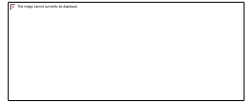




**Graham Howe, School of Logistics & Manufacturing Engineering
Room MT305, Cadogen Building | graham.howe@smu.ac.uk**

Product Life Cycle Revenue



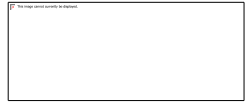


1. What are we defining?

- Cost, Worth or Value?

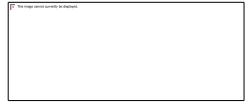
$$\text{Best Value} = (\text{Function} + \text{Performance} + \text{Quality}) / \text{Cost}$$

2. Function, Performance or Quality must meet the users minimum requirements.
3. Best Value or Worth can be defined as the least cost to accomplish the function to an acceptable degree.
4. Note that increased costs lowers 'Best Value or Worth' – Unless there is an equal or greater increase in Function, Performance or Quality.



$$\textit{Cost (Fixed) + Profit (Fixed) = Price (Derived)}$$

1. Costs were just fixed by the production, design, costs of materials etc,.
2. Profits fixed by the expectations of your investors.



$$\textit{Price (Fixed)} - \textit{expected profit} = \underline{\textit{Derived Cost}}$$

1. The idea that the price is fixed by the competitive market.
2. So given that profit is fixed (shareholder) expectations.
3. Therefore you have a maximum target cost and cost reduction becomes central to your business strategy.
4. Price is often fixed with cost reductions built into the negotiations.

What is value?



1. Cost and Price are in the domain of the manufacturer or producer, whilst value is the domain of the user or buyer.
2. Value can only be defined for a specific product from the end user's perspective.
3. Most of what we do does not create Value, but is Muda.
4. For a typical product through a plant;
 - 5% of the steps / time , creates value.
 - 35% is necessary non-value creating.
 - 60% is pure Muda!



1. Usefulness

- The purposes fulfilled and the functions performed by the entity.

2. Importance

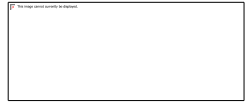
- The characteristics of the entity (other than the purpose fulfilled, functions performed and benefits gained) that are seen to be of particular significance of consequence.

3. Benefits

- The advantages or enhanced well-being gained from the entity.



1. For a product family 'Value' is created by;
 1. Design to Launch
 2. Order to Delivery
 3. Raw Materials to End User
2. The Value Stream flows across many departments and organisations.
3. Aim is to optimise the Value Stream not departments, organisations or supply chains.



1. Value is not generally directly linked to cost;
2. A compass may cost £1
3. A television may cost £100
4. Cost differential of 100
5. Consider the 'Value' of the compass to a person lost in the forest!
6. 'Value' means different things to different people at different times.
7. Can vary in three dimensions;
 - People, Time & Circumstances.



1. Value

1. An attribute of an entity determined by the entity's perceived usefulness, benefit and importance.

2. Value for Money

1. A measure used for comparing alternatives based on the relationship between value and total cost.

3. Value Management

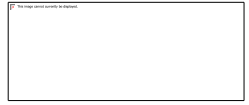
1. A structured and analytical process which follows a prescribed Work plan to achieve best value and, where appropriate, best value for money.



1. Improving performance and reducing costs have long been the principles of good engineering, procurement and management practice.
2. Value Analysis (VA) was first established by L D Miles at General Electric in late 1947 as a methodology to combine these principles.
3. Value Engineering (VE) expanded into defense activities in the 1950s and 1960s in response to growing costs and reducing resources.



1. *Value Analysis (VA)*
2. *Value Management (VM)*
3. *Value Control (VC)*
4. VE is a technique directed toward analysing the functions of an item or process to determine “best value” or the best relationship between worth and cost.
5. In other words, “best value” is represented by an item or process that consistently performs the required basic function and has the lowest cost.



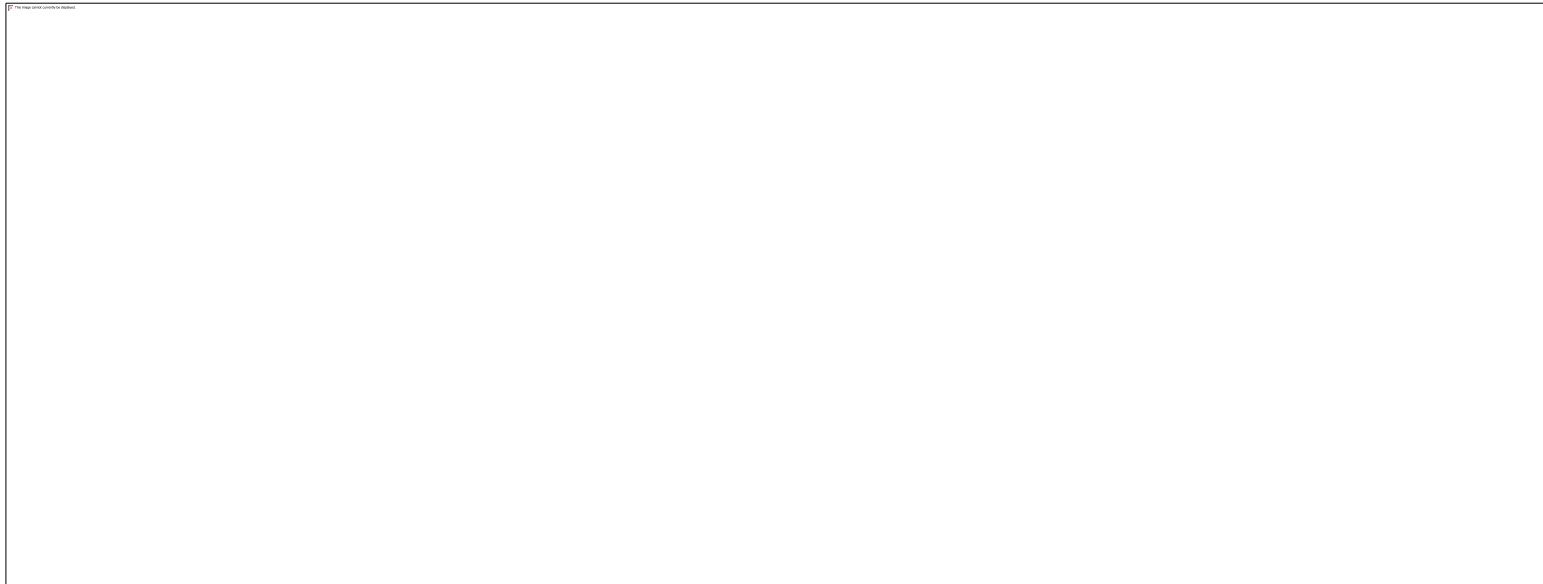
“An organised effort directed at analysing the functions of systems, equipment, facilities, services and supplies for the purpose of achieving the essential functions at the lowest life-cycle cost consistent with required performance, quality, reliability and safety.”

Wiggins (2010)

Value Analysis



FAST Example – Mousetrap



Function Analysis System Technique (FAST)



- *FAST Diagram for the pencil as shown.*
- *Contribution of the basic function, is usually a minimal % of the total product cost.*
- *You cannot sell supporting (secondary S) functions without performing the basic function satisfactorily.*

Description	Function	B	S
Pencil	Make marks	X	
Eraser			