Process Value Analysis

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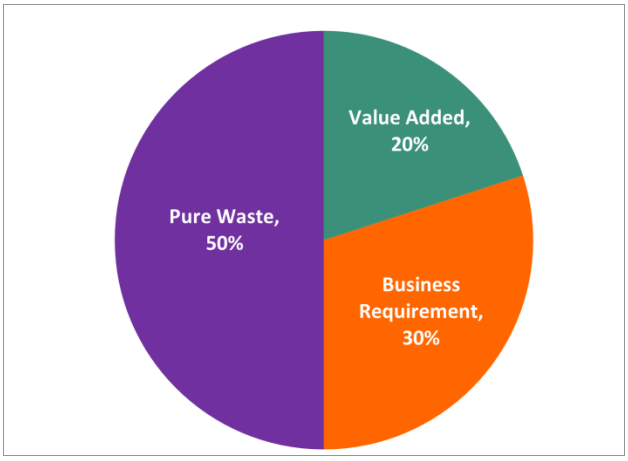
Description: Value Analysis was a technique developed by General Electric (GE) in the 1940's to eliminate unnecessary costs by substituting lower cost materials while maintaining function (purpose or activity for which a thing exists or is used). Every product or service a health department delivers has a value associated with it. If we defined value from a marketing perspective it is "The extent to which a good or service is perceived by its customer to meet his or her needs or wants, measured by customer's willingness to pay for it. It commonly depends more on the customer's perception of the worth of the product than on its intrinsic value."[3] Process value analysis looks at what the customer wants and then asks if each aspect of the process is delivering to the customer what they want. The goal of process value analysis is to eliminate unnecessary activities, expenses, and steps incurred in the process of creating a product or service without sacrificing customer satisfaction.

"You may be surprised that up to 80% of the work that goes on in any organization is adding no value to your customers! A key concept in implementing *Kaizen*[4] is to understand what value is and then to eliminate completely (or at least minimize) all non-value added activity." [5]



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[3] http://www.collinsdictionary.com/dictionary/english/value
[4] *Public Health Quality Improvement Encyclopedia*, Public Health Foundation, 2012, pp.61-62.
[5] http://www.kaizen-training.com/tools-techniques/defining-value-and-the-7-wastes.

When to Use: After a process has been flow charted it is important to analyze each step in the process to determine its value. Value is the ratio of function to cost; which can therefore be increased by either improving the function or reducing the cost. This value classification process helps analyze a product, service, or process to determine the real value of each component, activity, step, or part. The main focus of value analysis is to determine the value chain of the process (Value Stream Analysis[6]) and identify those activities that are and are not adding economic value. These activities, known as non-value added activities, may be modified or eliminated to improve the process flow and customer satisfaction.

Construction Steps: After a team maps a process they should analyze the value of each activity or step of the process from the perspective of customers who are served by the process. Three categories are used to describe the types of value that a process step may have:

- Value Added – Activities that change the product or service towards something that the customer wants. This work generates output that is considered more valuable by its internal and/or external customers than the inputs consumed in producing it. These are process steps that directly impact the satisfaction of the people served. Value-added steps assure that the product or service is done on time, meets the needs of the customer, and is done right the first time.
- Business Non-value Added – Steps that produce no direct value to the customer but are required to support the delivery of the service or product. Examples are administrative functions, legal requirements, etc.
- Non-Value Added (Waste work) – Steps that could be eliminated or changed without harming service levels or the organization. To determine whether a step is a non-value added step, use the RAMMPP acronym. RAMMP was developed at GE and focuses attention on those steps that are most prone to becoming non-value adding over time: "**R**eports, **A**pprovals, **M**eetings, **M**easures, **P**olicies and **P**rocedures." [7]

There are five basic steps to complete a Process Value Analysis:

1. Function Analysis – This is an important technique in value engineering, and is usually done in this initial stage. It tries to determine what functions or performance characteristics are important. Questions to ask at this stage are:
    - What does the process step do?
    - What must it do?
    - What should it do?
    - What could it do?
    - What must it not do?
    - Is this step required by the customers served by the process?
    - Are the customers willing to pay for this activity?

[6] Public Health Quality Improvement Encyclopedia, Public Health Foundation, 2012, 149-150
[7] http://www.huffingtonpost.com/ray-gagnon/eliminating-nonvalue-adde_b_5412878.html

- Does the customer being served recognize the value?
- Does the activity specifically impact the service requirements of the customer?
- Is this step necessary to meet the timelines and expectations of the customer?

2. Time Analysis – Determining the time it takes to do an activity is useful as it allows the team to determine where there are delays that could be eliminated. Time analysis helps the team ascertain if the process is efficiently using the time it's allotted and helps determine the impact on the rest of the process if one part of the process is sped up. Time can be measured in seconds, minutes, days, weeks, etc. The various time elements in Process Value Analysis are:
    - Takt Time (T/T): The available production time divided by the rate of customer demand. In a clinic that is open eight hours per day we need to give 60 customers immunizations per day and the clinic operates 480 minutes per day, then the takt time is 8 minutes. Takt time sets the pace of production to match the rate of customer demand and becomes the heartbeat of any lean system.
    - Cycle Time (C/T): The amount of time to accomplish the standard work sequence for one product, excluding queue time (see below). This is the total time from when product is "picked up" for processing until the item is passed to the next process.
    - Lead Time (L/T): The total time a customer must wait to receive a product after requesting it.
    - Touch Time (T/T): The time when value-added work is accomplished.
    - Queue Time (Q/T): The time a product spends in a line awaiting the next event to occur. This wait time is waste.
    - Set-up Time (S/U): The period required to change from one process to another. It is a subset of cycle time.[8]

3. Generate Alternatives – It is important to generate alternatives to implementing the process. Important questions to ask during this step are:
    - What are the various alternative ways of meeting the customer's requirements?
    - Could this activity be eliminated without impacting the quality of our product or service?
    - What else will perform the desired function?
    - Could this activity be eliminated if some preceding activity were done differently?
    - Is there a risk if this activity is eliminated?
    - Could any existing technology eliminate this activity?
    - Does this activity fulfill an external regulatory requirement?
    - Could this step be made more efficient?

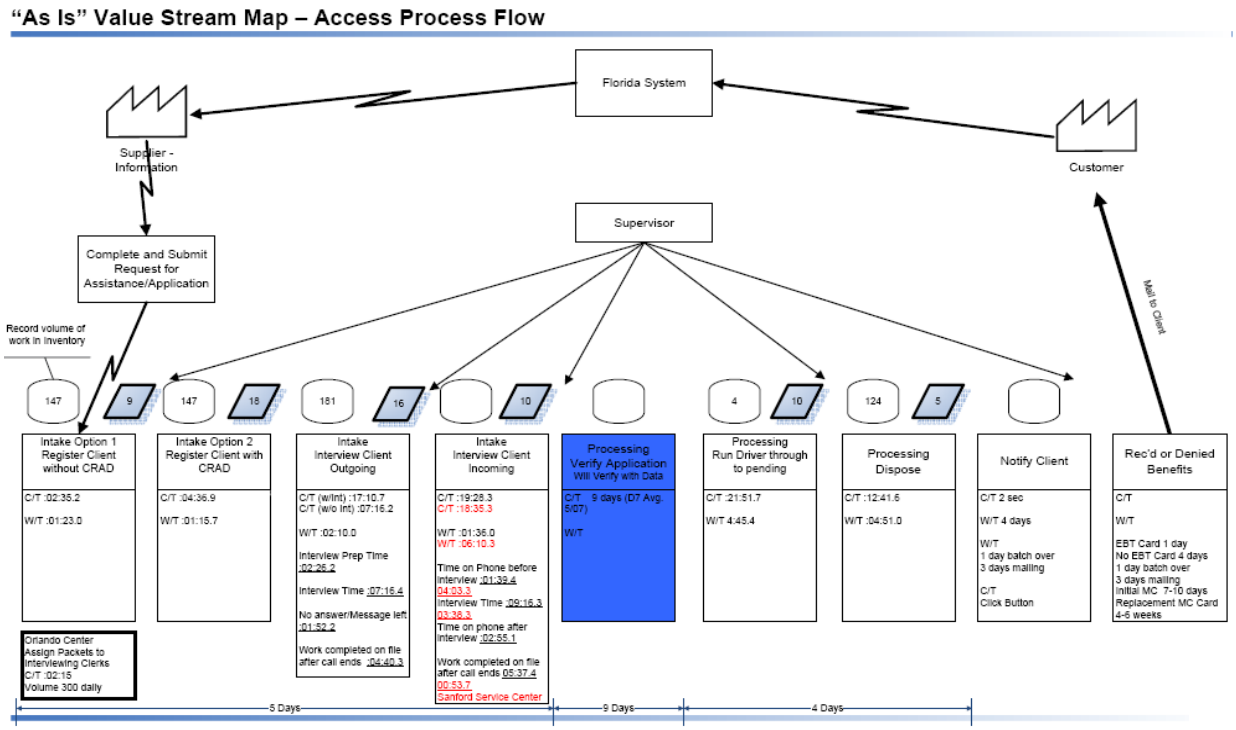
[8] http://www.businessdictionary.com/definition/setup-time.html

- Does this activity meet contractual, legal, safety, or other regulatory requirements?

In this step, the team can utilize the SCAMPER Technique[9] to help generate alternative ways to accomplish activities or steps under review.

4. Evaluation and Prioritization – All of the alternatives are assessed by evaluating how well they meet the required functions and how great the time and cost savings will be. An Electronic Prioritization Matrix[10] can be utilized to help with the prioritization of potential alternatives.
5. Implement – The best alternative is chosen and presented to the team sponsor for final decision and then the process is changed and monitored to ensure the gains desired were achieved.

Typical Example:[11]



[9] http://www.phf.org/resourcestools/Pages/SCAMPER_Technique_Tool.aspx
[10] http://www.phf.org/resourcestools/Pages/Electronic_Prioritization_Matrix.aspx
[11] *Modular kaizen: Dealing with Disruptions*, R. Bialek, et al., Public Health Foundation, 2011, p. 41.