Week-01-L-02

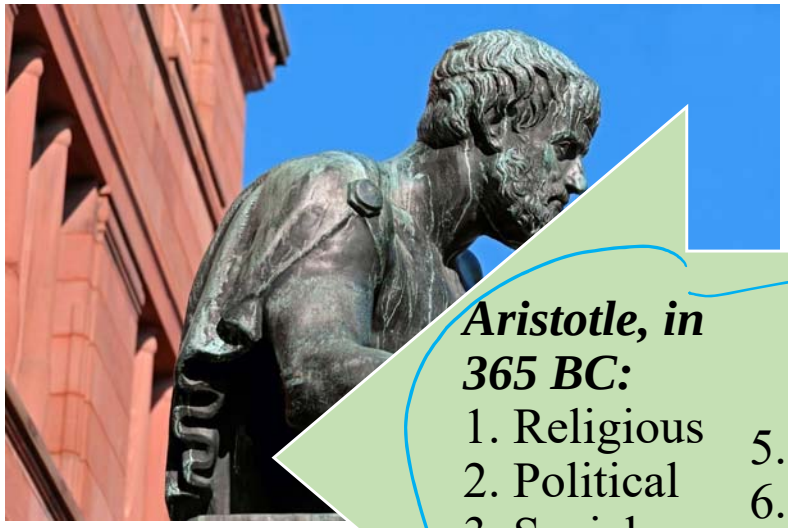
Value Engineering Agricultural Plan

Introduction to Value Engineering (VE)

Definition and Basic Terms

Prof. J. Ramkumar &
Dr.Amandeep Singh
Department of Mech Eng & Design
Indian Institute of Technology Kanpur

Evolution of Value Engineering

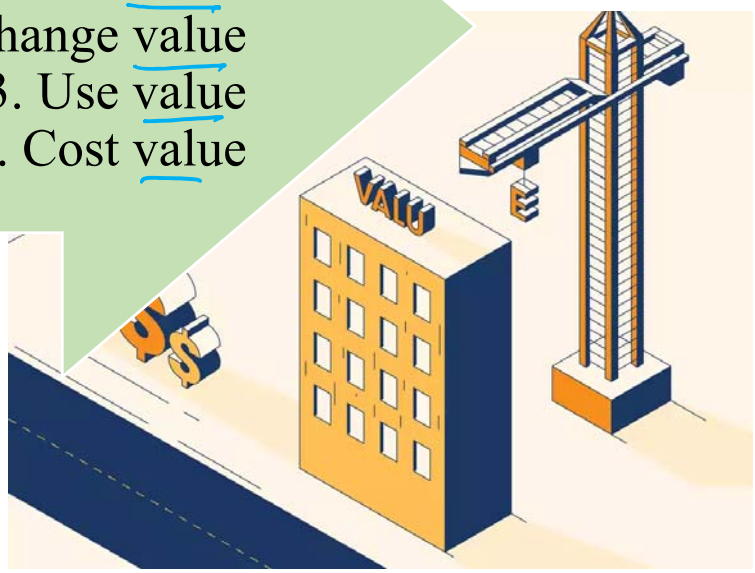


Aristotle, in 365 BC:

1. Religious
2. Political
3. Social
4. Aesthetic
5. Ethical
6. Economic
7. Judicial

Currently:

1. Esteem value
2. Exchange value
3. Use value
4. Cost value



Source: Britannica.com | bigrentz.com

Value Engineering

Exchange value is the capability of a product, process, service, or system to be traded for something else, making it more appealing to customers.

Esteem value represents the aspect of a product, process, service, or system that creates a desire in individuals to own it, emphasizing the importance of this value in today's global economy.

Use value is the inherent purpose or utility of a product, process, service, or system, emphasizing its role in fulfilling specific customer needs.

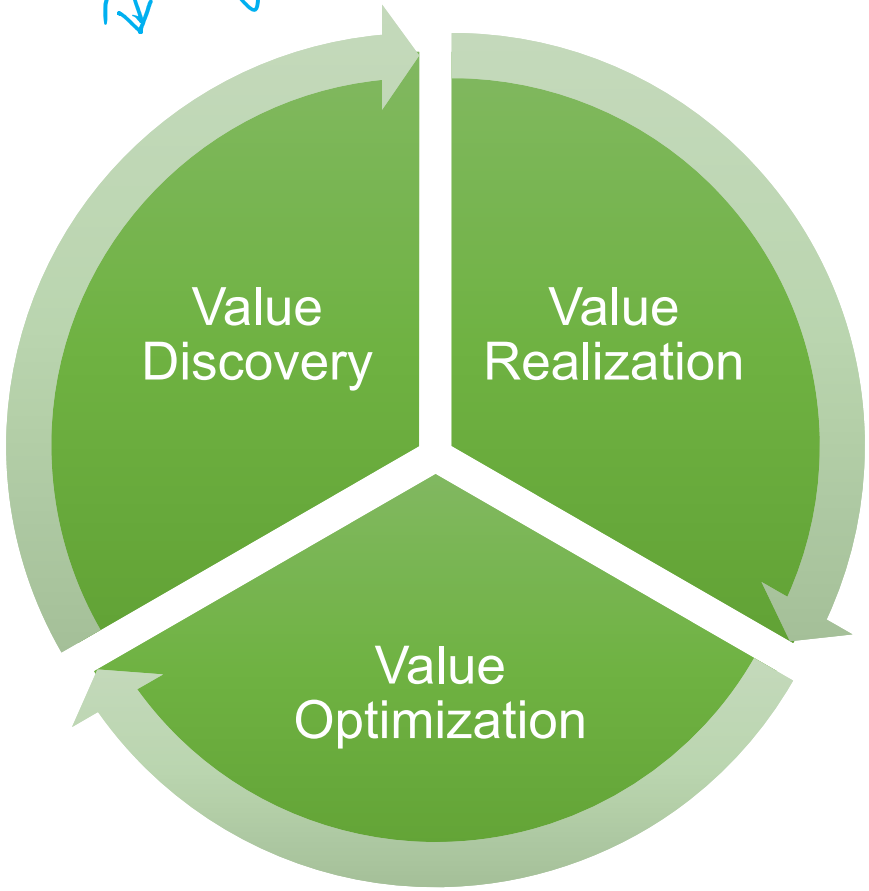
Cost value encompasses the entire expense associated with a product, process, service, or system, including acquisition cost and life cycle cost (LCC) or cradle to grave cost in financial terms.

Source: veritis.com

Value Engineering

ratio = $\frac{x \uparrow}{y \downarrow}$ $\frac{F \uparrow}{C \downarrow}$

- Value Engineering is a systematic method to improve the "value" of goods or products and services by using an examination of function.
- Value, is defined, as the ***ratio of function to cost***.
- It can be ***increased*** by either improving the function or reducing the cost.



Mathematical expression of value

- Value can be quantified through mathematical means, with its components being performance (or function) & cost. This can be formulated as follows:

$$Value = \frac{Performance\ (or\ Function)}{Cost}$$

The ratio can be enhanced through following adjustments:

1. Enhancing performance or function while keeping cost constant.
2. Maintaining performance or function at its current level while reducing cost.
3. Simultaneously improving both performance or function & reducing the cost.
4. Boosting performance or function at a faster rate than the increase in cost.
5. Decreasing both performance or function & cost at an accelerated rate.

Benefits

- **Comprehensive Information:** Value Engineering offers abundant information for informed decisions and increased value.
- **Fact-Based Decisions:** It promotes fact-based decisions, maximizing an item's true worth.
- **Risk Reduction:** Value Engineering systematically evaluates ideas, reducing the risk of personal loss and encouraging innovation.
- **Collaborative Knowledge:** It encourages knowledge sharing and collaboration for optimal solutions and increased value.

Benefits

- **Time Constraints:** Value Engineering addresses time limitations, preventing hasty decisions that reduce value.
- **Positive Mindset:** It promotes a positive outlook, encouraging innovation and avoiding negative attitudes that diminish value.
- **Embracing Technology:** Value Engineering ensures the adoption of modern tech and materials, avoiding outdated technology that decreases value.
- **Adaptive Flexibility:** It adapts to changing customer needs in a dynamic environment, preventing poor value from strict adherence to outdated requirements.

Thank You


ideas to products
IMAGINEERING
LAB | IIT KANPUR
MedTech
IIT KANPUR