Week-02-L-02

Value Engineering Agricultural Plan

Information & Function Phase

The Job Plan

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Information Gathering

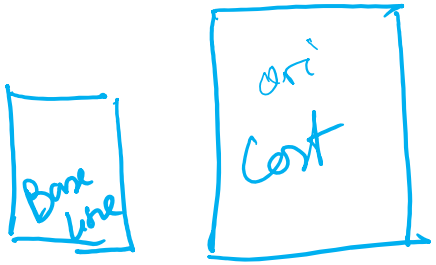
Function → Events & Cost

- Beginning of the Job Plan: Information gathering is the initial phase of the job plan for many MVO study teams.
- Cost Modeling Pitfalls: During information gathering, teams may encounter cost modeling pitfalls that need to be addressed and verified.
- Major Cost Concentration: Typically, approximately 80% of the costs are concentrated in around 20% of the project items.

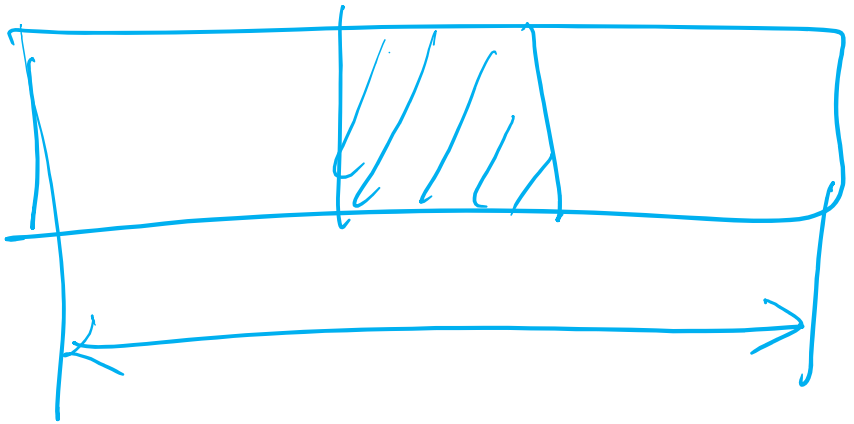
80:20 rule. ☆

- Modeling Major Function Areas: Teams should model costs for all major function areas within the project.

Information Gathering



- Modeling Based on Typical Projects: Costs may be modeled based on typical projects to establish a baseline for comparison. (Bench marking)
- Identifying Missing Costs: Identify costs that may be missing in the initial estimate.
- Evaluating Cost Appropriateness: Assess whether costs appear too low or too high, indicating areas that need further analysis.



Bill of Materials

- A bill of materials (BOM) compiles a hierarchical list of components, materials, and manufacturing instructions for product assembly.
- BOMs can be categorized into two main types:

1. Manufacturing BOMs
2. Engineering BOMs,

This can be either explosion or implosion displays.

Source: Investopedia.com

BOM Displays

Top down
Bottom up
Approaches

- A BOM displays its information in one of two ways: an explosion display or an implosion display. A bill of materials (BOM) explosion display shows an assembly at the highest level broken down into its individual components and parts at the lowest level. A BOM implosion display links individual parts at the lower level to an assembly at the higher level.
- For example,

1. A computer is ***exploded*** into hard drives, computer chips, random access memory panels, and processors. Each processor is exploded into an arithmetic unit, a control unit, and a register.
2. The requirements for the arithmetic unit, control unit, and register are ***imploded*** into the requirements for the processor, which are imploded into the requirements for the entire computer.

Types of BOM

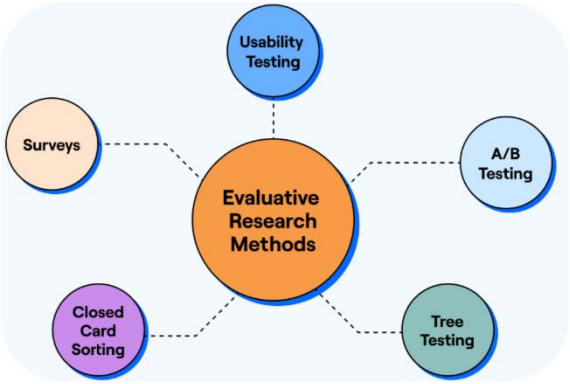
- Two Main Types of BOMs: BOMs are essential for product building, parts replacement, order planning, and error reduction. There are two primary types of BOMs: Engineering BOMs and Manufacturing BOMs.

Engineering BOM:

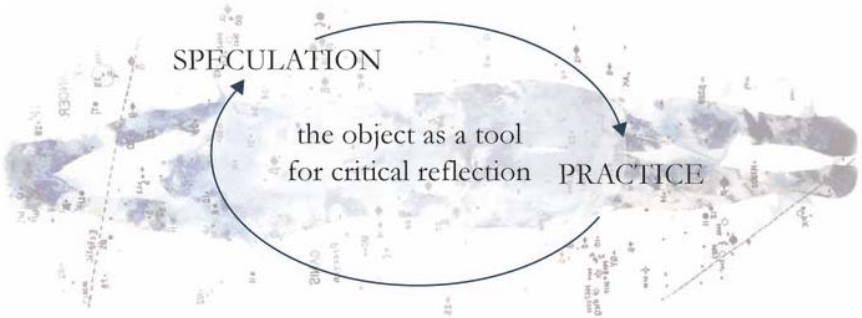
- Defines Product Design: An engineering BOM specifies the design of the final product and includes alternative and substitute part numbers and notes.
- Comprehensive Information: It lists the product code, part details (name, number, revision, description), quantities, units, size, weight, and product specifications.
- CAD-Based Organization: Engineers often create engineering BOMs based on computer-aided design (CAD) drawings, and multiple BOMs may exist for one product.

Manufacturing BOM:

- Assembly and Packaging: A manufacturing BOM comprises all components needed for assembling the final product and includes packaging materials.
- Process Details: It includes processes required for product completion and holds essential information for manufacturing tasks.



5 Types of Study in Job Plan



VE Team Study – Investigation

- Gather Information: The team collects data about the current design, including engineering reports, design plans, estimates, and other relevant materials.
- Project Familiarity: Team members become thoroughly knowledgeable about the project by reviewing available information, constraints, and commitments.
- Techniques Used: During this phase, techniques like Cost Modeling and FAST Diagramming are employed to select elements for function analysis.

Source: sweducarebd.com

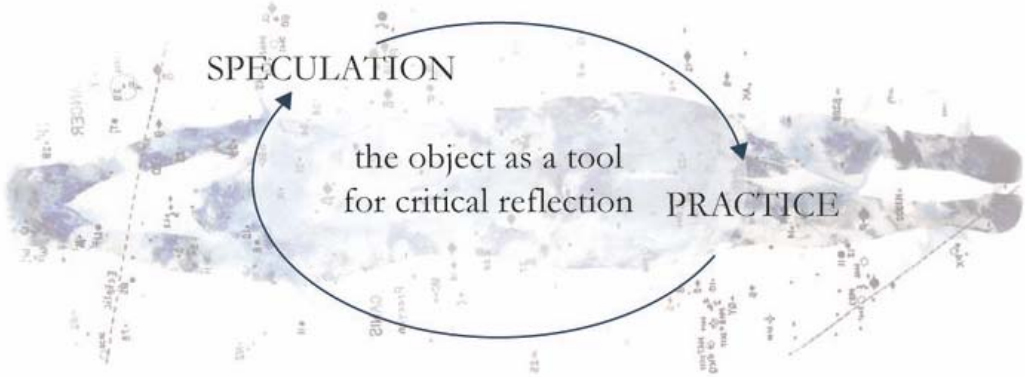
VE Team Study – Analysis

- Identify High-Potential Elements: The team identifies elements with the most potential for value improvement by considering function, cost, and worth.
- Key Questions: Essential questions like "What is it?" (function), "What is it worth?" and "What does it cost?" are addressed during this phase.
- Project Performance Measures (PPM): Often, Project Performance Measures are utilized to measure and evaluate alternatives generated in the study.

Source: Investopedia.com

VE Team Study – Speculation

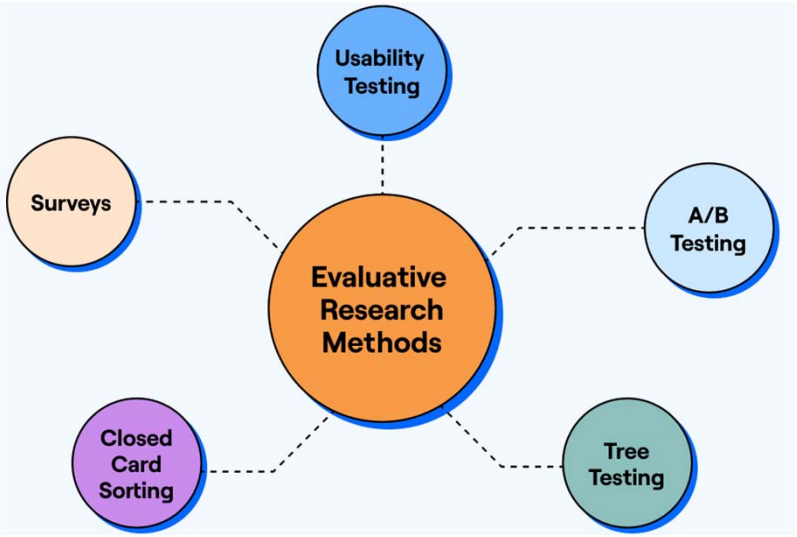
- Brainstorming for Alternatives: In the speculation phase, brainstorming techniques are applied to generate creative alternatives to the project design.
- Creativity in Function Statements: The team uses brainstorming to explore various solutions based on function statements and their cost/worth estimates.
- Rules for Brainstorming: Team members are encouraged to think freely, write down all ideas, and not prejudge or dismiss anything.



Source: researchgate.net

VE Team Study – Evaluation

- Advantages and Disadvantages: This phase assesses alternatives by listing their pros and cons in general terms.
- Weighted Matrix Analysis: A weighted matrix analysis may be performed to determine the best alternative, considering the relative importance of desirable criteria.
- Elimination of Unfavorable Alternatives: Alternatives with overwhelming disadvantages are eliminated during this evaluation phase.



Source: maze.com

VE Team Study – Development

- Advancing Ideas: In the development phase, the team advances their ideas, prepares sketches, calculations, graphics, and reports, and seeks further information.
- Extent of Development: The level of development is determined based on the nature of ideas, recommendations, and time constraints.
- Team Collaboration: The entire team contributes to a comprehensive written report, which should be completed before the presentation.

Source: leverageedu.com

VE Team Study – Presentation

- Team Recommendations: The VE team presents its recommendations to district management and relevant staff for evaluation and implementation.
- Discussion Period: The presentation allows time for questions and discussions with district management and staff to assess the viability of the team's recommendations.
- Comprehensive Documentation: A VE study report or organized format is compiled during the study, serving as documentation for recommendations, deliberations, and future reference in similar studies.

Source: computerworld.com

Thank You