-wheeling is welcomed – The wilder the idea the better; It is easier to tame down than to think up
- Quantity is wanted – The greater the number of ideas, the more likelihood of good ones
- Combination and improvement are sought – In addition to contributing ideas of their own, group members should suggest how suggestions by others could be turned into better ideas, or how two or more ideas could be combined into a still better idea.

EVALUATION PHASE

Specific Work to be done :

- Rank ideas
- Evaluate ideas
- Select ideas

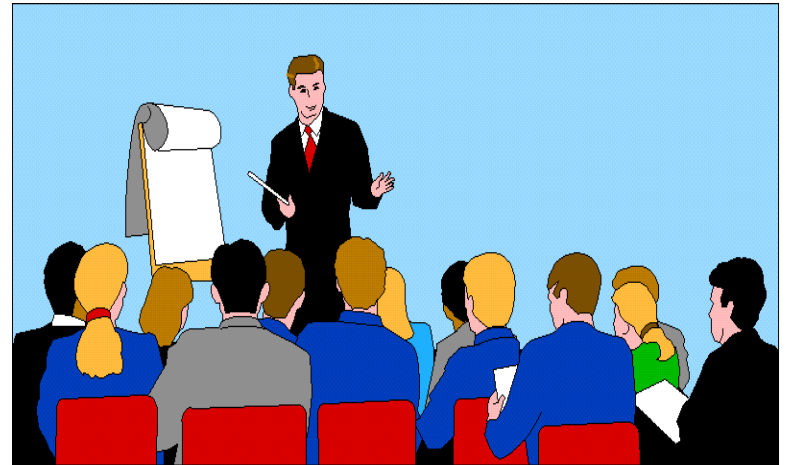


Questions to be answered :

- How feasible is each idea ?
Will each idea perform the function ?

SAVE INTERNATIONAL

- About the Organization
 - SAVE International website:
www.value-eng.org
- Certification Program
 - AVS – Associate Value Specialist
 - VMP – Value Methodology Practitioner
 - CVS – Certified Value Specialist



ROADMAP TO CERTIFICATION

- AVS
- VMP
- CVS
- CVS-LIFE



Types of Certification

*Certified
Value
Specialist*

CVS

*Value
Methodology
Practitioner*

VMP

*Associate
Value
Specialist*

AVS

*For individuals who are
new to VE.
Complete Mod I & Pass
AVS Exam
Teach VE
Must be renewed every
four years*

*For those who are not
necessarily full-time
in VE Business.
Complete Mod I &
Pass VMP Exam.
Accrue Required CP's
Lead VE Team
Teach VE
Must be renewed
every four years*

*The highest degree
Complete Mod II,
Accrue required
CP's & Pass CVS
exam
For those who are
fully qualified and
are in the VE field.
Lead VE Teams
Teach VE
Must be Renewed
every four years*

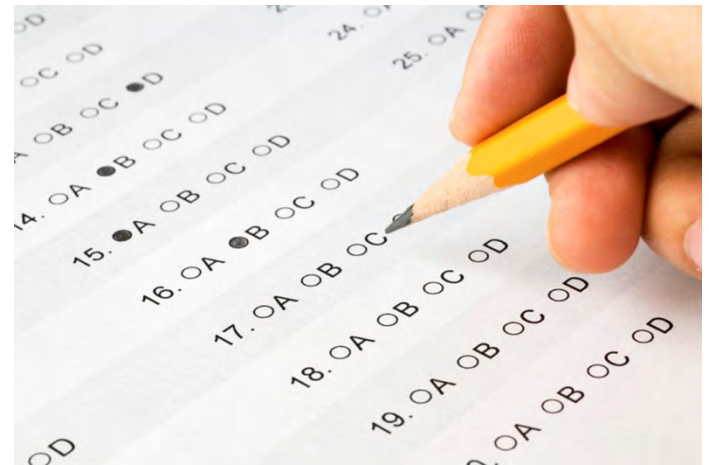
VE approved courses

<i>Module I</i>	<i>Module II</i>
<i>40-hour VE Training Workshop 20 Hours lectures , 20 Hours Project</i>	<i>24-hour advanced VE Seminar Lectures & Exercises</i>
<i>History, Definitions, Job Plan</i>	<i>Overview of VE Job Plan and Advanced Function Analysis and FAST</i>
<i>Function Analysis, FAST</i>	<i>Project and Team Structure</i>
<i>Creativity</i>	<i>Advanced Creativity</i>
<i>Life Cycle Cost Analysis</i>	<i>Financial Evaluation</i>
<i>Evaluation and Implementation</i>	<i>Interpersonal Skills</i>
	<i>Value Management</i>

CERTIFICATION PROGRAM - AVS

Requirements:

1. Complete a SAVE approved Module I course (40 hours)
2. Pass the AVS examination



CERTIFICATION PROGRAM - VMP

Requirements:

1. Complete a SAVE approved Module I (40 hours)
2. Demonstrate practical application of the Value Methodology
3. Pass the VMP examination
4. Activity must continue for recertification every four years.

CERTIFICATION PROGRAM - CVS

Requirements:

1. Complete SAVE approved Module I and Module II courses
2. Demonstrate practical application of the value methodology,
3. Submit and have approved an original paper on a value related subject
4. Successfully pass the CVS examination.
5. The Certification Board offers three tracks for CVS certification.
 1. Value specialist, who teaches, facilitates, leads or participates in studies using the value methodology.
 2. Value program managers who are responsible to their employer for the management or direction of an in-house value program. The program manager is not only responsible for the success of a study, but is also responsible for the overall success of a value program
 3. NEW - Academic track

ROADMAP TO CVS

Possible stepping stones:

- Get listed as a team member on the SAVE web site
- Work closely with your advisor (CVS)
- Speak to groups about VM (include SAVE Chapters and groups outside of your normal associations)
- Write articles for group newsletters about VM

WHO CAN HELP?

- CVS Candidate
- CVS Advisor
- SAVE Certification Board Administrator
- Clients/Others

CVS CANDIDATE

- Communicate with your CVS advisor
- Find opportunities yourself (networking)
- Get listed as a team member on the SAVE web site
- Consider VMP as interim

CVS ADVISOR

- Communicate with your CVS candidate
- Find opportunities for the CVS candidate
- Talk to clients about using an assistant
- Advise and review the candidate's progress
- Review CVS candidate's application and paper
- Assist CVS candidate with review for the CVS exam

CLIENTS/OTHERS

- Clients be open to the CVS using an assistant
- Other CVSs be open to adding an assistant for a study
- Time to attend the study/workshop
- Be creative!

THE MILES METHODOLOGY

Summary:

“A truly creative person allows their mind to travel unrestrained from the unknown to the known and on to a new and even greater unknown while never really losing sight of the objective”

Donald Hannan

***OK, so what IS
“Value Engineering”?***

“An organized study of functions
to satisfy the user’s needs
with a quality product
at the lowest life cycle cost
through applied creativity”.

FUNCTION ANALYSIS

You can't always get what you *want*.

But if you try somehow, you just might find, you get what you **NEED**

Acknowledgement:

Special thanks to Mr. Ramesh Kalvakaalva, CVS, PE, for his help with this effort. The material presented is from the MOD 1 training and has been modified for the sole purpose of relating the Value Methodology process and is not an accredited course.



Rolling Stones