

**TECHNO MAIN CAMPUS TMSL MATERIAL ON**  
**Introduction to Industrial Management**  
**(LECTURE NOTES) BY PROF SPC**

## **1. Value Analysis (VA)**

### **Definition:**

Value Analysis (VA) is a systematic method used to improve the value of a product by either improving its function or reducing its cost without compromising quality.

### **Terms Used in Value Analysis:**

- **Function:** The purpose or performance characteristic of a product.
- **Cost:** The expenditure associated with producing a product.
- **Worth:** The lowest cost to provide a function.
- **Value:** The ratio of function to cost (i.e.,  $\text{Value} = \text{Function} / \text{Cost}$ ).

### **Process of Value Analysis:**

1. **Information Phase:** Gather data about the product, its functions, and costs.
2. **Functional Analysis:** Break down the product into its functions and analyze the cost and worth of each function.
3. **Creative Phase:** Brainstorm ideas to improve functions or reduce costs.
4. **Evaluation Phase:** Assess the ideas for feasibility and potential savings.
5. **Development Phase:** Develop the selected ideas into actionable plans.
6. **Implementation Phase:** Put the changes into practice and measure results.

### **Importance of Value Analysis:**

- Enhances product functionality.
  - Reduces unnecessary costs.
  - Increases profitability and competitiveness.
  - Improves resource utilization and efficiency.
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## **2. VA Flow Diagram:**

A flow diagram typically visualizes the steps involved in the Value Analysis process:

1. **Product Selection** → 2. **Information Gathering** → 3. **Function Analysis** → 4. **Idea Generation** → 5. **Idea Evaluation** → 6. **Implementation** → 7. **Result Analysis**.
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## **3. DARSIRI Method of Value Analysis:**

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The **DARSIRI** method is a structured approach to Value Analysis. The acronym stands for:

- **Define:** Clearly define the problem or function.
  - **Analyze:** Break down the product into its functions and costs.
  - **Research:** Investigate possible alternatives or improvements.
  - **Specify:** List specifications for each potential solution.
  - **Implement:** Put the best alternative into action.
  - **Review:** Assess the outcomes and improvements.
  - **Integrate:** Incorporate the changes into the regular production process.
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#### **4. Case Studies of Value Analysis**

##### **Case Study 1: Automobile Manufacturer**

- **Problem:** High cost of a car's dashboard assembly.
- **Analysis:** Identified multiple redundant components in the dashboard.
- **Solution:** Redesigned the dashboard to combine functions and eliminate unnecessary components.
- **Result:** Reduced manufacturing costs by 15% without affecting performance or safety.

##### **Case Study 2: Electronic Appliance Company**

- **Problem:** High production cost of a washing machine's water pump.
  - **Analysis:** Found that the pump used expensive materials that were unnecessary for its function.
  - **Solution:** Substituted the material with a more affordable, equally durable plastic.
  - **Result:** Reduced costs by 20%, improving profit margins without compromising quality.
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#### **5. Waste**

##### **Types of Waste:**

1. **Material Waste:** Unused or discarded raw materials.
2. **Time Waste:** Idle time or delays in production.
3. **Energy Waste:** Excessive use of energy resources.
4. **Labor Waste:** Inefficient use of human resources.
5. **Process Waste:** Inefficiencies in production processes.

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**Sources of Waste:**

- Overproduction.
- Excessive inventory.
- Poor process planning.
- Inefficient use of resources.

**Ways to Reduce Waste:**

1. **Lean Manufacturing:** Streamline processes to eliminate unnecessary steps.
  2. **Just-In-Time (JIT):** Reduce excess inventory by producing only what is needed.
  3. **5S Method:** Organize the workplace for efficiency (Sort, Set in order, Shine, Standardize, Sustain).
  4. **Automation:** Use technology to reduce labor waste and process inefficiencies.
  5. **Energy Conservation:** Implement energy-saving measures.
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## **6. Cost Control**

**Methods of Cost Control:**

1. **Budgeting:** Setting a financial plan for the production process and sticking to it.
2. **Standard Costing:** Comparing actual costs to standard or expected costs to find variances.
3. **Variance Analysis:** Analyzing the reasons for differences between expected and actual costs.
4. **Inventory Control:** Maintaining optimal levels of raw materials and finished goods.
5. **Waste Reduction:** Identifying and eliminating sources of waste.

**Important Guidelines for Cost Control:**

1. **Set Clear Objectives:** Define the cost reduction goals clearly.
2. **Involve All Departments:** Ensure that every department participates in cost control efforts.
3. **Use Real-Time Data:** Monitor costs in real-time to respond to issues immediately.
4. **Encourage Efficiency:** Reward employees for suggestions that lead to cost savings.
5. **Continuous Monitoring:** Regularly review and adjust cost control methods to adapt to changes in the production environment.