Target costing

Business, Management

Robin Cooper and Regine Slagmulder Editors' Note: This article is an updated synthesis of in-depth explorations contained in Target Costing and Value Engineering, by Robin Cooper and Regine Slagmulder (Portland, Oregon: Productivity Press, 1997). Part two of the series discusses product-level target costing; part three, to be featured in an upcoming issue, will address component-level target costing. omers. Consequently, the objective of product-level target costing is to increase the allowable cost of the product to a level that can reasonably be expected to be achievable, given the capabilities of the firm and its suppliers (see Exhibit 1). EXECUTIVE SUMMARY• Product-level target costing works to increase the allowable cost of the product to a level that is both reasonable and achievable given the capabilities of the firm and its suppliers.

Step one establishes the target cost by incorporating the capability of the firm and its suppliers into the allowable cost so that an achievable product-level target cost is established. • Step two uses value engineering to identify ways to design the product so that it can be manufactured at its target cost. • Step three applies the disciplining mechanisms to help ensure that the product-level target cost is achieved. The target costing process contains three major sections: market-driven costing, product-level target costing, and component-level target costing. In part two of a three part series, this article discusses how product-level target costing works to increase the allowable cost of the product to a level that is both reasonable and achievable given the capabilities of the firm and its suppliers, in a three step process. Step one establishes the target cost by incorporating the capability of the firm and its suppliers into the allowable cost so that an achievable

product-level target cost is established. Step two uses value engineering to identify ways to design the product so that it can be manufactured at its target cost.

Step three applies the disciplining mechanisms to help ensure that the product-level target cost is achieved. PRODUCT-LEVEL TARGET COSTING The objective of product-level target costing is to establish aggressive but achievable product-level target costs. These target costs should place considerable pressure on the firm’s product engineers to find creative ways to reduce the manufacturing costs of the products that they are designing. Target costs differ from allowable costs, because they incorporate the capabilities of the firm and its suppliers into the target costing process. In practice, it is not always possible for the designers to find ways to achieve the allowable cost and still satisfy the firm’s cus1 Product-level target costing can be broken into three steps (see Exhibit 2). In the first step, the product-level target cost is established. This step consists of incorporating the capability of the firm and its suppliers into the allowable cost so that an achievable product-level target cost is established.

The second step consists of using value engineering (and other similar techniques) to identify ways to design the product so that it can be manufactured at its target cost. In the third step, the disciplining mechanisms of target costing are applied to help ensure that the product-level target cost is achieved. The disciplining mecha- Article 32. TARGET COSTING FOR NEW-PRODUCT DEVELOPMENT: PRODUCT-LEVEL TARGET COSTING thereof require that the firm must reduce costs if it is to maintain

its desired level of profitability. The degree of cost reduction required to achieve the allowable cost is called the cost-reduction objective and is derived by subtracting the allowable cost from the current product cost: Cost-Reduction Objective = Current Cost–Allowable Cost The current cost is the cost of a new product if it were manufactured today using existing components or variants thereof. No cost-reduction activities are assumed in computing the current cost of the product. For the current cost to be meaningful, the components used in its estimation must be very similar to those that eventually will be used in the new product.

If the existing model uses a 1. 8-liter engine and the new model uses a 2. 0-liter one, for example, current cost would be estimated using the cost of the most similar 2. 0-liter engine currently produced by the firm. Because the allowable cost is derived from external conditions without consideration of the firm’s internal design and production capabilities, there is a risk that the allowable cost will not be achievable. In this case, to maintain the discipline of target costing, the firm must identify the achievable and unachievable parts of the cost-reduction objective. Analyzing the ability of the product designers and suppliers to remove costs from the product (see Exhibit 3) derives the achievable or target cost-reduction objective.

The process by which costs are removed from the product is called value engineering, and it depends heavily on an interactive relationship with the suppliers. The purpose of this relationship is to allow the suppliers to provide early estimates of the selling prices of their products and, when possible, insights into alternative design possibilities that would enable the firm to

deliver the desired level of functionality and quality at reduced cost. The unachievable part of the cost-reduction objective (referred to in Exhibit 2) is called the strategic cost-reduction challenge. It identifies the profit shortfall that will occur when the designers are unable to achieve the allowable cost—a signal that the firm falls short of the capabilities demanded by competitive conditions. Typically, in a firm with a well-established target costing system, the strategic cost-reduction challenge will be small or nonexistent, and intense pressure will be brought on the design team to reduce it to zero. For the most capable firms, the achievable cost reduction for a product might exceed the cost-reduction objective. Such firms do not face a strategic cost-reduction challenge.

They can take advantage of their superior capabilities by reducing the selling price of the product to increase market share, by increasing product functionality while maintaining the targeted selling price, or by keeping both price and functionality at their targeted levels to earn higher profits. To maintain the discipline of target costing, the size of the strategic cost-reduction challenge must be managed carefully. A strategic cost-reduction challenge should reflect the true inability of the firm to match competitor capabilities. To ensure that the strategic cost-reduction challenge meets this requirement, the target cost-reduction objective must be set so that it is 2 nisms include progress monitoring and validation and the application of the cardinal rule of target costing: products whose manufacturing costs are above their target costs should not be launched. The monitoring and validation process helps ensure that the savings identified through value engineering are actually achieved. The application of the cardinal rule

ensures that the discipline of target costing is maintained. When designers know that target cost violations lead to serious consequences, they are subjected to a real pressure to achieve the target costs.

SETTING THE PRODUCT-LEVEL TARGET COST In highly competitive markets, customers expect each generation of products to have higher value than that of their predecessors. Value can be increased by improving the quality or functionality of the firm’s products or by reducing their selling prices. Any of these improvements or some combinationANNUAL EDITIONS cost-reduction challenge, which creates a powerful pressure on the design team of the next generation of the product to be even more aggressive about cost reduction. In this way, thefailureto achieve the allowable cost this time around is turned into a challenge for the future, not a permanent defeat. Second, allowable cost avoids weakening the cardinal rule, which applies only to target costs, not allowable costs. The process by which the strategic cost-reduction challenge is established must be highly disciplined. Otherwise it becomes a mechanism to reduce the effectiveness of target costing by setting target costs that are too easy to achieve.

In most firms, top management approves the strategic cost-reduction challenge before the product-level target cost can be set. Technically, the target cost of a product is the target selling price less the target profit margin plus the strategic cost-reduction challenge. Many firms blur the distinction between the allowable cost and the target cost, however, by stating that the target cost is determined by subtracting the target profit margin from the target selling price. This simplification makes it easier for

people to understand the spirit of target costing as being price driven. Obviously, if the strategic cost-reduction challenge is zero, the allowable and target costs are identical. At some firms, even when the allowable cost is considered achievable, it is not referred to as a target cost until the process has reached the stage at which the major component target costs are established. The retention of the term “ allowable costs” shows that top management is not willing to invoke the cardinal rule until it is convinced that the target cost is indeed achievable.

chievable only if the entire organization makes a significant effort to reach it. Consistently setting the target cost-reduction objective too high can lead to workforce burnout and, ultimately, the discipline of target costing will be lost. Conversely, if the target cost-reduction objective is consistently set too low, the firm will lose competitiveness, because new products will have excessively high target costs. Again referring to Exhibit 2, the product-level target cost is determined by subtracting the proposed product target costreduction objective from its current cost. That is: Product-Level Target Cost = Current Cost–Target Cost-Reduction Objective The strategic cost-reduction challenge is determined by subtracting the allowable cost from the target cost: Strategic Cost-Reduction Challenge = Target Cost –Allowable Cost The value of differentiating between the allowable cost and the target cost in this manner lies in the discipline that it creates. In most firms, the allowable cost will sometimes be too low to achieve, given the relative capabilities of the firm and its suppliers compared to competitors and their suppliers. Target costing systems derive their strength from the application of the cardinal rule, “ The target cost must never be exceeded.

” If a firm continuously sets over-aggressive target costs, violations of the cardinal rule would be common and the discipline of the target costing process would be lost. Even worse, if the allowable cost is known to be unachievable, the design team might give up even trying to achieve it, and effective cost reduction during product design would cease. To avoid thismotivationproblem, firms frequently set target costs higher than the allowable costs. These target costs are designed to be achievable but only with considerable effort. They allow the cardinal rule to be maintained for almost every product. Consequently, the distinction between allowable and productlevel target costs plays two roles. First, it identifies the strategic 3 ACHIEVING THE PRODUCT-LEVEL TARGET COST Once planners have identified the target cost-reduction objective, the second stage of product-level target costing begins— achieving it (see Exhibit 4).

Several engineering techniques can help product designers find ways to reduce the costs of products. They include value engineering, design for manufacture and assembly, and quality function deployment. Value engineering, the most important of the three techniques, has the primary objective of maximizing customer value—it tries to increase functionality and quality while at the same time reducing cost. In contrast, DFMA focuses on reducing costs by making products easier to assemble or manufacture, while holding functionality at specified levels. Finally, QFD provides a structured approach to ensure that customer requirements are not compromised during the design process. Target costing and value engineering can be viewed as concurrent activities, as can kaizen costing and VA. The application of value

engineering begins with the conceptualization of the product and continues through the design process until the product is released to manufacturing.

Even then the process continues, but under the name value analysis (VA). Article 32. TARGET COSTING FOR NEW-PRODUCT DEVELOPMENT: PRODUCT-LEVEL TARGET COSTING The difference between VA and VE is not in the approach taken or the tools used but the point at which they occur in the life cycle of the product. VE is used during the product design and development stages, and VA is used for the manufacturing stage and for purchasing parts. For this reason, target costing and value engineering can be viewed as concurrent activities, as can kaizen costing and VA. It would be wrong to view VE as just another cost-reduction program. VE is primarily about product functions and only secondarily about cost.

The motivating force behind VE is to ensure that the product achieves its basic function in a way that satisfies the customer at an acceptable cost. Consequently, VE programs are the domain of the product engineer, not the accountant. bility of the existing functions. Second-look VE is applied during the last half of the planning stage and the first half of the development and product preparation stage. The objective of second-look VE, unlike that of zero- and first-look VE, is to improve the value and functionality of existing components, not create new ones. Consequently, the scale of changes is much smaller than for zero- and first-look VE. Comparative applications of VE consist of tearing down other products to identify new ways to reduce costs.

We define tear down as “ a comparative VE method through visualobservationof disassembled equipment, parts, and data arranged in a

manner convenient for such observation. ” Numerous approaches to tear down exist. The six dominant techniques are: 1. 2. 3. 4. 5.

6. Dynamic. Cost. Material. Static. Process. Matrix tear down.

VE Techniques The VE techniques can be broken into three major categories: 1. Direct application of VE principles to the product. 2. Tear down approaches using comparative VE. 3. Miscellaneous VE. VE can be applied directly to proposed products at different stages of the product design process.

These different approaches are known as “ looks. ” Zero-look VE is the application of VE principles at the concept proposal stage, the earliest stage in the design process. Its objective is to introduce new forms of functionality that did not previously exist. First-look VE focuses on the major elements of the product design and is defined as developing new products from concepts. The objective is to enhance functionality of the product by improving the capa4 The first three methods are designed to reduce a product’s direct manufacturing costs. The next three are intended to reduce the investment required to manufacture the product through increased productivity. There are at least four miscellaneous cost-reduction techniques: 1.

2. 3. 4. The checklist method. The one-day cost-reduction meeting. Mini VE. The VE reliability program.

ANNUAL EDITIONS Checklists The checklist method is used to identify a product’s cost factors and to suggest ways to reduce costs. The checklist

consists of a number of questions designed to guide the firm’s cost-reduction activities by discovering cost-reduction opportunities. Checklists help ensure exploration of all possible avenues for cost reduction. One-day cost-reduction meetings are designed to improve the efficiency of the entire cost-reduction process, including VE and tear down methods. Participants from engineering, production, cost, and sales are expected to come up with ideas for new costreduction possibilities. The meetings are a way to overcome limitations in the approval process used for most cost-reduction proposals. The approval process entails circulating written proposals to all involved parties, who indicate acceptance by signing off on them.

Unfortunately, this approach severely reduces the exchange of information and modification of ideas. At the oneday meetings, presentation of the results of various tear-down programs helps initiate discussions. production/sales-preparation stage, and the production/salespreparation stage. DISCIPLINING THE PRODUCT-LEVEL TARGET COSTING PROCESS Disciplining the product-level target costing process begins with monitoring and validating the progress of the design engineers toward reaching the cost-reduction objective. It is at this stage in the process that the cardinal rule of target costing is applied. Only when getting the product to market is so imperative that cost is of secondary consideration should the cardinal rule be violated. Finally, when the product is released for mass production and its actual cost of manufacturing can be measured, steps sometimes have to be taken to reduce those costs to the target level.

Once the target cost-reduction objective has been established, the process of designing the product so that it can be manufactured at its target cost can commence. The discipline of target costing requires that the chief engineer and his or her superiors continuously monitor and validate that the progress the design engineers are making toward this objective. This monitoring ensures that corrective actions can be taken as easily as possible and that the cardinal rule will not be broken. Some firms define an as-if cost at this point in the development process. The as-if cost reflects cost-reduction opportunities identified when the previous generation of the product was being designed or manufactured. In most cases, the as-if cost is above the target cost of the new product but below its current cost. The additional cost that must be achieved is defined as the difference between the target cost and as-if cost.

As the design process proceeds and costs are removed from the major functions, the estimated manufacturing cost gradually 5 Mini VE and VE Reliability Mini VE is a simplified approach to second-look VE. It is applied to specific areas of a part or to very small, inexpensive parts. Mini VE is applied during the development and product preparation stages, the development and production-sales preparation stage, and the production-sales preparation stage. A VE reliability program is designed to ensure that the most appropriate form of VE is applied to each problem. Essentially, it is a “ quality of VE” program. If a completely new product design is required, for example, applying second-look VE is not appropriate. Like mini VE, the program is applied during the development and product-preparation stages, the development and Article 32.

TARGET COSTING FOR NEW-PRODUCT DEVELOPMENT: PRODUCT-LEVEL TARGET COSTING falls toward the target cost. Many firms call the updated estimate the drifting cost (see Exhibit 5). Thus, the product design process starts with an as-if cost higher than the target cost and across the design process reduces the expected or drifting cost until it reaches the target cost. At most firms, once the drifting cost equals the target cost, cost-reduction activities cease. There is no reward for achieving greater savings than those required to achieve the target cost. The engineers' time is better spent on getting the drifting cost of other products to equal their target costs. estrictive, because the product under review causes additional revenues to be generated beyond those generated by the product itself.

Such products include flagship products that create high visibility for the firm, products that introduce the next generation oftechnology, or products that fill a critical gap in the product line. For such products, the target cost is often relaxed to allow for the " hidden" revenues. However typically, cost reduction pressures are still applied during the early stages of manufacturing until the target cost is achieved. For the products that feature a variety of options, the final fine-tuning of the target cost is often achieved by specifying the features that the standard product will contain. If the manufacturing cost is too high, for example, one or more " standard" features might be converted to " options" that the customer now has to pay an additional amount to obtain. Converting features to options both reduces the cost of manufacturing the standard product, allowing the target cost to be achieved, and increases the selling price of the originally specified product, allowing the target profit to be achieved. Obviously, the reduction in

the functionality of the standard variant must be subjected to market analysis to ensure that it is acceptable in the eyes of the customer at the target selling price.

An example might include the conversion of side air bags from a standard feature to an optional one. This reduction in functionality will be acceptable only if competitive offerings treat side air bags in the same way. This fine-tuning process gives firms more leeway to achieve target costs set several years earlier. Similarly, the actual selling price is not fixed until just before the product is launched. Delaying these two critical decisions significantly reduces the uncertainty that a firm, in a multiyear product development process, faces withrespectto achieving target costs. At most firms, once the drifting cost equals the target cost, cost-reduction activities cease. The process of comparing the drifting cost to the target cost continues throughout the design process.

Often when the product is ready to be released to production, for example, planners undertake a final review of the feasibility of the target cost. If the estimated production cost is too high, the design is subjected to additional analysis. Frequently, relatively minor changes in the product’s design are all that is needed to reduce the cost estimate to the target cost level. As long as these changes do not alter the product’s price point, the product’s functionality is reduced and the product is submitted for approval. If the design changes will reduce the price point, the product is typically returned to the research and development group for design. The cardinal rule of target costing plays an important role in maintaining the discipline of target

costing. Great care is taken to ensure that the sum of the component target costs does not exceed the target cost of the product.

Often, an increase in the cost of one component causes the engineers to explore ways to reduce the costs of other components by an equivalent amount. In addition, to help ensure enforcement of the cardinal rule, most firms have a policy against launching unprofitable or sub-profitable products. When the product design phase is over, the product moves to manufacturing. As part of this transition phase, the target cost is compared to the standard cost of production. If the standard cost is higher, usually the firm takes steps to reduce manufacturing costs to the target level. Often, if the standard cost is at or below the target cost, the design of the product is frozen for the rest of its life, and no further actions, other than general kaizen, are taken to reduce the cost of the new product. As with any rule, the cardinal rule occasionally is broken.

It is violated when a broader analysis indicates that breaking it will be beneficial for the firm. Target costing, by its nature, takes a single-product orientation. Sometimes, this view is too NEXT STEPS One of the key constituents of the product-level target cost is the target costs of all of the outsourced components. These costs are the focus of the next step in the target costing process, component-level target costing. It is in this portion of the target costing process that the discipline of target costing is extended to the supplier base of the firm. Journal of Cost Management board member ROBIN COOPER is a professor in the practice of cost management at Roberto

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From Journal of Cost Management, July/August 2002, pp. 5-12.

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