VE is a systematic and structured method of maximizing the **Value** of products and services by analyzing **Functions**.

**Value** is the reliable performance of functions to meet customer needs at the lowest overall cost.

**Cost** is the expenditure necessary to produce a product, service, process, or structure.
**Function** is the natural or characteristic action performed by a product or service.

Function Analysis is, understanding something with such clarity that it can be described in two words, the active verb and measurable noun.

Function of the pencil is to *Make Mark*.
Value engineering began at General Electric Co. during World War II.

Because of the war, there were shortages of skilled labor, raw materials, and component parts.

Lawrence Miles, Jerry Leftow, and Harry Erlicher at G.E. looked for acceptable substitutes.

They noticed that these substitutions often reduced costs, improved product, or both. What started out as an accident of necessity was turned into a systematic process. They called their technique “value analysis”.
OBJECTIVES OF VALUE ENGINEERING

Reduce Cost

Initial
Life Cycle

Reduce Time

Reduce Risks

Improve Quality

Improve Profitability

Improve Serviceability
The VE process is not meant to criticize designer’s work or imply that the design process is not providing acceptable designs.

The designs being prepared are good designs

- They can be built
- They function as intended
1. Failure to get sufficient facts before starting.
2. Bias against proven technology.
3. Habitual Thinking
4. Doing things the same way we've always done them
5. Tendency to re-use what worked the last time
6. Copying standards and details of other projects
7. Lack of knowledge to the current state-of-the-art products, techniques
8. Time pressures to complete tasks
8. Lack of coordination
9. Numerous and frequent modifications
10. First workable solution
11. Resistance to change or alternates
12. Rapidly changing technology
13. Strict adherence to the “requirements”
14. “Factor” of Safety
Split works into several bid packages

Reduce gross build-up areas of low revenue generating components

Reduce % of Performance Bond

Reduce duration of reviews and payments

Incentives on early completion

Partnering or mediation as dispute resolution method
**TYPICAL VE WORKSHOP AGENDA**

**Day 1**
- Introduction
- Project Brief
- Present Design

**Day 2**
- Function Analysis

**Day 3**
- Brainstorm Ideas

**Day 4**
- Rank Ideas
- Evaluate Ideas
- Cost Estimates

**Day 5**
- Sketch Major Ideas
- Presentation
Team Members
Certified Value Specialist
Subject Matter Experts
Outside of Design Team

1

Information – Orientation
Objectives
Scope
Cost
Critical Areas & Constrains

2
QUALITY MODEL – OBJECTIVES
QUALITY MODEL - GAP ANALYSIS
## AREA / COST MODEL

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<th>CAR PARK</th>
<th>MALL</th>
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### PROJECT

- **Area**: 100,000
- **Cost**: 1,605,000,000
- **Revenue**: 1,950,000,000
FUNCTION ANALYSIS

Determine Functions
- Primary
- Secondary
Cost of Function
4 Brainstorming Ideas
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<th>PROJECT PHASE</th>
<th>FOCUS</th>
<th>ARCHITECTURE</th>
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OUTCOME OF CREATIVITY
EVALUATION & DEVELOPMENT

5 Evaluation
   - Eliminate Ideas
   - Combine Ideas
   - Final List of Workable Ideas

6 Development
   - Refine Ideas
   - Cost-Benefit Analysis
   - Action Plan

EVALUATION & DEVELOPMENT
7 Presentation
   Final Results
   Action Plan

8 Implementation
   Change Orders
   Execution
   Follow Up

PRESENTATION & IMPLEMENTATION
WHEN VE SHOULD BE CONDUCTED
VALUE METHODOLOGY STANDARD and BODY OF KNOWLEDGE

June 2007

SAVE International
The Value Society

VE BODY OF KNOWLEDGE
Value Engineering Professional Titles

Associate Value Specialist (AVS)

Certified Value Specialist (CVS)

Value Methodology Practitioner (VMP)

Subject Matter Experts (SME)