

## VALUE MANAGEMENT : A KEY STRATEGY FOR FULFILLING TARGET COST FOR NEW PRODUCT DEVELOPMENT

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### ABSTRACT

Globalisation of economy has posed serious challenges to the industry. Most of the companies are confronted with fierce competition. Customers are becoming demanding with each passing day. Products and/or services must meet very high standards at lowest overall cost and the same must be delivered within an extremely short period of time. This is a very challenging task.

Industries fulfilling these requirements emerge as winners over competition. These master-champions focus not only on today's survival, but simultaneously ensure perpetuity of business. To meet this need, they focus on the **desired profit**, irrespective of **price** they can get from the customer. They set for themselves a **target cost** at which a product has to be manufactured & delivered. In short, they set for themselves a **target cost & target time** for launching a new product.

This paper analyses & assesses the case of target costing activities - the activities for realising target cost plans - which have been introduced in the author's organisation since 1995.

### INTRODUCTION

With globalisation of the economy, engineering industry in India has experienced a keener competition in new product development. This has resulted in sharp fall in product prices. On the other hand, the input costs are rising for meeting the requirements/challenges of global competition with specific reference to product specifications, features & reliability. Under these trying conditions, it is becoming increasingly difficult for an industry to achieve its target profit.

This necessitates the application of a combination of effective management tools. Globalisation in all areas of industry requires drastic changes in company's strategies & operations.

As a consequence of this development, companies must think & act global with regard to :

- \* Marketing of products/services
- \* Development of products/services and
- \* Manufacturing of products/services.

The key management issues a business should tackle to attain its desired profit are :

- \* Sales growth thru' new products
- \* Quantum reduction in manufacturing costs and
- \* Compress through-put time.

To realise this dream and to sustain the competition, it is important for a firm to develop new products attractive to customers, to compress through-put time and simultaneously ensure the profitability of the organisation. For this purpose, a firm should carry out systematic target costing activities from the initial stages of new product development.

In India with competition accelerating the pace with each passing day, my organisation M/s Crompton Greaves Ltd has started focussing on **target costing** since 1995. The methodology & system of integrating "Target Costing and Value Management" for attaining the target cost for new product development is discussed in detail in this paper.

#### WHAT IS TARGET COST ?

The process of setting the target cost begins with the use of the deduction method i.e. the target cost is determined by deducting the desired profit from the target selling price.

Target Cost = Target Selling Price - Desired Profit

Focus is on "How to enhance value for a given cost?"

#### PARADIGM SHIFT IN MANAGEMENT PHILOSOPHY

In business where competition has become increasingly severe as a result of lingering recession, manufacturers must focus their attention on target cost. So, the management philosophy should be "Fulfillment of Target Cost is management itself".

#### TARGET COSTING JOB STEPS

The principles of profit-oriented target costing can be summarised as under :

- 1) By using method of deduction set the target cost before the start of new product development.
- 2) The overall target i.e. product specifications, target cost & launch time should be agreed upon by the persons concerned.
- 3) Methods for achieving the target cost should be systematically established in the development stages.

- 4) A mechanism to evaluate cost and to provide feedback should be established.
- 5) Concurrent engineering should be followed right from the product planning stage.

The key to target costing is to establish a system that can achieve above goals and to promote its use in all subsequent developments. From this viewpoint, the method for promoting profit-oriented target costing can be classified and divided into the following steps. These steps will be referred to as the target costing job steps and are as listed under :

##### 1) Identification of a product & its specifications :

In a competitive environment, one of the keys to increasing sales and maintaining steady growth is the development of new products which are attractive to customers. Doing this successfully requires that the target market segment of the proposed new product be determined at the product planning stage. This is because the concept of every product varies depending upon the market segment/customer profile it is going to address. This will facilitate to derive the product specifications in an appropriate manner.

##### 2) Selling price & sales estimation :

Once the specifications of the proposed new product have been clarified in the planning stage, it is possible to estimate the product's selling price and the projected sales based on the experience, market feedback & inter-firm comparison.

##### 3) Target profit :

The target profit per unit for the proposed new product should be fixed by the management.

##### 4) Target cost estimation :

By using the deduction method as explained above, the target cost for new product should be determined. Focus should be "Target Cost is the one that should be realised at all cost by special efforts to ensure the target profit".

##### 5) Product concept :

Based on selling price target and the market segment to be addressed, product specifications can be finalised. This will make it possible to clarify the features that need to be incorporated in the product design.

##### 6) Function analysis :

Having identified the features, convert them into functional requirements using Value Engineering Technology i.e.

- \* Identify functions
- \* Classify functions
- \* Function analysis thru' FAST diagram

**Focus :** Customers do not buy products, but they buy functions which is a combination of Use & Esteem functions.

7) Identify function cost :

Estimate the cost of each of the required functions based on the cost of the system to be incorporated for fulfilling the identified functions. The same can be estimated from the cost of similar parts and/or similar systems used in the past for fulfilling the identified functions.

8) Value gap :

Calculate the value gap using following formula  

$$\text{Value Gap} = \text{Function Cost} - 0.85 \times \text{Target Cost}$$

**Focus** should be on "To achieve 85 % of Target Cost".

9) Ideation stage :

Generate ideas using creativity techniques to bridge at least twice the value gap as calculated in step 8 above.

10) Evaluation stage & tentative design :

Based on the feasibility study & evaluation of ideas, short-list the ideas for implementation in design formulation. This will facilitate to finalise tentative design.

**Focus :** Reduction in number of parts, weight reduction, standardisation, elimination of special raw materials, elimination of rigid tolerances.

11) Prototype :

Build prototype based on tentative design. Demonstrate the prototype to the concerned internal customers. It is necessary to obtain consistent agreement from all relevant departments including those responsible for tool design, tool manufacturing, purchasing, production, Q.A., marketing, etc.

12) Design finalisation & cost estimation :

When individual unit drawings & part drawings are finalised in the detailed design stage based on prototype review, cost can be estimated. If the results of cost estimation in one of the steps in the design stage indicate that 85% of the target cost can't be achieved, the product needs to be redesigned & the cost reconsidered by taking it back to the step 10.

13) Final design review :

After verifying technical adequacy & cost compatibility of design, release the same for tooling & manufacturing.

14) Pre-manufacturing review :

When the tooling of the components is being developed examine the manufacturing processes, gross weight & net weight relationship, cycle time, etc. of the components to ensure that the VE ideas have been applied & implemented. Perform VE activities in cooperation with the vendors to realise the target cost.

15) Manufacturing review :

Audit the manufacturing phase to ensure that

- \* Product meets the specified & implied functions.
- \* Product has manufacturing compatibility.
- \* Product meets the target cost.

TARGET COSTING & VE ACTIVITIES :

The author has analysed the cases of target costing & VE activities. The highlights of the analysis are summarised in Table 1.

PRE-REQUISITES OF THE SYSTEM :

To ensure the success of "Target Costing & VE Activities" system following requirements must be fulfilled.

- 1) Set the target cost.
- 2) All the concerned agencies must be committed to the target costing activities right from the stage of product planning to manufacturing.
- 3) The person responsible for designing should be the project leader.
- 4) Establish the system in which if the target cost is unlikely to be fulfilled, it will be impossible to progress to the next process/stage without the decision of the top management. This will act as catalyst for promotion of VE activities.
- 5) Adopt PDCA cycle (Plan - Do - Check - Act) as a key review strategy.
- 6) Clearly define the contents of the VE activities to be implemented at each development stage i.e. from concept stage to manufacturing stage.
- 7) Follow concurrent engineering. This will ensure the participation & support of the members from all disciplines such as marketing, designing, production engineering, materials, manufacturing, Q.A., etc. This will ensure reasonably smoother & faster implementation of VE proposals.

**Table 1 : TARGET COSTING, VE ACTIVITIES & MEASURES FOR IMPROVEMENTS**

S/N	Problem	Cause	Measure for improvement
1	No focus on cost management in development process.	Go to the next process without achieving the target cost i.e. tentative design ---> detailed design ---> pre-manufacturing review ---> manufacturing review.	* Do not proceed to the next step if target cost is not achieved. * Concurrent engineering.
2	Insufficient VE ideas.	* Inadequate function analysis. * Inadequate ideation focus.	* Function analysis to get top priority. * Enhance creativity. * Allocate sufficient time for conceptual VE. * Renew cost consciousness thru' disclosure of facts. * Inter-firm comparison.
3	VE proposals are not implemented.	* Adoption of VE proposals difficult (at times break-through solutions; but not compatible with experience & expertise) to implement is postponed. * No focus on VE activities/ proposals.	* Identify road-blocks and pro-actively plan to overcome those road-blocks. * Rigorous follow-up for implementation of VE proposals. * Adopt PDCA cycle.

**STRATEGIES TO BE FOLLOWED TO ENSURE SUCCESS :**

- 1) The target cost is the one that should be realised at all cost by "special efforts" to gain the target profit.
- 2) Product functions & costs must be reviewed repeatedly thru' conceptual VE activities.
- 3) VE is not an extra job. It is your job.
- 4) Speak, act & think in a positive manner.
- 5) Apart from cost saving also focus on
  - \* Time saving
  - \* Elimination of re-work
  - \* Facilitate team-work
  - \* Challenge assumptions.
- 6) Focus on total system approach.
- 7) Customer satisfaction should be the real goal.
- 8) Focus on advanced cost planning process to prevent cost over-run.
- 9) Try - Try - Try ----- Try.

Always focus on "How to enhance value for a given cost?"

**SUMMARY WITH FUTURE PROSPECTS :**

As mentioned above, we have developed a "Target Costing & VE Activity system" to achieve the target cost for new products & in the process realise the target profit established by the management.

This system has following characteristics :

- 1) It integrates cost management & VE.
- 2) It gives a simultaneous focus on target cost & target launch time.
- 3) It focusses on concurrent engineering right from product planning stage.
- 4) It adopts PDCA cycle for ensuring compliance to the targets.

The successful projects where this system was applied include "Automatic Direct-On-Line Starter" manufactured & launched by the author's organisation in 1998. This product has a number of unique features & was a resounding success.

The key reason for its success was the fact that it was sold at a very competitive price despite additional features, thus offering a better value to the users.

The highlights of this new product development are summarised in Table 2.

Table 2 : HILIGHTS OF NEW PRODUCT DEVELOPMENT

Parameter	Target	Actual
Material Cost	X	82 % of X
Development Cycle Time (Concept to launch)	40 Weeks	39 Weeks
Material to Sales Ratio	44 %	35 %

OUR FUTURE TASKS

To apply this philosophy & methodology to all new product developments that we will undertake in future.

CONCLUSION

- 1) VE continues to successfully take advantage of and encourage the use of innovation to achieve improvements, cost prevention & added value.
- 2) VE encourages everyone to be efficient, to maintain an awareness of the latest technology advances and to remain open to alternate ways of achieving objectives.
- 3) VE gives an opportunity to do things differently. It facilitates to obtain a large number of creative solutions to widen the potential for better value.
- 4) It provides a challenge to the tendency of over design. It clearly assigns costs to functions & shows which functions should be reviewed.
- 5) When a VE programme is not in place, there is no way to know if value is being put into your engineering. More than likely, value enhancement is going on, but how can you show to what extent ? Without a measurable goal & without a way to measure results we are left with anecdotal success stories of decisions that improved a project's value. Unification of Cost Management & VE is an excellent answer to this paradox.
- 6) Throughout the project duration, there is a simultaneous focus on customer satisfaction and how to enhance value for a given cost.
- 7) The system of unification of Target Costing & VE will lead to improved profitability and can become the backbone of managerial excellence.

AUTHOR'S RECOMMENDATION

- 1) Companies must apply Target Costing in early stages of development i.e. in the product planning stage. VE activities should be carried out at the concept design stage where about 90% of the product cost is determined.
- 2) To ensure the priority-based input of management resources, these activities should focus on important new products with a higher contribution to profit.
- 3) Integrated Target Costing & VE system should be used as a key strategy for business excellence.