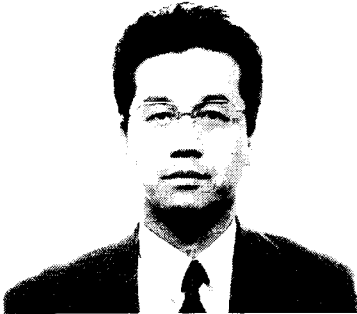


## THE REASONABLE TARGET COST MANAGEMENT SYSTEM FOR PARTS MANUFACTURES IN JAPAN

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Hitoshi Nitta has studied VE while cost planning division at Kayaba Industry Co., Ltd. and he has applied VE to many business fields like at purchasing division in his company.

This thesis is compiled of his philosophy of target cost management for part manufacturers through his practical activities.

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### ABSTRACT

It's essential for a company to gain profit for its long term and continuous prosperity. Generally speaking, target cost management is an effective measure which results every products make reasonable profits.

The author describes about ideal target cost management on this thesis from strategic management point of view. They are as follows:

- ① OFFENSIVE TARGET COST MANAGEMENT
- ② DEFFENSIVE TARGET COST MANEGEMENT
- ③ FACTOR VE

### 1. INTRODUCTION

The present target cost management methods are geared for complete assembly makers(parent companies), and not functional parts manufacturers supplier companies. Because the R&D procedures

between them are very different. Complete assembly makers are able to decide by themselves, about marketing research, the developing period, price, quality and target cost. Sometimes they have two or three R&D teams on the same product simultaneously from which they can finally select the best developed new product. Conversely if they are not satisfied with new product, they can cancel continuing that R&D.

On the other hand, functional parts manufacturers (mentioned as 'parts manufacturers' hereafter) are told the developing period, price, quality, cost by complete assembly makers (mentioned as 'complete makers' hereafter). Generally their terms are decided when parts manufacturers get the order. Recently the conditions are severe. Because complete makers ask parts manufacturers for high quality, low cost, and new devices. Of course parts manufacturers struggle to meet their demands. However we sometimes do not make the new product profitably because we miss forecast the future cost or the immature technology.

No matter if the ordered product is not lucrative, we must continue manufacturing it.

Today complete makers ask parts manufacturers to achieve co-operative VE together. Parts manufacturers generally deal with some complete makers. Then parts manufacturers must cope with them respectively.

Now we have many cases where meeting their demand is not efficient business. How should we parts manufacturers achieve a target cost management?

He'll describe in the next chapter.

**2. IDEAL TARGET COST MANAGEMENT**

Generally speaking, it's important for the parts manufacturers not only to do target cost management

but also strategic management. Once many part companies used to apply a passive management style. That is to say after getting orders from the complete makers, they did VE. From now we should develop products which the complete makers feel are attractive before competitors do. First come, first served. If we present attractive products to the complete makers earlier than our competitors, we'll be able to take the initiative of the price and then make reasonable profits.

The ideal target cost management has three concepts:

- ① OFFENSIVE TARGET COST MANAGEMENT
- ② DEFFENSIVE TARGET COST MANAGEMENT
- ③ FACTOR VE

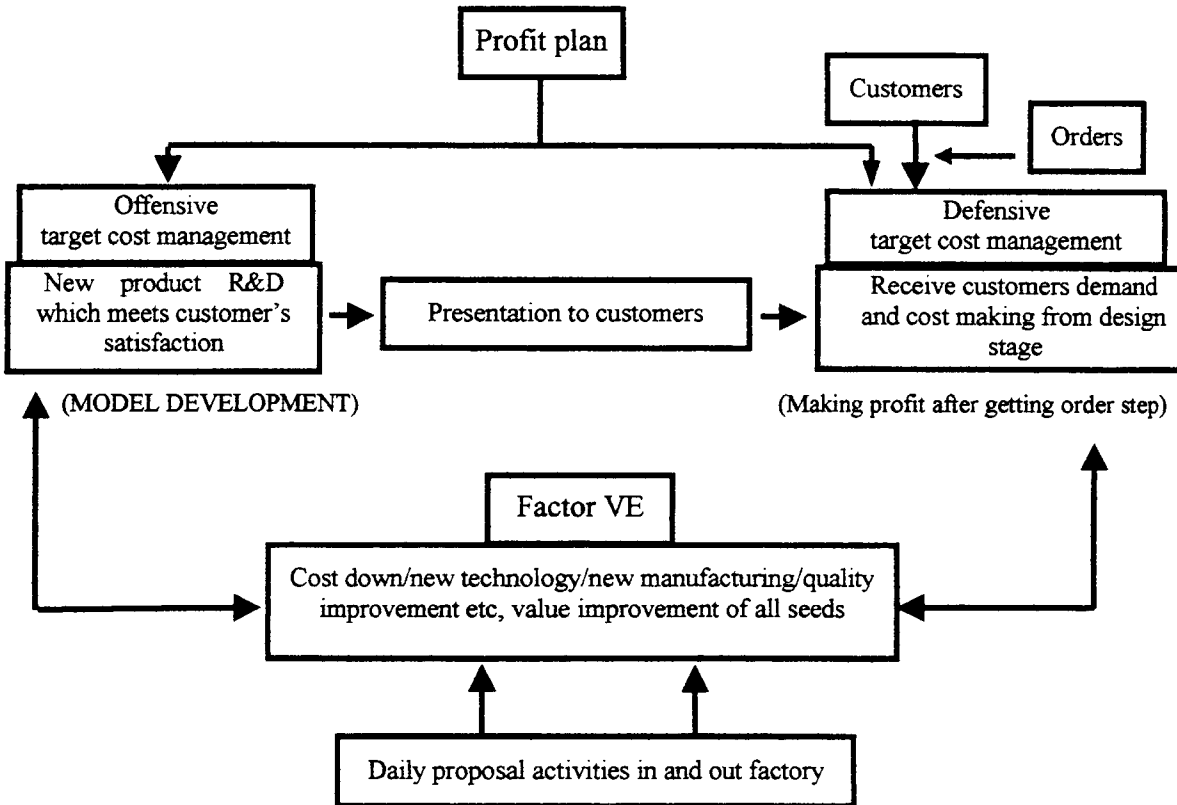


Figure 1. Ideal Target Cost Management

**3. OFFENSIVE TARGET COST MANAGEMENT**  
**~ MODEL DEVELOPMENT ~**

It's difficult for part manufacturers to develop novel products. Even if they develop it, there is no guarantee to be adopted. It's most important for part manufacturers to build up partnership relations between the two companies as functional makers with coherent technology. In other words, complete companies always consult trustworthy subcontractors about their developing plans before the orders. If we

are consulted earlier than our competitions, we take advantage of developing the new order. He called the new product 'new standard model'. Then He called the activities 'model development'. Moreover He named the cost management 'offensive target cost management'.

The definition of 'offensive target cost management': The meaning of OFFENSIVE TARGET COST MANAGEMENT is all activities for the MODEL DESIGNING.

Table 1. The Job Plan for 'OFFENSIVE TARGET COST MANAGEMENT'

STEP	NAME	PERFORMANCE
Step 1	Select a thesis	• Select from the middle term R&D plans
Step 2	Clarify the aim and the background	• Marketing research, clear customers satisfactions, competitor's actions • Clarify the aim ,object, and action plans
Step 3	Clear the present product cost	• Calculate every parts
Step 4	Analyze the present abilities of the product	• Define function of each part • Research the abilities of tolerance and surface roughness etc. (regardless of dimension on design)
Step 5	Allot target cost	• Break down parts level allot the target cost to each function
Step 6	Make out improvement plans and discuss / achieve	• Two phases resulting good ideas 1)thorough constitutional simplification 2)innovative production
Step 7	Recognition of the results	• Evaluate the prototype in quality and cost • Clear new problems subjects →(go back to step 6)
Step 8	Proposal	• Explain the result at the exhibit meeting • Check the schedule until the production
Step 9	Follow up	• Prompt action plan of each seed

< Step 1: Select a thesis >

The thesis is decided throughout as follows:

- ① Classify the products of parts manufacture by purpose, size, and function.
- ② Research market conditions, customer satisfaction, competitors' products by each classification and clarify superior and inferior points to the competitive companies.
- ③ Forecast market scale, share, market condition by each classification.
- ④ According to this marketing research, we prioritize model development each year and check it again once a year.

< Step 2: Clarify the aim and the background >

This step clarifies the aim of the model development. Why do we select this one among many models? What market should we target? What product or how design or how high level should we develop? etc.

We clarify the concept of R&D. Consequently we calculate the target cost concretely. The market price is decided by the complete maker's demand and competitor's price (of course including our invoice).

We decide the target cost by deducting the required profit from market price. We should repeatedly investigate market conditions and the complete maker's needs and competitor's actions. And then we make out the action plan and decide the team members. We need to clarify those deadlines of model development and presentation to the complete makers.

As the cost is decided over 70% at the design drafting step, the design division should take the initiative of the job plan. The team members are hopefully the best staff from production division, sales division and development division. The author believes that 5 to 7 members are appropriate for the activities.

The CEO needs to take an active interest in these activities.

< Step 3: Clear the present product cost >

We analyze parts costs one by one and calculate the direct costing.

$$\text{Direct cost} = \text{direct material cost} + \text{direct manufacturing cost}$$

The meaning of direct material cost is purchasing cost from outside.

These days many companies adopt direct costing. It's the reason that the charge rate which is adopted in general companies is not clear as to item cost or how we should reduce cost (Charge rate means the cost per hour).

Now we'll change the method of direct costing, breaking down the direct manufacturing cost to direct labor cost and operation cost and depreciation cost.

$$\text{Operation cost} = \text{operating machine cost} + \text{consumption cost} + \text{tool cost}$$

Direct costing clarifies more detailed than the former method. In other words, we can understand how much it really costs.

< Step 4: Analyze the present abilities of the product >

We define the function of all parts one by one. Referring to the basic function of parts, we research useless function and parts. On the other hand we analyze the present ability of manufacturing and improve manufacturing process and method. We should accomplish this not only inside (in our factory) activities but also outside (our subcontractors) activities. We emphasize importance on the present manufacturing quality (the dispersion of datum) regardless of the past information.

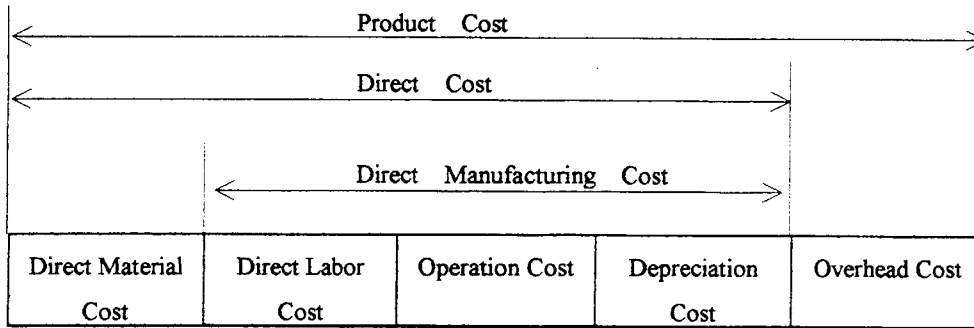


Figure 2. Clarify The Present Product Cost

< Step 5: Allot target cost >

According to recognition of the present condition, we prioritize to improve trustworthy functional assembly and allot the target cost to all parts. We need to make out a management sheet to follow up the

activities, like this the once trying result, the twice trying one etc.

Chronologically we need to understand these scores.

Table 2. Cost Management Sheet

	Direct Material Cost	Direct Manufacturing Cost				Direct Cost	Product Number
		Labor Cost	Operation Cost	Depreciation Cost	Total Cost		
Three times							
Twice							
Once							
Target cost							
Present cost							

< Step 6: Make out improvement plan and discuss / achieve >

On the basis of cost analysis, functional definition and present ability, we'll model any idea. Model development has two phases. One of them is structural research. That is to say 'Simple is best' is the principal of development.

$V = F/C$  *V: value F: function C: cost*

We should increase or at least maintain the functional level.

However we should not only inquire into price reduction but also according to marketing research and customer satisfaction, we need to recognize what complete makers really want. Is it work function? Or

esteem function? We must meet their needs with our evaluating  $V=F/C$ . We reserve the idea of improved F and make use of it for promoting sales.

Secondary, we think about designing an easier manufacturing method and tolerance of our present ability by manufacturing renovation. It's necessary for us to make various ideas and evaluate them on the point of structure and manufacturing.

< Step 7: Recognition of the result >

We will evaluate the idea which we integrate in quality and price. If we discover new problems, we need to feed back to modify the original idea.

< Step 8: Proposal >

Through 1 to 7 activities MODEL DRAWING is completed, there is a fair prospect of success.

Next is putting THE MODEL DRAWING into practice. Some MODEL DRAWING cases need huge investment facilities for renovating production or reconstructing the present production lines. There is still now left the activity of evaluating mass production quality. Before we sell the new product of MODEL DRAWING to parent companies, we need to have explanation meeting to CEO's and gain their approval.

At the explanation meeting, we exhibit the each member's action plan and arrange items to do in order.

< Step 9: Follow up >

We make out a list of exhibited improvement thesis at explanation meeting and periodically follow up each activities not to delay the decided schedule.

The project leader navigates between thesis and follow up and Factor VE (will explain later) meetings monthly. When evaluations of improvement thesis in

quality, cost, purchase are all OK, THE MODEL DRAWING is completed.

We can go on to the next step of the presentation to the complete makers and DEFFENSIVE TARGET COST MANAGEMENT.

#### 4. DEFFENSIVE TARGET COST MANAGEMENT

~ Making profit after getting order step ~

The complete makers do not always adopt our original MODEL DRAWING. Usually they ask us to modify the specifications in order to PR their features. They want to discriminate their products from other rival's. We need to do next job, 'DEFFENSIVE TARGET COST MANAGEMENT'. Generally supplier makers carry out DEFFENSIVE TARGET COST MANAGEMENT in daily business. How should we manage to accomplish profits?

The measures are as follows:

From getting orders step we injected various improvement seeds into each new order for raising product value. Consequently they have much interests in our products and finally we have succeeded in getting orders. After that we need to put these seeds into practice and revive the contract price with modifying specifications. We need to propose new improvement plans, VE continuously and build up corporate profit relations between the complete makers and parts manufacturers. Each order is achieved under collaboration of production division, sales division and development division. We called the activities 'DEFFENSIVE TARGET COST MANAGEMENT' and define the term as follows:

The meaning of DEFFENSIVE TARGET COST MANAGEMENT is all activities for attaining target

cost rate from first getting order step to formal production step under total production management.

The target cost rate equals product cost divided by ordered price. We say cost rate why we need profits by

changing prices with complete makers' demand specifications. Only parts manufacturers have to coordinate these activities.

We explain the job plan as follows:

Table 3. The Job Plan for 'DEFFENSIVE TARGET COST MANAGEMENT'

STEP	NAME	PERFORMANCE
Step 1	Getting order information	<ul style="list-style-type: none"> <li>• Clarify complete makers' specifications, schedule, target price</li> <li>• Select the strategic model</li> </ul>
Step 2	Simplified VE activities	<ul style="list-style-type: none"> <li>• Draw model design for complete makers' specifications and calculate cost</li> <li>• Clarify VE of which we present complete makers and seeds in parts manufactures</li> </ul>
Step 3	Factory discussion	<ul style="list-style-type: none"> <li>• Discuss aptitude to quality and cost and delivery on the base of model design</li> </ul>
Step 4	Present invoice	<ul style="list-style-type: none"> <li>• Make out invoice reference to production cost and market price</li> <li>• Present to parent company invoice and model design</li> </ul>
Step 5	Get order and allot target cost	<ul style="list-style-type: none"> <li>• Make out cost management sheet of model design (decide target cost every parts)</li> </ul>
Step 6	Design prototype	<ul style="list-style-type: none"> <li>• Achieve VE activities on prototype (include co-operative VE with parent company)</li> <li>• Do target cost activities on every part</li> <li>• Reflect on price at the part of modifying model design</li> </ul>
Step 7	Pre production Prototype	<ul style="list-style-type: none"> <li>• Reflect on price at the part of modifying prototype</li> <li>• Resolve the problems in quality and cost and delivery through design prototype</li> </ul>
Step 8	Start production	<ul style="list-style-type: none"> <li>• Reflect on price at the part of modifying pre production prototype</li> </ul>
Step 9	Recognition the effect and follow up	<ul style="list-style-type: none"> <li>• Recognize the effect</li> <li>• Analyze unattained target cost and follow up these activities</li> </ul>

He will explain the features of DEFFENSIVE TARGET COST MANAGEMENT.

1. Achieve the activities in priority

We concentrate management power on the most important model. It's the selection standard that the

model (except minor change model) is produced in the large amounts or more a strategic model in the line up of parent company or has many new devices and technology etc.

2. Achieve simplified VE at getting the order step

We expand many ideas with the use of past

experience and accumulated knowledge. Then we present complete makers with only highly practical ideas as VE proposals and take the advantage of getting order. Moreover, we register factor VE which the seed is able to apply to many other models. Of course we make use of useful factor VE.

Mainly the designer and the VE-man achieve these activities. The product engineer and buyer participate as occasion demands.

### 3. Clarify the ordered specifications and be complete modification management

Generally complete company ask specifications for work functions not esteem functions. Completed products are changed many times during the developing process (from original plan to final plan). Whenever the specifications are modified the condition of work functions will be changed. Quite a few esteem functions are changed. Of course our functional parts will be changed to keep pace with complete maker. As the result of these modifications production cost and price change. However parts manufacturer's engineers are apt to be mainly concerned with responding to the complaints of complete makers that they forget cost performance. On the other hand, the complete maker does not always approve reflected cost why ordered specifications are not clear. In other word, it's vague what is original specifications or what is modified. It's important that we clearly present our specifications and its invoice for the complete maker's requirements. Both companies need to recognize the ordered (original) specifications and price. Whenever the complete maker require modifying specifications against ordered specifications, we should always make them approve the modification

cost. We cannot achieve these activities without cooperative actions of factory and sales division. Moreover, designers should be instilled with cost consciousness.

They can learn complete maker's needs in specifications earlier than other people concerned.

### 4. Making target cost for every part according to cost management sheet

After getting the orders we decide the cost of each part at the step of design prototype. There are two methods to decide the cost. One of them is the cost of the best manufacturing method. The other is the cost of allotted target. Recently we selected the later for winning severe competitive races. Not only production operators in house but also our subcontract factory join the activities to invent the new production method or the more easily manufactured shape. We follow up the process according to the cost management sheet strictly as well as Step 5 in Offensive Target Cost Management. We continue these activities until starting production. Because whether the model is attained to the target cost or not, we must produce it.

Finally we need to organize the team for these activities. One team is organized for one model. The members are one designer and one VE-man and one sales man. The designer should be the team leader. Of course each member gets involved with other divisions as demand occasions.

### 5. FACTOR VE

Whether we can achieve OFFENSIVE and DEFFENSIVE TARGET COST MANAGEMENT more efficiently or not depends on the practicality of the seeds. Therefore it's necessary to organize the team

for the seeds. One team is organized for one seed. And we exhibit all workers at the factory the sheet of seed.

He named the activities 'FACTOR VE' and it is defined as follows:

FACTOR VE is organized activities which the seeds invented in the model development process or profit improvement activities are applied to many models efficiently.

Table 4. The Job Plan for 'FACTOR VE'

STEP	NAME	PERFORMANCE
Step 1	Select the seed	<ul style="list-style-type: none"> <li>• Select the seed from offensive and defensive target cost management</li> <li>• Register the seed sheet</li> </ul> (effect forecast in money: one standard is above million yen/ pre year)
Step 2	Make the improvement plan	<ul style="list-style-type: none"> <li>• Clarify the target cost and the range of target</li> <li>• Decide the leader and team member</li> <li>• Decide the schedule</li> </ul>
Step 3	Promote the seed	<ul style="list-style-type: none"> <li>• Put the seed into practical use with team members according to the schedule</li> </ul>
Step 4	Follow up	<ul style="list-style-type: none"> <li>• The activities bureau check the progress condition from each team leader and understand the problem</li> <li>• Prompt the progress</li> </ul>
Step 5	Exhibit the information	<ul style="list-style-type: none"> <li>• The activities bureau exhibit the activities the relative divisions once a month</li> </ul>

6. CLOSING

The author has described how to achieve target cost management for the functional parts manufactures and its effectiveness. Finally He describes effective forecast as follows:

1. We can take advantage of sales promotion to the complete makers by using the model design.
2. We standardize the other designs on the basis of the model design.
3. Increase the cost consciousness all over the factory and develop all factory activities.
4. We can cope with the co-operative VE activities

with the complete makers.

5. The prioritized models are achieved through improvement.

But we cannot respect gigantic leap of the profit within only two or three years. The target cost management is one of the methods of profit improvement measures. However the author is confident that continuing is the most essential for power. The CEO needs to take interests in target cost management and initiative these activities. In other words, we organize the three task forces (OFFENSIVE TARGET COST MANAGEMENT • DEFFENSIVE

TARGET COST MANAGEMENT · FACTOR VE)  
which achieve systematically and continue the  
activities permanently. The author is sure that these  
permanent activities contribute to the profit of the  
functional parts manufacturers.

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