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VALUE ANALYSIS *

by

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1. What is value analysis (VA)

Let us ask first, what is VALUE.

To the manufacturer value is $\frac{\text{function}}{\text{cost}}$

To the consumer it is $\frac{\text{"suitability"}}{\text{price}}$

Value analysis is a systematic, function oriented, and scientific method.

By comparing systematically functions and costs it will identify the optimum pair of function and cost. Its purpose, however, is not to minimize the costs.

Value Analysis (VA) is a kind of philosophy that thinks that everything can be made in a better way or in a less expensive way. It does not criticize negatively those who made previous decisions, but identifies in a positive way better, less expensive, completely new solutions without any prejudice.

The value depends on function (suitability) and cost (price) but also on availability. In a developing country the availability is often a critical factor.

Value is also relative and subjective depending on historical, political, cultural and other factors.

The values can be categorized as follows:

1. Use Value - i.e. how practical the item is valued;
2. Re-Use Value - i.e. the item has more functions and can be used for other purposes than the original main purpose;
3. Prestige Value - i.e. what is its status, how beautiful it is, (what do my neighbours think of me?);
4. Exchange Value - i.e. this is very seldom relevant for furniture but cars for instance have that value;
5. Market Value - (demand and supply).

What are the value types that a piece of furniture has? They are the USE and the PRESTIGE values.

COSTS:

These can be broken down into:

- planning
- product development
- raw materials
- labour
- machinery
- building and land
- management
- sales, marketing

PRICE: Raw materials and labour represent the major share. It must be remembered that whereas the manufacturer sets the price it is the consumer who accepts it or rejects it. The setting of the price depends on several factors which are for example:

- situation, surroundings
- social position
- income
- education and
- needs etc.

The VA technique was founded in the United States in 1945 by Mr. Larry Miles of General Electric. VA came to England with a consulting company in 1956 and was finally introduced in Finland in 1965.

2. Where is value analysis being used

VA can be applied to:

1. Products
 2. Parts of products
 3. Raw materials
 4. Methods study
 5. Organisation
 6. Operations like communication and marketing etc.
-) At the product development stage

About 80 to 90 per cent of the applications are in product development.

In product development STANDARDIZATION is also used but the aim of standardisation is to reduce unnecessary variations, whereas that of value analysis is to create new solutions (=variations). Both are tools for product development and are interlinked.

3. Why do we need value analysis in product development

The answer to this question might be one of the following:

- LACK OF KNOW-HOW AND UP-TO-DATE INFORMATION
 - Do you really know, what the client needs?
 - Do you really know, what new materials are available?
 - Do you really know,
- LACK OF NEW IDEAS
 - The VA will list all ideas that the brain storming will bring about and all ideas will be evaluated.
- WRONG BELIEFS (in good faith)
 - You believe but do you know?
 - You have not studied but you believe "that the machinery would be too expensive" and "the clients are not interested"
- CHANGING CIRCUMSTANCES
 - Are you still making the product in the same way you did ten years ago?
- FEARS
 - Are you afraid to express your ideas and opinions?
 - Do you think your boss would not like your ideas?
 - Do you think other people would laugh at you?
- HABITS AND ATTITUDES
 - Prejudice
 - "This has worked out well over 20 years" (why should we change anything at all, changes cost money)

By using VA the above factors causing unnecessary costs will be eliminated. VA first collects all information concerning costs, manufacturing process and sales. New ideas will be created and collected systematically. All ideas will be carefully studied and evaluated.

The idea with the best value will be then selected for execution. This is why the above factors will be eliminated.

Without VA initiative and imagination will be killed in an organization by any of the following attitudes:

1. We cannot change anything now;
2. These are our orders from the top;
3. We will come back to this later on;
4. There is no time now to look for better solutions. Otherwise the competition will beat us;
5. This is my job. I do not want to interfere with others;
6. This has been tried before;
7. Nobody knows better than I do;
8. You must stick to the rules;
9. I am still your boss and you do what I tell you;
10. In our company we do that differently. Once you have been with us for a couple of years you may be able to make worthwhile suggestions.

The following comparison points out differences between traditional cost reduction and VA.

Traditional cost reduction

1. Product analysed
2. Work usually done by only one person
3. Reasons for reducing cost is only to increase profit
4. This procedure makes the company more competitive in the short run, but omits research

Value Analysis:

1. Function analysed
2. Group work resulting more knowledge, and more important activity
3. Reason for reducing cost is to look for value, i.e. to produce a better value and quality for the consumer
4. This procedure finds new market areas for end use areas to be studied and develops R&D potential

Summing up, the goal in the traditional cost reduction approach is to save money whereas, using VA the goal is to increase value.

There are six steps to be taken in a Value Analysis project.

These are:

1. Information phase
2. Function analysis phase
3. Value determination phase
4. Creative phase
5. Evaluation phase
6. Implementation phase

The following questions have to be asked and the following forms have to be filled in each step.

1. Information phase

What is the product? How many pieces can be sold in a year? etc. Form No. 1 has to be filled carefully. All drawings and other possible information shall be included and supplied to the group members.

2. Function analysis phase

The group starts working by determining functions to all parts and components of the piece of furniture. Forms Nos. 2 and 3 will be used. Form 2 is the main communication media of the team and also registers how much time the team uses for an object.

3. Value determination

The costing department calculates the cost of each part and component. This is how we get the values. Forms Nos. 4 A, 4 B, and 5 will be used.

4. Creative phase

What else will do the job (function) in a better or less expensive way? All ideas will be written down as they come along. No criticism is accepted during this phase to assure as many ideas as possible to be created. Form 6 will be used.

5. Evaluation phase

The costing department makes cost estimates for each idea. The team selects the ideas to be implemented. Use form 7.

6. Implementation phase

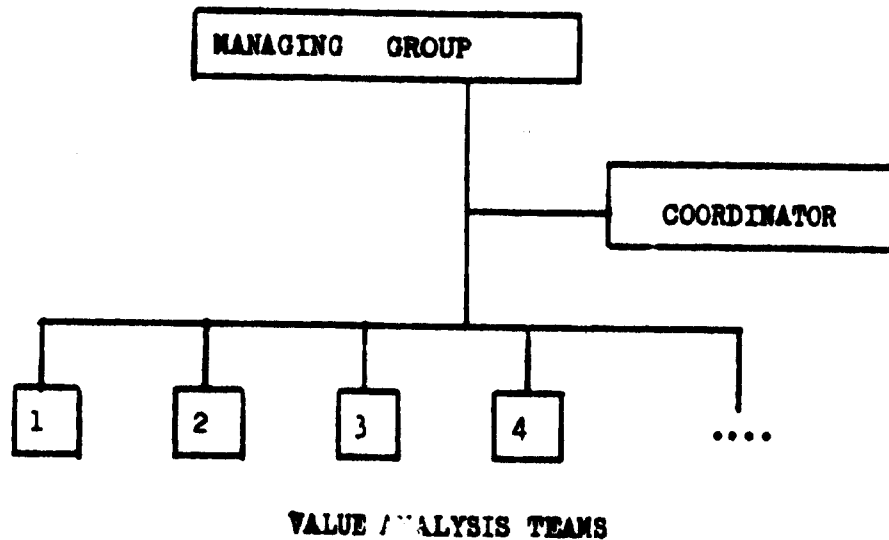
During this phase the best solution will be implemented. It has to be decided who does what and when. The implementation has to be planned and controlled like any other operation. Finally the Project Summary Form 8

will be filled out.

5. Value analysis organisation

Value analysis is team work. In a small or medium size company there is normally only one value analysis team. Its chairman is called "co-ordinator".

In large companies or when you have many new or old products to be analysed, you have the following organisation to carry out this task.



MANAGING GROUP

This group's members are the managers that normally define and set the company product policy. The responsibilities of the group are to:

- appoint the co-ordinator and the teams
- establish main schedules for VA
- define priorities
- manage the VA Function in the company.

COORDINATOR

He has a full time job and his responsibilities are to:

- be the secretary of the managing group
- be the chairman of the various VA teams
- collect all basic information for new products
- prepare all reports needed

- implement the projects accepted and follow-up on all projects
- prepare meetings well so that decisions can be made and no time will be wasted.

VA TEAMS

The members represent all representative functions of the enterprise, such as product development, production, materials management, sales, etc. The members spend only 5 to 10 per cent of their time in the teams. There is normally one team per each type of product.

A team shall have 3 to 4 projects (objects) going on at different phases at one time. So it is possible to jump from a project to another, if for some reason, there is no possibility to proceed with one project. The decisions and the follow-up programme will be noted on VA forms, so everybody knows the decisions made in the previous meeting and what he is supposed to do in the meantime.

6. "Quick value analysis"

In some cases:

1. There either is not enough time for the long procedure of VA, or
2. The product idea or the prototype is very rough.

Then it is advisable to carry out a Quick VA procedure. This means that we jump quite soon into the creative phase and the decisions can be made soon. Only two forms shall be used and time will be saved. Before adopting this "Quick VA" procedure, on a regular basis, the results must be studied and compared to those obtained when using the normal VA procedure.

ANNEX I

VALUE ANALYSIS FORM No. 1

JOB DEFINITION AND BASIC INFORMATION FORM

Product _____ Project No.: _____
Part _____ Drawings No.: _____
Price/100 nos \$ _____
Pieces/year _____
Cost/year _____

Goal savings \$ _____ \$/year

Estimated costs \$ _____

Savings/first year \$ _____

Time reserved _____

Project team: Co-ordinator _____

Members _____

Time and place of meeting: _____

Definition of the depth of the analysis, parts and properties that have to be retained: _____

Appendices: _____

VALUE ANALYSIS FORM No. 2

REPORT FORM

Page

PRODUCT

Project No.:

Date

Meeting No.

Present were:

Total persons and duration

h =

man/hours/used

FOLLOW-UP:

No.:	Description of follow-up action to be taken	By whom	When	Remarks
------	---	---------	------	---------

Appendices:

VALUE ANALYSTS FORM No. 3

FUNCTION ANALYSTS FORM

Page

PRODUCT

Project No.:

Date:

Part

Main function

Other functions

VALUE ANALYSTS FORM No. 4A

FUNCTION COST ANALYSTS FORM

Page

PRODUCT

Project No.:

Date

<u>Part</u>	<u>Function</u>	<u>Main value</u>	<u>Other value</u>	<u>Cost \$</u>	<u><</u>
Total					

VALUE ANALYSIS RCM No. 5

VALUE DETERMINATION FORM

Page

PRODUCT

Project No.:

Date

Value type	Cost	Percentage

Comments:

VALUE ANALYSIS FORM No. 6

CREATIVE PHASE FORM

Page

PRODUCT

Project No.

Date

Part	Ideas		Cost effect
	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		

VALUE ANALYSIS FORM No.: 8

PROJECT SUMMARY FORM

PRODUCT _____ Project No.: _____

Part _____ Drawings No.: _____

New price/100 pos _____

Pos/year _____

Cost/year _____

Goal savings % - _____ \$/year _____

Previous cost _____ \$/year _____

New cost _____ \$/year _____

Savings - _____ \$/year _____

Percentage savings - _____

Cost of analysis _____

Other costs _____

First year's savings _____

Note: _____

Ideas to be further developed: _____

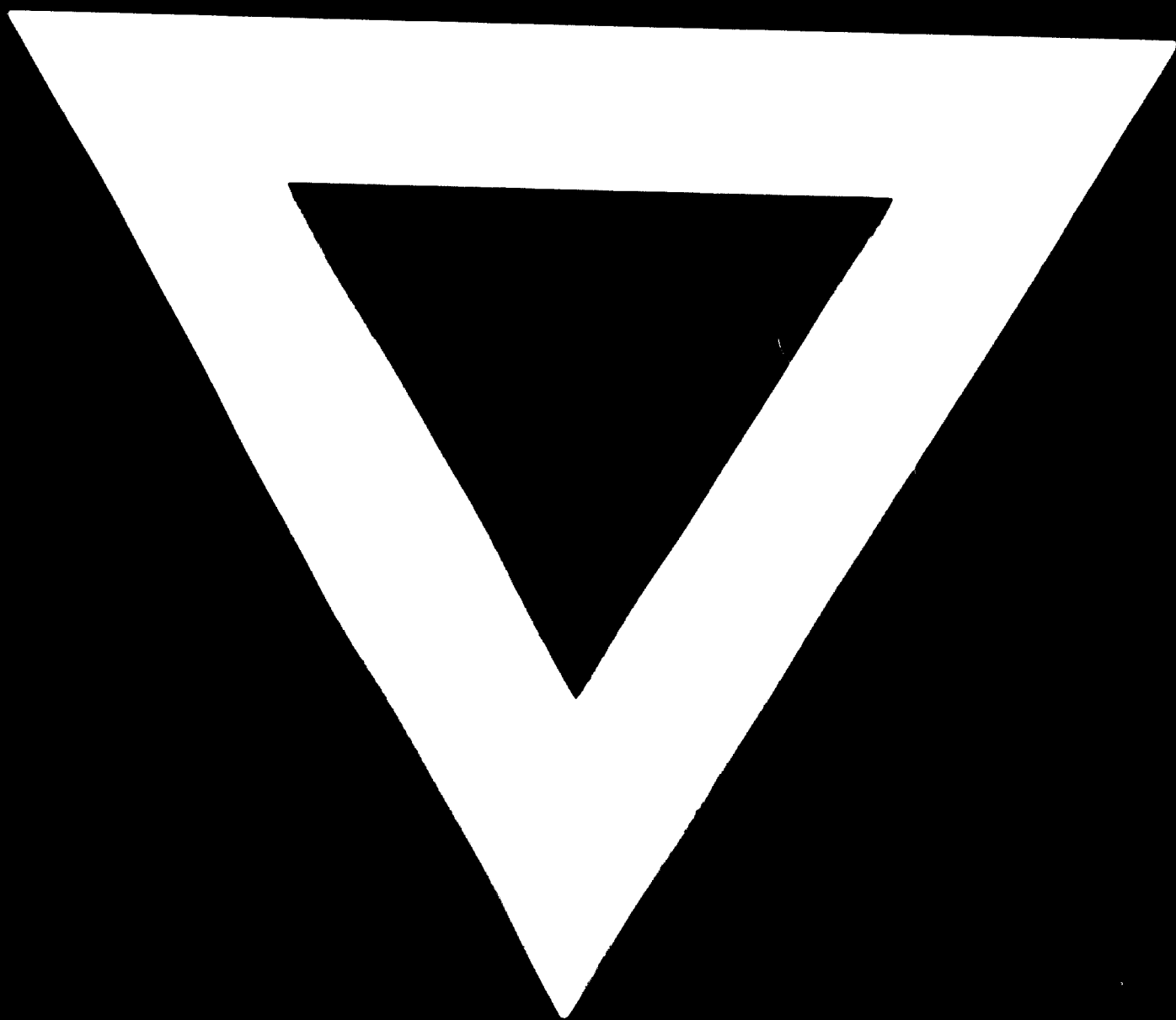
"QUICK VALUE ANALYSIS" FORM 2
LIST OF IDEAS

Product: _____ Project No.: _____
 Date: _____ Client: _____
 Present were: _____

Part	Ideas	Savings	A/R +)	Comments
	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	14			
	15			
	16			
	17			
	18			
	19			

+) Accepted/Rejected

1 - 85



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