



Value Methodology

A Presentation to
the American Society for Quality

Michael D S Blois AVS

What is the Value Methodology?

- Value Methodology (VM)
 - known as “value engineering”, “value analysis”, and “value management”
 - originated in the 1940s
 - uses **function analysis** to improve projects, products, and processes
 - since 1996 the use of VM is required by law for all Federal Agencies.

How does VM work?

- Reduce complicated projects into basic components by analyzing its functions.
- Identifying the functions of components and systems leads to identifying better ways to accomplish project goals at the lowest life cycle cost.

Common misconceptions

- VM “cheapens” projects.
- VM creates adversity.
- VM ignored the design professional’s concept.
- VM is a bureaucratic conspiracy.
- VM is a pain in the #@%*!

The owner's perspective

- The budget is fixed.
- No change orders!
- We need it yesterday.
- Local economy is important.
- Respect our traditions.
- Meet code requirements.
- No complications!

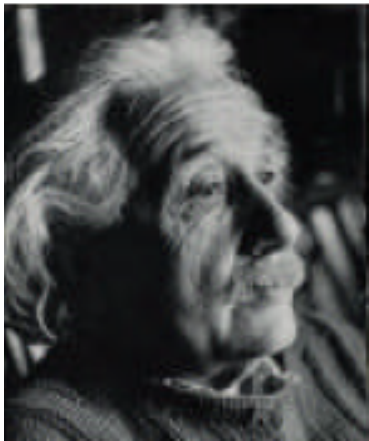
The designer's perspective

- Today it is not unusual for project to exceed **established budgets** during the design process.
- Designers are not known for their cost estimating skills.

Understanding the Problem

“The mere formulation of a problem is far more often essential than its solution, which may be merely a matter of mathematical or experimental skill. To raise new questions, new possibilities, to regard old problems from a new angle requires creative imagination and marks real advances in science.”

- Albert Einstein



How a problem is stated
affects ***how*** it is solved

How VM defines “Value”

VALUE = FUNCTION / COST
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- The reliable performance of that which a product or process must do to make it work and sell at the least possible life cycle cost.

How VM defines “Function”

- A generic description of what needs to be accomplished without identification of a specific means of accomplishment.

Function Analysis – Four Steps

1. **Define the Functions** occurring in the project/task and categorize the type of functions.
2. **Organize the Functions** into a Function Analysis System Technique (FAST) Diagram. The FAST diagram is prepared to show a visual image of interrelationship of the various functions.
3. **Develop Cost/Function** relationships by assigning costs to the various functions. Through this process, the team can evaluate which functions have excessive cost and do not provide good value to the customer.
4. **Identify Functions Requiring Improvement.**

Defining Functions

All functions can be defined in **two** words:

An **Active Verb** and a **Measurable Noun**

Examples of functions for various types of studies:

Item:

Automobile

Refrigerator

Foundation

Road

Function:

Transport People

Cools Air

Support Structure

Routes Vehicles

Function Analysis System Technique (FAST) Diagram

- Shows specific relationships of all functions with respect to each other. Not to be confused with a process flow diagram.
- Tests the validity of the functions under study
 - Asks “How” from left to right
 - Asks “Why” from right to left; this is a check on the FAST logic
- Helps identify missing functions
- Broadens understanding of the project under study. Helps integrate the VM study team.

MOUSETRAP

FUNCTION ANALYSIS SYSTEM TECHNIQUE (FAST) DIAGRAM



OBJECTIVE

HOW? >>>

<<< WHY?

ELIMINATE
MICE

DISCOURAGE
RESIDENCY

OBTAIN
PREDATOR

BASIC
FUNCTION



STRIKER

TRIGGER

BAIT

SPRING

SECONDARY
FUNCTIONS



ATTRACT
MOUSE

BAIT
TRAP

SET
TRIGGER

POSITION
STRIKER

COMPRESS
SPRING

LOCATE
TRAP

PREPARE
TRAP

ACTIVITIES

After: Kaufman &
Woodhead

HIGHER
ORDER
FUNCTION

How VM handles “Cost”

- There is always a **better** way to do anything.
- The secret is to understand functions...
- Use the life cycle cost approach.
- And then determine **best value!**

**Best value does not mean
“cost cutting.”**

Value and Cost are not the same!

Value Methodology relates Values to Functions.

Example

The "Diamond Tie Clip"
Tie Clip Costs \$1000

The "Paper Clip"
Paper Clip Costs 1/10¢

They both perform the same function of "Prevent Separation," therefore, they have **equal** value.

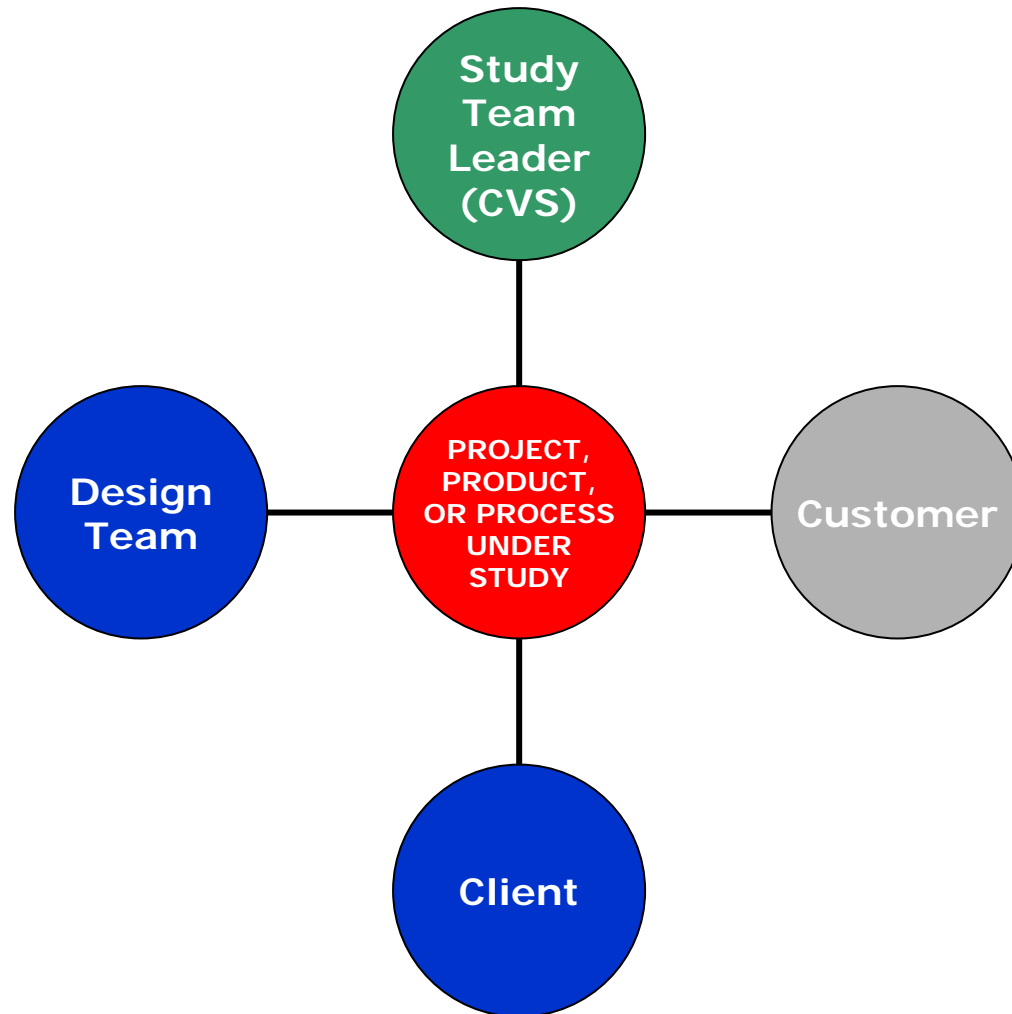
However the Diamond Tie Clip also has an aesthetic function of "Display Status."

The VM job plan

The job plan is composed of six phases:

1. **Information Phase** Develop Baseline
2. **Function Analysis Phase** Establish Functions
3. **Creative Phase** Generate Ideas
4. **Evaluation Phase** Identify & Weight Criteria,
Rank Ideas
5. **Development Phase** Develop Alternatives
6. **Presentation Phase** Present Recommendations
to Management

Who's on the VM team?



VM Workshop

- Collaborative effort
- Multi discipline team
- Subject matter experts, for example
 - Cost Estimating
 - Safety and Health
 - Engineers
 - Scientists
 - etc

Presentation and Report

- Team identifies their top alternatives
 - Presentation to decision makers
 - Achieve total 'buy in'
 - ROI for VM studies often > 20 : 1
 - Good value = everyone wins
-
- Who likes Chinese food ??

SAVE International

Mission: To promote the use of the **Value Methodology** worldwide.

Vision: To have the **Value Methodology** recognized worldwide as the premier approach for improving projects, products, and processes.

It isn't a **REAL VALUE STUDY** without a **CERTIFIED VALUE PROFESSIONAL.**



Thank you!

SAVE International thanks its dedicated members for their contributions to promotion of and education in the Value Methodology.