POISING BETWEEN PRICE AND QUALITY USING TARGET COSTING

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Abstract

During the last years target costing is accepted as better way for the development of new products. Target costing method is used to control the early stages costs of product. The paper discusses the process of four stages of product development with the use of target costing. This paper describes the appropriate strategy in competitive business environment and the use of strategy in target costing with the survival zone and the paper also presents how target costing is better than old costing method for product development in current business environment. Finally, this paper presents target costing is a better way to reduce cost of new product and to balance the price and quality of product than old method.

Introduction

Japan was in trouble in 1930s after the Second World War so they worked on new thinking target costing. Today Western firms are also slowly introducing target costing for their product development processes because currently fierce competition exists in market. Target costing has been successfully applied in assembly and process industries. According to Cooper & Slagmulder (1997) target costing is an effective tool for both direct cost like material and labour and indirect costs like overhead costs reduction during product development stage. Target costing has been applied by Japanese major manufacturing companies like Nissan Motor Company, Toyota Motor Corporation, Sony Corporation and in

other countries many market leaders such as Kodak, Boeing, Mercedes, Chrysler and Goodyear (Kato, 1993). Target costing was being used by 100% of Japanese car manufacturers and 80% of Japanese assembly firms, but only 40% of firms in the USA use target costing (Helms et al., 2005). However, only 30% of European firms were being applied target costing (Ansari et al., 2007).

Ellram (2000) reported that automotive, electronic equipment, computer peripheral and consumer products manufacturers are using target costing method. Many previous studies reported that mostly target-costing is applied during the early stages of product development though the principles of this method can also be applied at a later stage but this method rarely applied at later phase of product life cycle. Cooper (1994) identified that target costing method is used for the manufacturing activities only. Fisher (1995) found target costing focuses only production costs. It is observed that target costing has been adopted worldwide by mainly car or automobile manufacturers to improve quality, processes and inventory holdings. Target costing has many advantages and weaknesses still it is attractive because its weaknesses are easy to remove in comparison of old costing method. This method is better than old costing method for product development. According to previous studies target costing method is more suitable for companies which are covered as: Assembly oriented industries as contrast to repetitive process industries which produce uniform products and Heavy products industries with the diversification of product lines. Target costing can be used with a proper strategy for better results. This method can be easily implemented with the use of a good strategy. Target costing is applied at a low rate in the service sector because the nature of industry cannot be fully matched with target costing. Sakurai (1989) mentioned that increased consumer demand and shortening of product life cycle were the reasons for the application of target costing than old costing method in Japan.

Target Costing Concept

Target costing is a method of planning and cost management and the goal of target costing is cost reduction. Cooper (1995) reported that target costing practice known as Genka-kikakikaku in Japanese and it is used by Japanese manufacturers to control product cost during product development. Target costing was initially used by Japanese automobile companies to produce future products mutually by both the designer and the supplier and it

balances the lowest cost and the essential utility. Target costing is not really foam of costing rather it is a broad program to reduce costs (Kato, 1993). The slogan "Set the target; achieve the target; maintain the target" is used in target-costing (Cooper, 2002). The Japanese car manufacturer Toyota assumed that the selling price of a product is determined by market forces (Tanaka, 1993). Currently this technique is known as target costing and the well known formula used to calculate target cost is:

Target/Attainable Selling Price – Target Profit = Target/Allowable Cost

The above equation is concerned with deciding an achievable target cost at the time of product development to realize sufficient profit margin when the product is entered into the market. Target costing sets the target cost by subtracting the target profit margin from the target price and firm determines the target selling price at which a product can be sold in the marketplace. According to Garrison et al. (2006) target costing determines the limit of allowable cost for a new product and then develops a new product that can be profitably. A market price for a product is determined first then by deducting the required profit from the market price target cost is decided, after this product is designed and developed within the maximum allowable cost. Target costing system operates at the development stage of new product through a highly competent mechanism to plan, manage and reduce costs with the cooperation of many groups throughout the organization. Target costing process initiates cost management at the first stage of product development throughout the product life cycle by actively involving the whole value chain (Ansari et al., 1999). It mainly emphasizes the markets and customer requirements. Target costing is a discipline which stresses a better understanding of competition, markets and customer requirements in terms of quality, products, functions, delivery, time and price. Target costing is recognized as a tool to control costs and produce products ensuring that the product will give buyers the most value and at the same time for company creating a desirable profit. Target costing is more concerned about long-term cost management, it is a part of broader cost management, it coordinates the activities of product designers and it can be considered as a strategic management accounting system.

The cardinal rule of target costing is "The target cost can never be exceeded" (Cooper & Slagmulder, 1999). Cooper & Slagmulder (1997) described that core point of the target costing concept is the estimation of the attainable selling price with target profit margin to be used to determine the allowable cost for a new product. This method requires creativity,

commitment, and opened working relationships and also suppliers support. Target costing has successful implementation in the automotive and manufacturing industries in reducing costs and increasing value (Cooper & Slagmulder, 1997). Worthy (1991) said that the use of target costing reduces manufacturing cost of product. Hiromoto (1988) identified target costing is the tool which sustained Japanese corporations in the global market the competition during the 1980s. Different authors agree that target costing activities are concerned with frequent cost estimations and revisions (Fisher, 1995); serious interactions among process engineers, product designers and procurement officers (Iwabuchi, 1992) and the project manager's powerful influence over major development decisions (Kato, 1993). All these activities reduce the manufacturing costs and also affect positively on productivity. Target costing is a management process to settle the gap between two levels of product cost from different aspects: (1) the cost at which the firm can supply its product with taking sufficient profit margin and (2) the cost that allows a firm to sell its product within market competition to consumers.

Cooper & Slagmulder (1997) stated that target costing as a system in which market, quality and functionality of the product are considered when costing a product to generate a profit level. The price of most products is decided on the basis of sum of the costs and the desired profit margins to earn sufficient revenue by covering all its costs. Target costing is not a cost quantification technique but rather a complete cost reduction program starting even before the first preparation of the product (Kato, 1993). It is an approach aimed at reducing the cost of new products throughout their lifecycle while meeting consumer requirements in terms of quality and reliability among others examining all conceivable ideas relating to cost reduction at the planning, development and prototyping stage (Kato, 1993). Target costing is a cost management method which is customer and market orientated (Kato, 1993). Target costing is not a simple cost reduction technique but a complete strategic profit management system (Kato, 1993). The only sound way to price is to start out with what the market is willing to pay (Hansen & Mowen, 2003). Some authors commented that target costing is not a costing technique rather it is a method for efficient cost management. The target costing method forces management to change their views regarding the relationship between cost, selling price and profitability. Target costing focuses on the elimination of avoidable costs without compromising the value of product. Target costing is a technique of cost management not a method of product costing.

Traditional Costing Vs. Target Costing System

Garrison et al. (2003) described the difference between price setting of a product by using traditional costing methods and target costing. The cost plus system is also known as traditional costing system. Traditionally manufacturing firms were interested in "cost-plus" approach to estimate the product price. In "cost-plus" approach manufacturing process is determined to identify the total costs of the components then a percentage of profit is added up to set the price of product. Conversely target costing determines an "allowable" product cost and to decide allowable cost its process starts from market price which is determined by market research and planned desired profit margin is subtracted from selling price to determine allowable cost. Butsher & Laker (2000) said that traditional costing is 'inside-out approach' and target costing is 'outside-in approach'**.** Following rules given by Cooper (1995) are used in these costing methods.

Target Costing: Target Selling Price – Target Profit = Target Cost

Cost Plus Pricing: Cost + Profit Margin = Selling Price

The main difference between traditional and the target costing is that target costing uses price driven costing approach while traditional costing follows cost driven pricing. The traditional costing concept is that production cost of a product is identified first then after the development of product, selling price is set. However in target costing a selling price and desired profit are determined first then product is developed. The traditional cost plus approach is out of date and target costing is suitable in today's uncertain business environment. The difference between traditional costing and target costing are shown in the following figure.

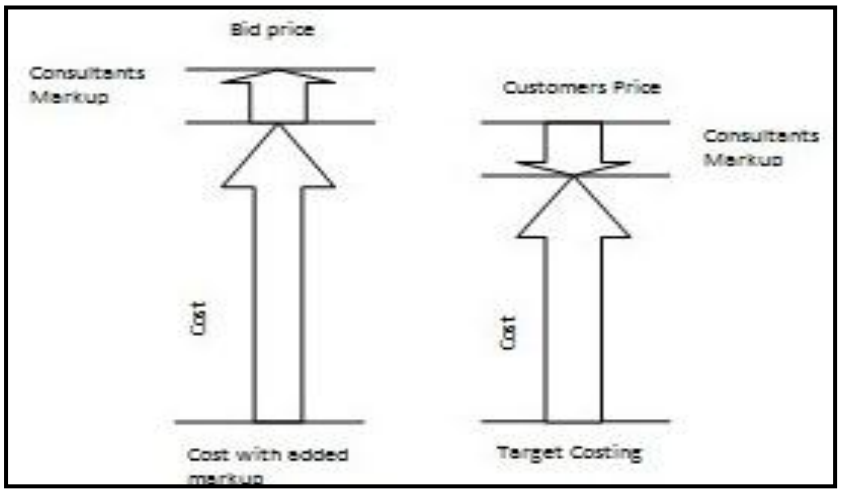

Figure 1: Cost with added markup or traditional costing versus target costing

Source: Adapted from Rybkowski (2009)

The conventional cost plus approach represents as a "closed costing system" while target costing represents as an "open costing system" (Ansari & Bell, 1997). Cost plus method is still popular in many firms although it has some criticisms. This method is popular in firms because it is easy to calculate, it requires minimal market information and research. Kaplan & Cooper (1998) argued that cost plus system is ineffective for feedback or correct information or lateness of its reporting, less control, poor selection of cost drivers etc. When this method is compared with target costing then some differences can be identified. From previous studies the general differences between target costing and cost plus pricing approach are summarized as under:

- Traditional costing method first design product and then find out cost of product while in target costing the target cost is placed first and then product is designed in order to achieve the target cost.
- Market consideration is not important as a part of cost planning in cost plus pricing approach while target costing considers competitive market to drive cost planning.
- Costs determine price in cost plus pricing method while prices determine costs in target costing method.
- Design is key of cost reduction in target costing but cost plus pricing method ignores the design of product.
- Cost accountants are responsible for cost control in cost plus pricing method while target costing works with cross functional teams to manage costs.

- Suppliers are involved in cost plus pricing method after products design stage, thus it shows low involvement of supply chain members in traditional method while suppliers are involved from beginning stage of product development in target costing, and this shows high involvement of supply chain members in target costing.
- Through the use of target costing company can reveal its internal operations which may be hidden in traditional costing methods.
- Target costing referred as price-led costing method and traditional costing method referred as cost led pricing.
- In traditional approach prices are based on the earlier steps in the process and when cost increases prices are frequently raised to maintain profit margins. But target costing concentrates on the target cost not on increase the selling price of product to maintain profit level.
- Target costing establish target selling price according to customers, market needs and competition while traditional costing does not give much importance to customers, market needs and competition.
- Target costing use value engineering, quality function deployment and other tools to attain target cost but traditional costing does not include such tools.
- In traditional costing method cost reduction if required according to consumers and conditions then for cost reduction steps are taken after the start of production while target costing focuses on product design and process before start of production to reduce costs or costs are managed before they are incurred.
- Target costing method focuses on long run cost management while traditional costing focuses on short run cost management.
- In traditional costing co-operation between marketers and engineers is low because engineers develop a product and the marketing department sells the product while target costing involve every department for the design and development of product.

Survival Triplet / Survival Zone

Cooper & Slagmulder (1997) revealed three characteristics of product which are known as the survival zone or survival triplet and it plays a vital role in the success of firms. The survival triplet consist internal point of view as producer's perspective and external point of

view as customer's perspective. Three product features from customer point of view as survival triplet are product price, product quality and product functionality while from a producer point of view these are product cost, quality and functionality. Hence, three characteristics of product as survival triplets are quality, functionality and cost/price. Cooper & Slagmulder (1997) asserted three survival product-related features which play a critical role in shaping the success of firm. The product survival zone shows minima and maxima of the three elements quality, functionality and price. Company has to decide maximum feasible and minimum allowable price/cost, quality and functionality. Cooper & Slagmulder (1997) described that the minimum allowable level of both quality and functionality have lowest value and the maximum feasible levels of both quality and functionality have highest values of product characteristics for consumers. The minimum allowable functionality is that point of functionality under which customers do not prefer product while the maximum feasible functionality is that point of functionality over which it would be costly for firm to maintain customers at high price. Irrespective of the quality and functionality the maximum allowable price is the highest selling price of product that will be accepted by the customers and the minimum feasible price is the lowest price decided by the firm according to the quality and functionality of product. There is no ideal balance between these three product features for all firms due to differences in environments, intensity of competition, customers' sophistication and products. The maximum allowable level is decided from the customer's perspective and minimum feasible level is decided from the firm's perspective. It is not easy for companies to respond according survival zones to launch successful products. The elements of survival triplet approach are mentioned as under:

- **Cost/Price** is the amount paid for the resources consumed to get the product into the market place for consumers. Cost includes all production costs, research and development costs, marketing and selling costs. Price is the amount charged from the consumers for the product.
- **Quality** may be defined as the performance of functions of a particular product. It is related with the product specification. There is a difference between quality and functionality. Quality is the level or degree of functions performance of a product for example standard or substandard product may perform same functions but both are different according to their qualities.

- **Functionality** is multidimensional and it is also related with the product specifications. Functionality is the level of success in designing the product to meet the product specifications required by customers (Cooper, 1996). It includes different functions of the product or it is concerned with the use of product. Functions are the product's characteristics that can satisfy the customer. A function is a mean or a purpose that a every product is expected to perform.

The survival triplet/zone of a company is shown in following figure.

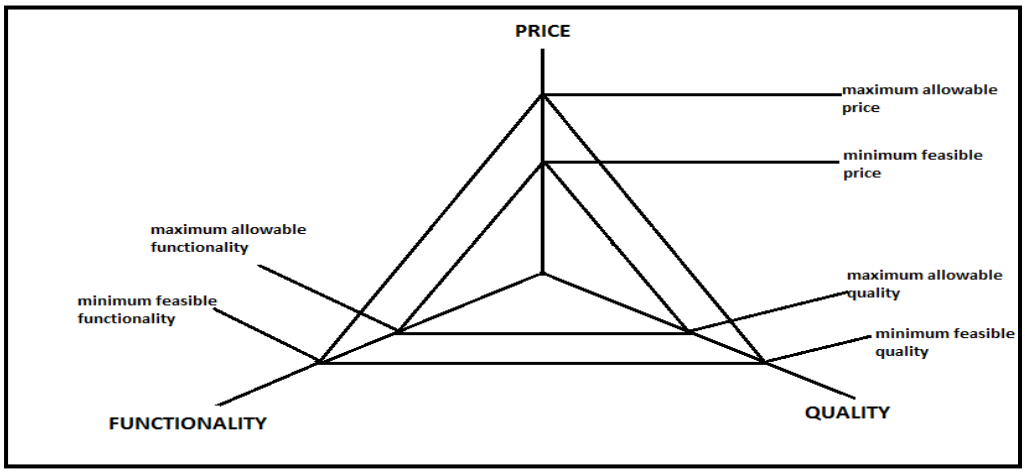

Figure 2: Survival zone of a product

Source: Adapted from Cooper & Slagmulder (1997)

Every product is sold by the firm according its different value or characteristics. For every product the gaps between the allowable and feasible limits of all three aspects must be focused for the acceptance of product in the market successfully. Designers must try to shorten the time needed to add new features or change the nature of product. Companies have to manage the cost of product effectively with the spirit of work force. The survival triplet is recognized as the strategic limit for the target costing and if these understand well then it will increase the benefits from target costing. In competitive environment this survival zone is the key of success and company must be given attention to all three dimensions instead of any one of the three dimensions.

Target Costing and Strategy

In simple way strategy can be defined as a plan or set of rules required to adjust uncertain future circumstances and includes actions according to the situations. Top level managers or groups of managers play important role in strategy creation. Cooper (1996) stated that effective systems of cost management are developed to face changing competitive conditions. Companies can no longer maintain their condition or sustain competitive advantage by pursuing cost leadership or differentiation strategies. In low cost strategy or cost leadership strategy companies try to be the lowest cost producer without focusing quality of product while in differentiation strategy companies strive to manufacture high quality and functionality products for high income group persons without focusing cost of product. Under low competitive environment non-confrontational strategies, cost leadership and product differentiation can be successful. Hence, companies have moved to use new strategy in competitive environment which is 'confrontation strategy' (Cooper, 1996). The companies which apply a confrontation strategy do not avoid competition. The basic idea of confrontation strategy is that firms have to compete under 'survival triplet' concept.

The competitive strategy of firm is closely linked to its adoption of target costing (Ansari & Bell, 1997). Target costing is a strategic management accounting tool (Ewert & Ernst, 1999). Cooper & Slagmulder (1997) described that target costing is directly related with the organization's competitive strategy. The confrontational strategy is about three key competitive areas quality, functionality and price. Confrontation management thinking emerged during late 20th century as a result of increasing modern day competition. It is a strategy through which firms can operate internationally against competition. Companies that adopt this strategy can develop product at low cost, high quality and functionality. This is a competitive strategy because the firm that fails to reduce cost with rapidly changing environment and competitors will notice that its profit margin is being squeezed and its existence is in danger. The three product feature or survival triplet plays a critical role for the survival of firms under confrontation strategy. The confrontational competition strategy demands the integration of cost, quality and functionality and these should be applied consistently to meet the perfect quality and functionality at the perfect price. The confrontational strategy requires the integration of price, quality and functionality and this integration can enable a firm to respond rapidly the market competition (Cooper &

Slagmulder, 1997). Some previous studies interpret confrontation as a strategy of producing a cheaper product with quickest introduction and supply. This is difficult to work according this strategy therefore; a company should have a strong learning culture. Low cost leadership strategy and product differentiation strategy are used with target costing because these are the parts of confrontation strategy to take sustainable competitive advantage during uncertainty. Companies cannot ignore product quality to produce product at the lowest possible cost. Confrontation strategy is based on the assumption that competition in market is not avoidable and this strategy is best suitable in the environment of high competition. The strategy selected by the organization is influenced by the pressure of competition and this pressure is not similar for every firm. Non confrontational strategies such as differentiation and cost leadership are suitable in the environment of less intensity of competition.

Product Design and Development Phases

Many researchers stated that up to 80% costs of product are determined during design phase. In this stage large cost reduction possibilities can be found. Target costing divides the product development processes or target costing consists two main phases first establishment phase and second attainment phase for new product development (Ansari & Bell, 1997). The first phase is the establishment phase or product planning stage or it is also the product concept development and feasibility testing stage and it defines the position of the product. The second phase of the target costing process is the attainment phase or the design development stage and in this phase product design is finalized which ends with the production stage. The phases of product design and development are classified on the basis of decisions and functions regarding product. According to Amara (1998) there are four phases of product design and development of the product. These phases are:

(1). Product Strategy and Profit Planning

This step focuses and defines the strategic and financial goals of the firm which is based on the planned rate of return and market related plans. The desired rate of return sets according to the expectations of stockholders and price of competitors products.

(2). Product Concept and Feasibility

In this step feasible product concepts are determined. This phase considers customer attributes and costs for designing the fresh or new product. In this step target selling price, target cost and drifting cost for new products are determined. This step does not determine

the manufacturing process but this step analyses different product concepts to determine the best concept. According to Amara (1998) this step includes customer demands, method of manufacturing and desired profit margin. The product concepts focus to meet the customer requirements or needs and after this point functions of product are analyzed. Various factors are considered at the time of designing product such as life cycle of product, competition, material, performance of product etc. Various departments' members are contributed in product concept through their functional knowledge. Under product concept and feasibility stage, it is analyzed that target costs are achievable or not.

(3). Product Design and Development

In this step the product concept of step second is refined to add more functions and to reduce costs of product. The third phase includes process improvements and also in this step design of product and manufacturing methods are finalized. This step includes quality function deployment to establish the relation between quality characteristics and customer demands. Manufacturing processes are analyzed to know whether extra customer requirements can be provided without adding major costs. Quality function deployment tool helps in designing products efficiently by improvement efforts. After establishment of product design to achieve them value engineering tool is used in the process of cost reduction. Cost reduction depends on the manufacturing processes and the type of product. According to Amara (1998) product concept is considered economically feasible when the actual or current cost of manufacturing the new product is lower than the target cost. In case when actual or current cost of manufacturing the new product is higher than the target cost then product cost is reduced by improved manufacturing process. Cost reduction can be reached by recognizing when and where the costs occur.

(4). Production and Logistics

Actual production starts when the target cost is considered achievable. This phase mainly involves implementing the manufacturing processes. After this frequent customer surveys can be conducted to determine changes in customers' needs and to modify product accordingly.

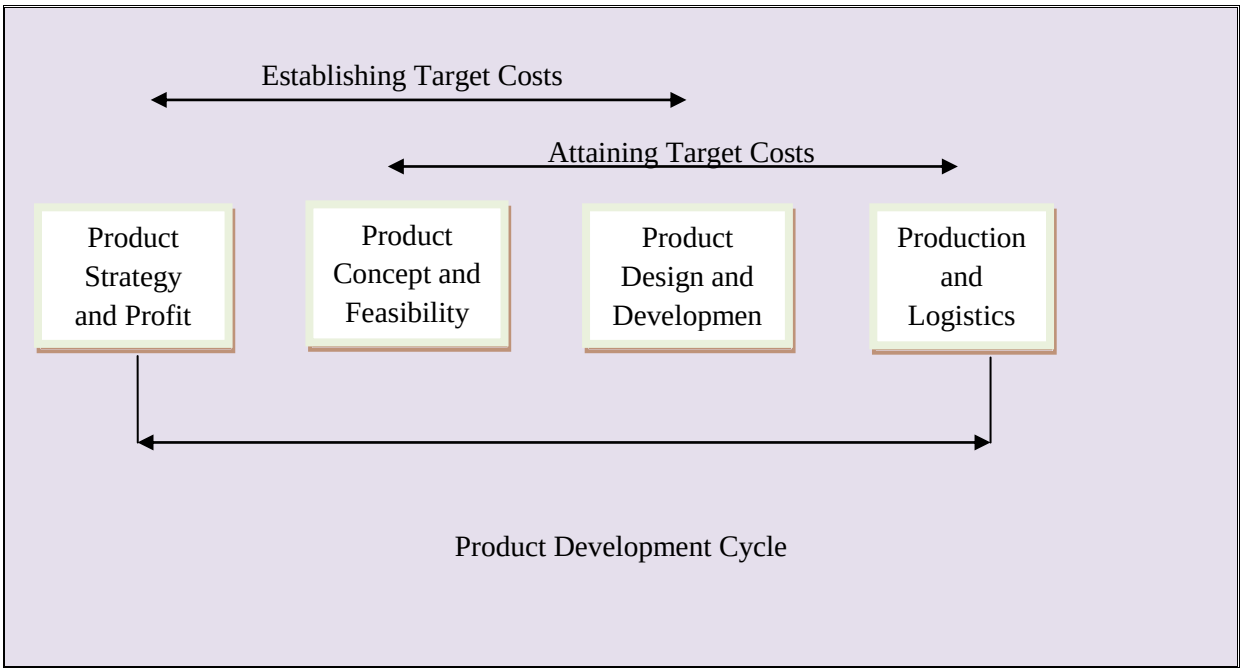

Figure 3: Product development cycle and target costing method

Source: Adapted from Ansari & Bell (1997)

These four phases of product design given by Ansari & Bell (1997) and Amara (1998) with the target costing process are depicted in the figure 3.

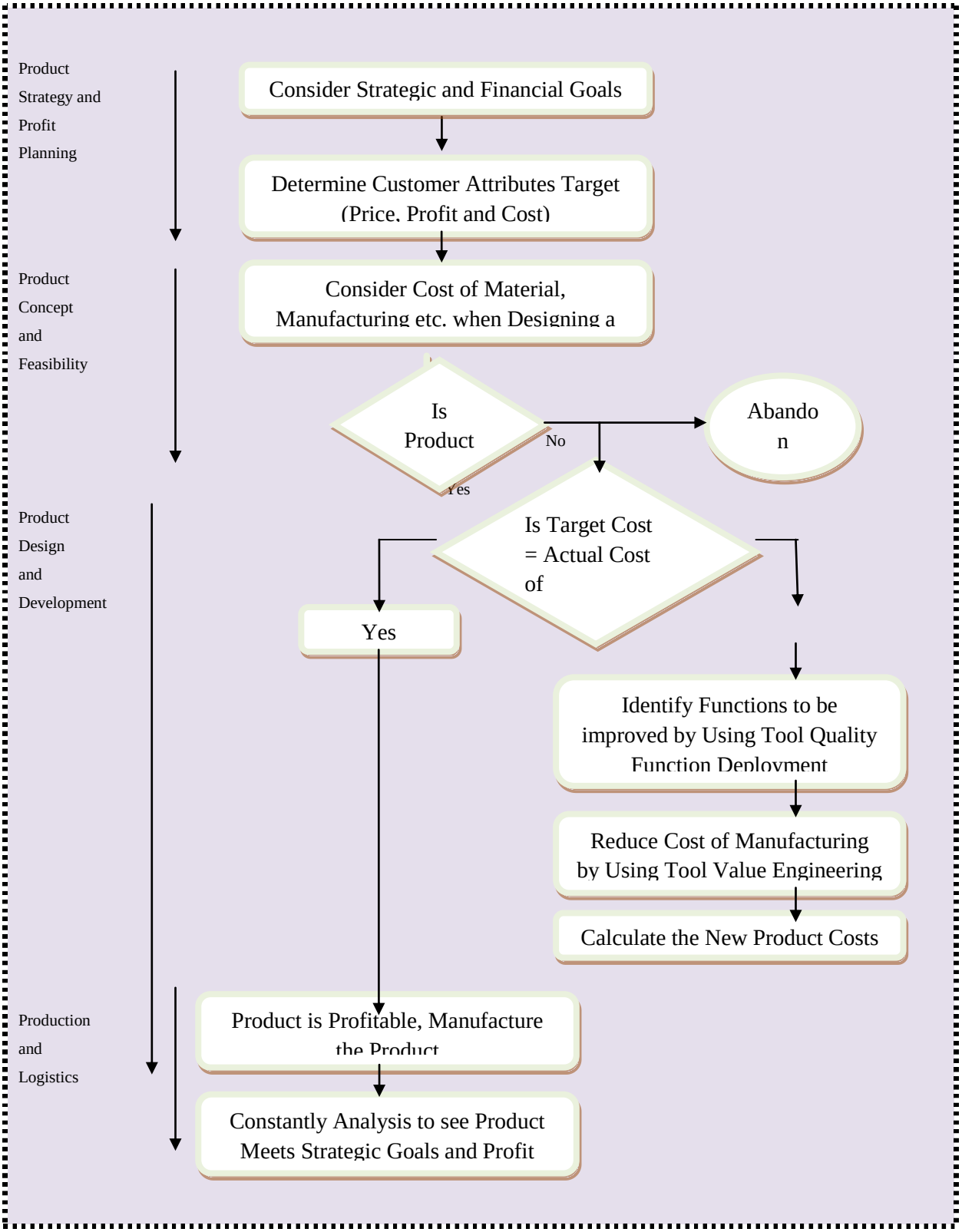

Figure 4: Target costing process and product design & development phases

Source: Adapted from Amara (1998)

The figure shows that (1) product strategy and profit planning is considered in first two steps of target costing, (2) product concept and feasibility is considered from the determination of target cost to the decision of product feasibility, (3) product design & development is focused after the decision of product feasibility to product profitability or to attain the target cost then (4) production and logistics stage covers the final decision of product manufacturing. This can be noted that the process of target costing involves different stages of product development. Thus, target costing is mainly applied for the cost reduction of new or future products.

Product development can also be divided into four continuous phases as: product planning, basic design, detailed design and process design (Shimizu & Lewis, 1998). This cycle of four phases is effectively repeated if any refinements are necessary to attain target cost. These four phases have similar application as above stated four phases. According to Shimizu & Lewis (1998) all these four phases are used to ensure attainment of the target cost and these four are described as under.

- **Product planning phase:** On the basis of concept, size, weight, shape, colour and expected performance of product its rough blue print are drawn up. These blue prints are also taken into consideration for target cost determination. This phase helps in the determination of product lead or development time and operational activities.
- **Basic design phase:** In this phase additional fundamental plans for the product design ideas and potential cost reductions are prepared to be achieved in next phase.
- **Detailed design phase:** In this phase product basic plans are further classified in detail for the functions or the components of the product. In this phase comparison is made between blueprints and basic plans for each component with the design of production.
- **Process design:** In the fourth phase on the basis of above three phase blueprints are converted into final product.

Conclusion

This study discussed the product development process with the application of target costing, links the strategy and target costing method and investigates the basic differences between old costing and target costing methods. The study has explained that both old costing and target costing methods have different features. The old costing method was suitable and popular before 1960s but in current business environment target costing is better than old costing method. The philosophy of the target costing is better for the production and development of new as well as for existing products than old costing method. In competitive markets any one either product differentiation or cost leadership is not appropriate and current competitive business environment demands the combination of both strategies. For the use of confrontation strategy, target costing is more suitable because target costing focuses on every dimension of survival triple. The study explained that confrontation strategy is required in the current market for the survival of a company. In comparison of old costing method target costing is proved as a key costing method for product development. The paper concludes that in competitive markets confrontation strategy may be appropriate with the application of target costing because with the use of target costing in the product development process a firm can maintain balance between quality and price of product and it can be proved a key system for the growth and profitability of a firm. Finally, it is noted that target costing with a good strategy is a better way to reduce cost of new product and to balance the price and quality of product than old costing method.

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