

Week-02-L-03

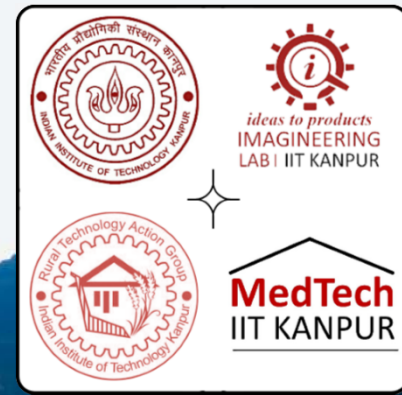
Value Engineering Agricultural Plan

Information & Function Phase

Function Definition

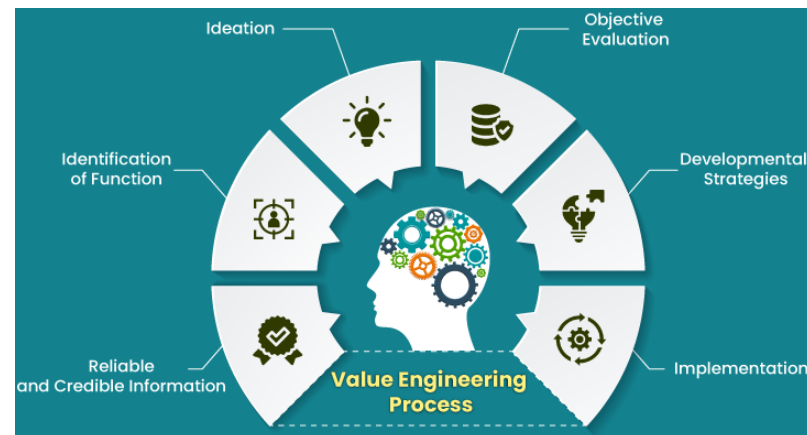
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Function Definition

- Function is the core of Value Engineering, distinguishing it from other cost reduction methods.
- It defines the purpose of an item and is expressed in two words, consisting of an active verb and a measurable noun.
- Proper function definition eliminates ambiguity and aids in team collaboration.
- It serves as a communication tool, translating customer needs and exposing misunderstandings.



Function Definition Example

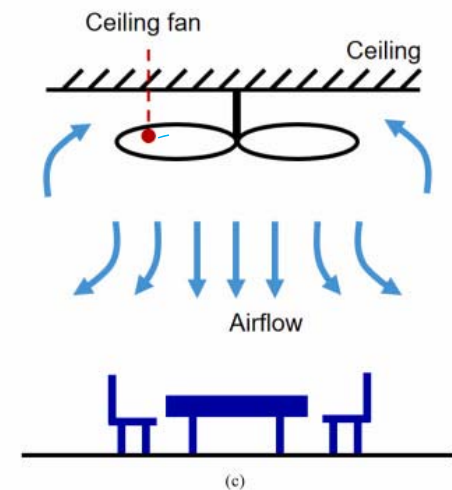
- In a ceiling fan function analysis session, different responses were given: 'provide comfort' and 'circulate air.'
- The accepted definition was 'circulate air' as it contains an active verb (circulate) and a measurable noun (air).
- Using active verbs and measurable nouns ensures clarity and precision.



(a)



(b)



Four Rules of Function Definition

- 1) Once defined, Basic Function does not change, it becomes principle work a system does. Example: flashlight is expected to emit light.
- 2) Cost contribution of a Basic Function is a minimal percentage of total system cost.
- 3) Can not sell supporting Secondary Functions without performing Basic Function satisfactorily.
- 4) Loss of Basic Function(s) results in total loss of market value. Example: Rolex watch that does not display correct time.

Measurable Noun Significance

- Measurable nouns in function definitions allow for the quantification of customer requirements.
- The amount of air needed by the customer can vary for different applications, and the design should align with these specifications.
- Measuring the throw of air in a fan helps assess whether it meets customer needs and adds value.



Typical verbs and nouns for defining functions

Work Functions

Verbs

Actuate	Fasten	Prevent
Amplify	Filter	Protect
Attract	Hold	Rectify
Change	Impede	Remove
Collect	Increase	Reduce
Conduct	Induce	Repel
Contain	Insulate	Rotate
Control	Interrupt	Secure
Direct	Limit	Shield
Distribute	Locate	Shorten
Emit	Modulate	Support
Enclose	Mount	Test
Establish	Move	Transmit

Nouns

Area	Friction	Repair
Corrosion	Heat	Rust
Current	Insulation	Stability
Damage	Light	Surface
Density	Noise	Torque
Energy	Oxidation	Vibration
Flow	Power	Voltage
Fluid	Protection	Volume
Force	Radiation	Weight

Undesirable Nouns

Article	Component	Item
Assembly	Device	Part

Typical verbs and nouns for defining functions

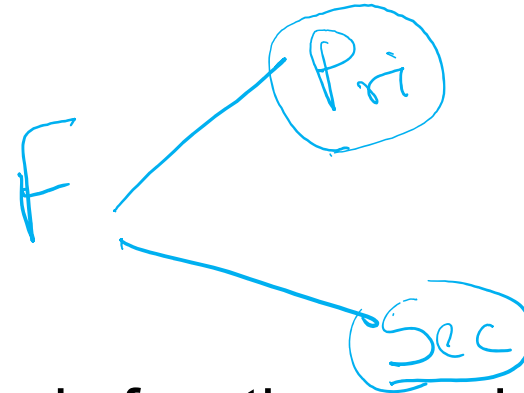
Self Functions

	<u>Verbs</u>			<u>Nouns</u>	
Actuate	Enhance	Increase	Appearance	Effect	Form
Create	Illustrate	Maintain	Beauty	Exchange	Prestige
Decrease	Improve	Satisfy	Convenience	Features	Style

MANUFACTURING/PROCESS STUDIES

	<u>Verbs</u>			<u>Nouns</u>	
Allow	Form	Remove	Corrosion	Equipment	Shape
Apply	Generate	Resist	Current	Fixtures	Supplies
Bake	Improve	Restrict	Décor	Flow	Tools
Band	Increase	Shape	Effort	Force	Torque
Compress	Inspect	Shrink	Electricity	Light	Voltage
Decrease	Lift	Sort	Energy	Material	Waste
Discard	Load	Store	Environment	Motion	Weight
Drive	Minimize	Support			
Dry	Modify	Transmit			
Eliminate	Move	Transport			
Finish	Produce	Verify			
Fire	Receive	Weigh			

Levels of Functions



- Two levels of functions exist: basic functions and secondary functions.
 - A basic function is the primary purpose for which an item is created and is essential for its existence.
 - Secondary functions arise from design choices and do not affect the item's existence if eliminated.
- ★ Function definitions depend on how the item is used, so they may change based on the item's purpose.

Function Definition Skill Improvement

- Continuous practice enhances one's ability to define functions efficiently.
- A dictionary and thesaurus can be valuable tools for refining function identification.
- Avoid including part or operation names in function definitions to prevent misleading interpretations.

Thank You

