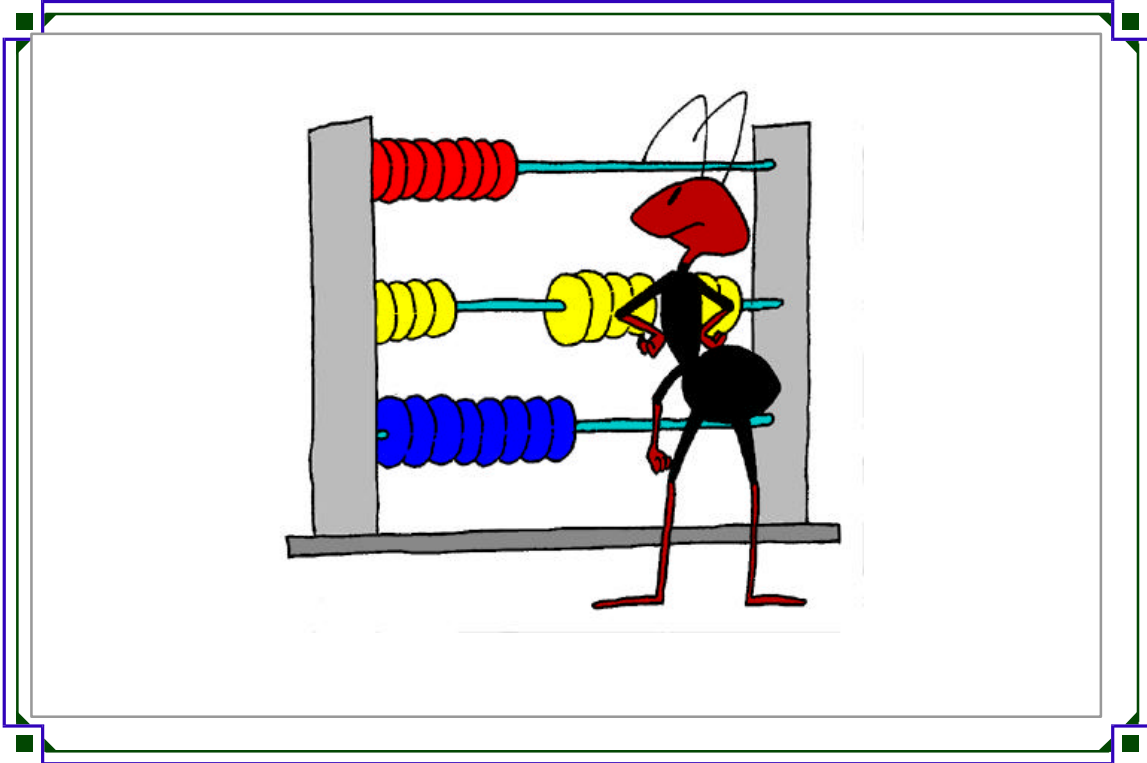


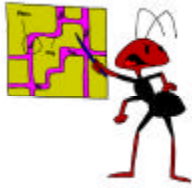
VALUE-ADDED ANALYSIS



Purpose

Value-Added Analysis is a technique to evaluate the individual steps or activities in a process to determine if they “add value” to the output. The technique explained here is actually a combination of methods. Applicable parts of a method called Value Engineering are combined with a method typically called Process Analysis. For a more detailed description of Value Engineering refer to the VE Textbook listed in the References section of this Toolbox.

Value-Added Analysis can be used to improve a current process or aid in creation of a new process.



Process

1. Begin with a clear description of the process to be analyzed. This will usually require a detailed Flow Chart, identification of inputs and outputs, comprehensive knowledge of equipment used, and clearly defined customer output requirements.
2. Keeping customer output requirements in perspective, work your way through the individual steps in the process using the investigative questions as a guide. It is important to remain objective and base this evaluation on facts rather than opinion wherever possible and practical. The more costly the step or the more impact the step has on the basic functions of the process, the more critical it is to conduct a data and fact-driven analysis.

Investigative Questions

General:

- ⇒ What does it do?
- ⇒ Why does it work?
- ⇒ What must it do or accomplish?
- ⇒ How does it relate to other systems, units, or components?
- ⇒ What requires this step to be done?

Decision Points:

- ⇒ Does the decision point represent an appraisal, a review, or an inspection which could be eliminated if prevention were built into the process at an earlier point?
- ⇒ Is this a necessary decision or can the process proceed without a decision here?
- ⇒ Is there repetition of decision points within the process?

Value-Added:

- ⇒ Does each activity within the process add value to the output, the product or service which the customer receives?
- ⇒ Is the activity necessary to meet the customer's requirements and expectations?
- ⇒ Would the customer be willing to pay for that step of the process if the customer knew it existed?

Activity Flow:

- ⇒ Does the process move frequently back and forth between various units of an organization?
- ⇒ Can any of these movements be eliminated?

Duplication of Activities:

- ⇒ Are some activities duplicated or repeated?
- ⇒ Can any activities be removed from the process while meeting the customer's valid requirements for outputs?

Time Required:

- ⇒ What is the time required for each of the steps or activities within the process?
- ⇒ Can the time be shortened for any of the steps or activities?
- ⇒ Is unnecessary time wasted on transportation, storage or delays?
- ⇒ How much time is used between activities?
- ⇒ Can time between activities be reduced?

Materials:

- ⇒ Are the supplies and materials used in the activity effective?
- ⇒ Have new materials been developed that would perform the function for less cost?
- ⇒ Have there been any price, delivery, or quality problems?

Technology:

- ⇒ What is the cutting edge technology for this process?
- ⇒ Is there a related technology which could be adapted to improve this process?

Process Users:

- ⇒ Why are you doing this?
- ⇒ What document controls this activity?
- ⇒ How were you trained?
- ⇒ Was the training adequate?
- ⇒ How do you know you are performing the activity correctly?
- ⇒ Where do you get the inputs you need to perform this activity?
- ⇒ What types of errors come to you?
- ⇒ Do you have any problems related to this activity?
- ⇒ What makes the job difficult?
- ⇒ Do you have any suggestions which would improve this activity?

3. Use the responses to the investigative questions to identify additional information needs and focus on improvement opportunities. There are several techniques in this Toolbox for developing selection criteria and prioritizing opportunities. There is also a section of the CPI Guide which provides help with problem solving activities.



Key Points

- Value can be viewed as a relationship of functionality or effectiveness over the cost.

$$\text{Value} = \frac{\text{Functionality}}{\text{Cost}}$$

- Thus, the value of the output can be increased by either reducing costs or increasing the effectiveness or functionality of the output. Therefore, when considering changing a process through value-added analysis, you should be evaluating alternatives based on their impact on both efficiency and effectiveness. Achieving a minor increase in functionality at a major cost may not be justified. Whereas, a major increase in functionality with a minor cost could easily be accepted.