

Target Costing: The Key To Supply Chain Excellence

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Abstract

This paper provides a descriptive and qualitative analysis of how cost management practices should be redesigned to accommodate a shift from traditional management to value chain management strategies. First, the drawbacks of using traditional cost management techniques will be examined. Second, the advantages and disadvantages of using activity-based management will be explored. Finally, target costing and its impact on supply chain performance will be investigated through case studies. Our case studies illustrate how companies achieved better supply chain performance through integrated cost management techniques.

1. Introduction

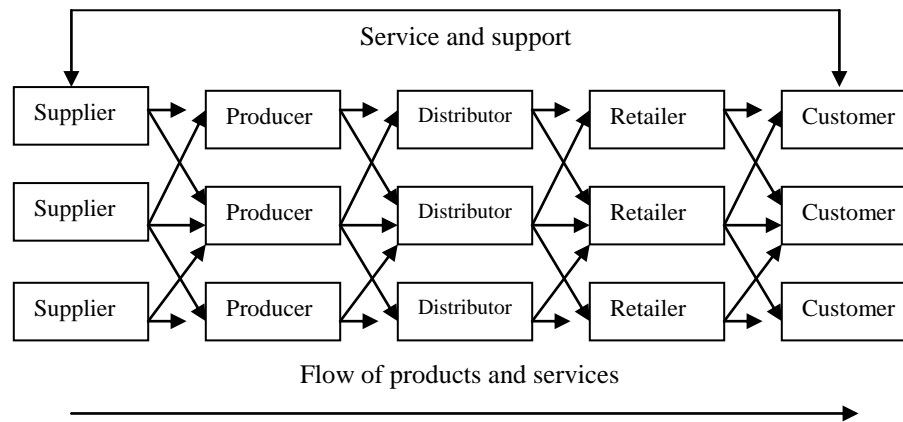
In today's complex and competitive economies, many companies are attempting to use supply chain strategies to respond to changes in customer demand with minimum inventories. Business owners and managers are starting to realize that the survival of their firms depends on their ability to balance supply and demand. Such balance can be achieved through effective supply chain management. This concept involves the cooperation of suppliers, producers, and customers to coordinate the flow of incoming materials, manufacturing activities, and distribution to achieve high levels of both responsiveness and efficiency.

Supply chains represent a global network of firms working together to deliver, process, and distribute raw materials, work in process, and finished products and services. This concept revolutionized production and distribution systems. It focuses on achieving maximum value added across the supply chain, from product design, through production, to distribution (Lockamy, 1997; Lockamy and Smith, 2000). Figure 1 illustrates a simple integrated supply chain system and its main components.

Traditionally, companies were managing supply chain components as isolated activities. The focus was on departmental objectives without consideration to their impact on other components in the chain. Historically, firms used to focus on minimizing local cost as opposed to maximizing customer satisfaction with minimizing overall cost. While it is important to manage costs associated with product/service delivery, the goal should be to increase customer satisfaction, not only minimize supply chain cost. This practice created conflicts between divisions and functions, and resulted in reducing the overall efficiency across the chain. (Lockamy, 1997).

Although the role of management accounting has received increasing attention over the past few years, very few studies addressed the impact it may have on supply chains. Studies such as Brinker (2000) state that cost management has several implications for supply chains. They suggest that successful companies manage their supply chains actively while understanding the key costs and cost drivers in the chain.

Figure 1: Supply Chain Network



Source: Adopted from Chopra and Meindl (2001)

When supply chains don't incorporate cost accounting, the result can be management /cost accounting system that fails to report improvements in operations efficiencies. Many business executives believe that linking accounting and operations is a must for success. Those experts also believe that accounting must be involved in production initiatives. For example, Decker (2000) concluded that cost information can be helpful in achieving supply chain objectives. Other studies by Lockamy and Smith (1997), Balsmeier (1996), and Cooper and Slagmulder (1999), suggested that firms use cost accounting data to develop and operate their supply chains and to establish the costs of products and services moving through the chain. They also noted that because most of these cost systems are outdated, supply chain- driven organizations should adopt new managerial concepts. Therefore, firms must implement integrated cost management systems across the entire supplier network.

As companies increasingly turn to value-based strategies, many cost managers have begun to link their accounting practices to manufacturing strategies through inter-organizational cost management programs. These programs require managers to extend their cost management practices beyond their organizations (Cooper, 1999).

The present question facing decision makers is not simply whether to link cost management to supply chain or not. Instead, managers must be more concerned about what cost management system to use. Cost accountants have a wide range of techniques from which they can choose. These techniques vary from the simple traditional to more advanced integrative models. These systems vary in their complexity, their underlying assumptions, and their accuracy.

The purpose of this paper is to discuss different cost accounting systems and how they affect supply chain performance. Special attention will be given to target costing.

2. Traditional Standard Costing

In the last few years, a considerable number of studies have investigated the relevance of traditional cost management practices to supply chain efficiency. Despite their widespread use, these practices have been widely criticized for not responding to the emerging needs of businesses in a rapidly changing environment (Drury, 1999).

Studies by Johnson and Kaplan (1987), Johnson (1990, 1992), and Turney (1991) stated that managers are often misguided by traditional cost management systems. Dugdale (1990) reported that these systems were designed and developed for external financial reporting purposes only. In a more recent study, former Chrysler CFO, Robert

Miller stated that the reason good companies fail is because “we don’t have accounting systems that can truly reflect the state of business” (Harbrecht, 1998). Moreover, Lockamy (1997) reported that the main drawbacks associated with traditional costing include its reliance on procedures designed to reduce local cost. This contradicts supply chain objectives which emphasize, among other things, overall supply chain cost and customer value.

Supply chain managers are concerned about the limitations of traditional costing systems. These systems tend to be useful when direct labor and materials are the major factors in production and operations. They are also relevant to companies with few products and stable technology. Studies such as Blocher et al. (2002) claim that product costs generated by traditional allocation techniques are misleading because products “do not consume most support resources in proportion to their production volume”. Consequently, traditional costing systems do not address the variations in major cost categories, which are caused by specific activities (Blocher et al., 2002). Moreover, when companies become supply chain-driven, they reduce material order sizes and increase the frequency of deliveries. Traditional costing techniques don’t support this strategy. It is evident, therefore, that traditional costing is not suitable for supply chain driven firms for several reasons:

1. Changes in cost structure
2. Over-emphasis on the importance of direct labor cost
3. Inconsistency with just-in-time strategies
4. Inconsistency with continuous process improvement strategies
5. Traditional costing ignores customers’ needs and requirements
6. Traditional costing often uses purchase price variances for performance evaluation purposes. As a result, purchasing decisions will be based solely on the lowest prices. This could motivate managers to buy in big quantities, thus resulting in increased inventory levels
7. Purchasing managers may select several sources on the bases of price, thus resulting in a large number of suppliers
8. Performance evaluations based on purchase price variances may force managers to sacrifice quality and on-time deliver

3. Activity-Based Costing

Based on the reasons mentioned above, management reporting needs to move away from traditional cost accounting practices (Taninecz, 2002). Supply chain success depends on the support of accurate accounting measures. Activity-based costing traces costs to specific products or departments and, therefore, can help in measuring and evaluating supply chain performance and allow better process-adjustments. Ansari et al. (1997) defines ABC as a costing technique in which activities are the primary cost objects. It assigns costs to products and services based on the usage of resources caused by activities. The assumption of this costing method is that products or services result from activities performed, and that the required activities need resources, which incur costs. As a result, ABC assumes a causal relationship between activities and cost drivers (Blocher et al., 2002).

Unlike the traditional costing method, ABC focuses on achieving customer satisfaction and operations efficiency through accurate estimate and management of costs. This cost accounting approach, accompanied with activity-based management strategies, views the firm as a set of inter-related activities that provide value to customers and profits to businesses. It provides supply chain managers with the right analytical tools and information to manage their operations efficiently with fewer resources (Lockamy and Smith, 2000). In fact, Turney (1992) states that activity-based costing can be used to successfully implement supply chain strategies. Moreover, a study by the Institute of Management Accountants concluded that 54% of responding companies that have tried activity-based costing were using it to make decisions other than accounting (Krumwiede, 1998). Another survey by ABC Technologies, according to Nair (2000), reported that the top four reasons for adopting ABC were:

1. Product/service costing
2. Process analysis
3. Performance management
4. Profitability assessment

Companies such as Hewlett-Packard (HP) and John Deere have realized that activity-based costing is the most appropriate method for supply chains because it provides better costing information. HP, for example, used detailed engineering analysis to change its accounting system at many of its factories, claiming that because ABC costing assigns costs to products, services, and activities based on the usage of resources, their managers can get better estimates of costs and cost trade-offs (Mertz and Hardy, 1993). More specifically, before HP adopted ABC at the Roseville Network Division (RND), the old system did not provide useful information that managers could use to compare and evaluate the production costs of different designs. After adopting ABC, the engineers at RND realized that it was cheaper to use automatic insertions than manual ones (the new ABC system used insertions as cost drivers). As a result, the product design was modified to include more automatic insertions (Cooper and Turney, 1990).

Moreover, when Advanced Micro Devices switched to activity-based costing, the director of finance stated that ABC gave them a cost method solution that supports the company's growth strategy (Cooper et al., 1992).

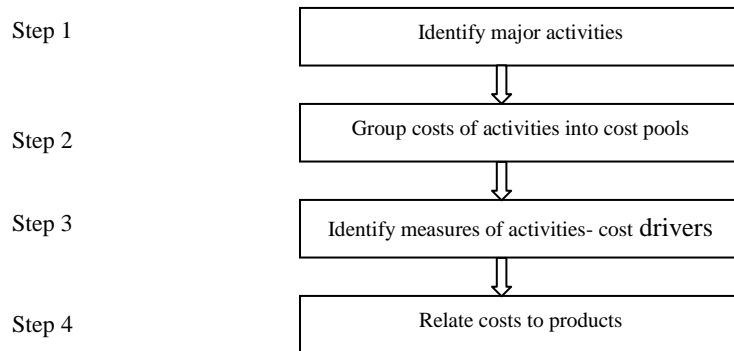
The major benefits of activity-based costing to supply chains can be summarized as follows:

1. Activity-based costing provides managers easier and more accurate access to relevant costs for making critical supply chain decisions, enabling them to improve their competitive position. ABC gives supply chain managers insight into how well the activities are being performed.
2. Activity-based costing provides reliable and valid measurements of activity-related costs. Such measurements help supply chains improve product and process decisions through value-added activities.
3. Activity-based costing provides supply chain managers more relevant and informative product costs, which result in better profitability measurements. As a result, managers can make better supply chain decisions about pricing, markets, and capital investments.

Although activity-based costing provides better and more accurate tracing of costs to products and services, it is not a perfect solution to supply chains. Supply chain managers should pay attention to the following limitations before they consider using it:

1. ABC labels activities as either value adding or non-value adding without any direct feedback from customers. Studies such as Butz and Goodstein (1996) claim that the true value of an activity, as established by activity-based methods, may not reflect the markets' real requirements.
2. If and when managers identify the existing value-added activities, they may limit themselves to these activities as opposed to searching for new opportunities. This practice, according to Lockamy and Smith (2002), encourages managers to focus on short-term supply chain performance at the expense of its long-run performance.
3. There are cases where identifying a specific activity that causes a cost to incur may be difficult. In such cases, allocating costs to departments and products may be warranted. Examples include managing processes.
4. A major disadvantage of activity-based costing is its expense. The system is much more costly to develop and implement than the traditional method.
5. The cost per unit generated by activity-based costing does not measure the incremental costs needed to produce additional items. Incremental information is very important for supply chain decisions.

In spite of these limitations, activity-based costing methods serve a very useful purpose. It allows companies to identify the major activities that cause overhead costs to be incurred. Some of these activities are related to volume, but many others are not. Therefore, costs are allocated to products and services using a measure of activity called "cost driver". As we have mentioned, these methods have received a tremendous amount of attention from supply chain managers interested in improving managerial accounting decisions. In supply chain environments managers are required to make cost decisions by territory, channel of distribution, sales techniques, class of trade, order size, delivery method, transportation mode, and so on. Research indicates that ABC is the right tool to measure all of these costs. Figure 2 illustrates the steps involved in the ABC method.

Figure 2: The Steps Involved in the ABC Approach

Source: Adapted from Jiambalvo (2001), page 169.

4. The Use of Target Costing in Supply Chains

As we mentioned above, traditional accounting methods don't support supply chain decisions. Management accountants must contribute new ideas to develop and improve supply chain performance. The traditional accounting systems are only useful for bookkeeping, and not for reporting costs that are useful for decision making. According to Cokins (1999), mistrust among partner- firms in a supply chain network could be lessened and co-operation enhanced by employing accurate cost accounting data to manage the supply chain. He adds that overall costs can be lowered when all tiers in the chain understand their costs and the costs of their partners. Figure 3 provides an overview of how target costing integrates the firm's internal design and processes with its external market.

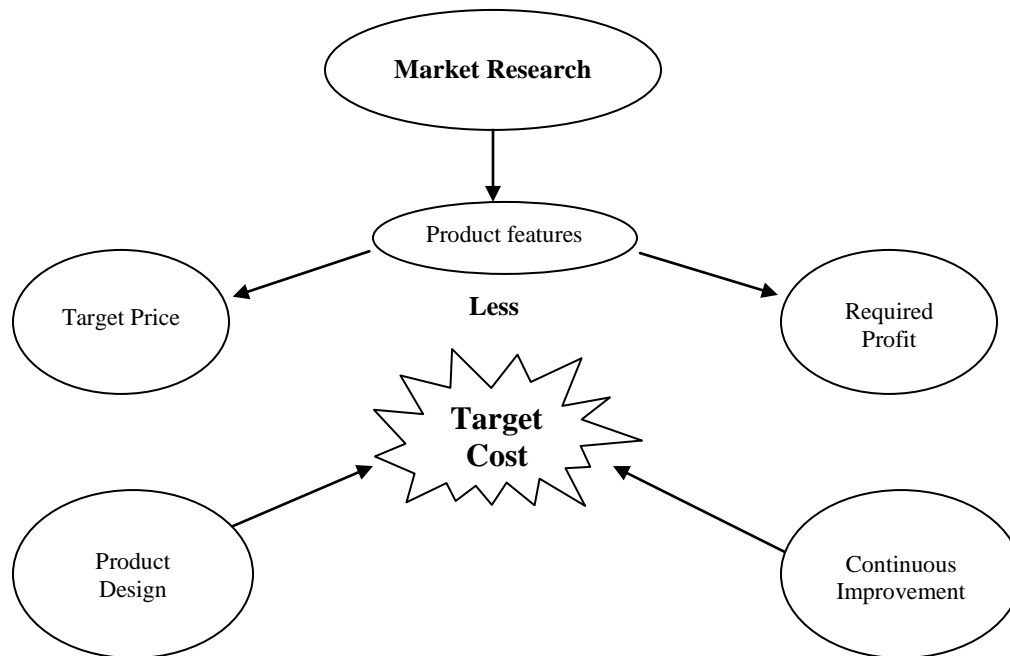
Target costing is believed to be a better choice for supply chains. It places responsiveness to customer requirements as a top priority, and still guarantees pre-determined profits for the company. Under target costing, supply chain companies incur only the necessary costs to satisfy customers for an acceptable price. (Smith and Lockamy, 2000)

The purpose of target costing, according to Cooper (1994), is "to identify the production cost for a proposed product such that the product, when sold, generates the desired profit margin. The focus of target costing is to reduce the cost of a product through changes in its design". The Consortium for Advanced Manufacturing stated that target costing "represents a set of management tools and methods designed to direct design and planning activities for new products, provide a basis for controlling subsequent operational phases, and ensure that products achieve given profitability targets throughout their life cycle." (Horvath, 1993)

Target costing treats cost as an input to the product, not an outcome of it. Target costs are established by estimating the selling price of a product, then subtracting from it the desired profit. The key is then to design the product so that it satisfies customers and that can be manufactured at its target cost. The process thus requires setting the target costs of components. This process must involve the supply decisions and the suppliers in the supply chains.

Supply chain performance is influenced by such decisions as "make or buy", "lease or buy", or "keep or replace" machines and equipment. Once these decisions are made, suppliers are given a description of each component and its expected demand, after which they are asked to provide estimates of prices and delivery. The relevance of this to supply chains is that it may influence the choices of suppliers to be included in the chain, and it may require existing suppliers to adjust their prices to fit in the target cost.

Figure 3: Target Costing



Source: Adopted from Ansari et al. (1997)

If the supply chain is to succeed, the members must find ways to respond to the increasing changes in customer requirements and, at the same time, keep cost down. According to Cooper and Slagmulder (1997), companies have two options for decreasing costs to a target level:

1. By using advanced manufacturing technologies, using accurate cost management techniques such as ABC, and by achieving higher productivity.
2. By redesigning their products and/or services.

The second option is very useful for many firms because research has shown that close to 85 percent of a product's life-cycle cost is determined during design (Arto, 1994). Implementing target costing involves the following steps (Blocher et al., 2002):

1. Determine the market price.
2. Identify the desired profit.
3. Calculate the target cost (market price – desired profit).
4. Use value analysis-value engineering to identify ways to reduce cost.
5. Use continuous improvement and operational control to further reduce cost.
6. Work with suppliers to achieve the target costs.

5. Target Costing- Case Studies

5.1. Montclair Paper Mill:

This case demonstrates how a firm used target costing as a pro-active cost-reduction tool in place of outdated and ineffective standard costing.

Montclair, built in the 1890's, is the oldest and smallest division of ten mills owned by Mohawk Forest Products. The plant's profitability was decreasing, and management was concerned about what to do. They identified one product, Carnival Uncoated Cover Paper in forest green color, as a possible reason for the problem.

The Montclair plant buys dry pulp, which it converts into coated and uncoated fine papers for premium applications such as catalogs. Managers at the plant had been using standard costing for many years. The plant's standard cost for the forest green Carnival was \$2,900 per ton, and the selling price was \$2,200. The Montclair division was losing \$700 per ton. After adding warehousing and capital charges, the loss was \$1,020 per ton. The challenge was to determine what could be done to solve this problem.

The managers at Montclair started by investigating whether it was a price, a cost, or an accounting issue. The sales managers did not think it was a sales or price problem. Manufacturing claimed that costs were based on well-established production processes and material requirements. Therefore, the loss was not due to manufacturing. Moreover, the finance department assured that the loss was not an accounting issue. None of the departments consulted considered the plant's loss on Forest Green Carnival as originating from their units.

After thorough investigation, management at Montclair decided that an allowable cost of \$2,900 was too high. They decided to experiment with target costing to force cost down. Starting with a price acceptable to the customers, target costing involved deducting normal costs and margins along the value chain back to the mill. Montclair had to re-engineer the entire manufacturing process and removed the standard costing system. According to the plant managers, target costing lowered their manufacturing costs drastically. Target costing forced management at Montclair to change the way they delivered value to customers (Shank, 1999).

5.2. Komatsu

Komatsu's experience illustrates an effective way of using target costing to pressure suppliers to drive their costs down. The company's earth-moving products include a large number of components, which forced the company to rely heavily on outside suppliers for complete systems like electrical subassemblies.

According to management, Komatsu's target costing program provides the parameters that guide its negotiations with suppliers to insure profitability. Komatsu's main goal is to launch its products at a price the customers would find attractive. The company uses function and cost tables to determine the company's best-performing components. These tables guide designers in establishing the company's best-performing activities and components.

In determining the target cost of one of its products, the excavator's cooling system, Komatsu's engineers determined that the most important factor was the surface area of the system's radiator. After some analysis, management forced the suppliers to push the frontiers of their own technology to achieve more efficient designs that would produce the most efficient cooling systems at very effective costs.

5.3. Honda Motors

According to Honda's Peter Scmitz, the profitability of Honda Motors is a good indicator that target costing is working for the company. The recession in the early 1990's, accompanied with a strong yen, caused the net return on sales to decline from an acceptable 4 percent range in the 1980's to less than one-tenth of 1 percent in the early 1990's (Banham, 2002). Target costing forced the company to focus on cost efficiency, which resulted in a 5 percent return on sales.

5.4. Harley-Davidson

A major contributor to Harley's continuous growth is a design-cost-management strategy, based on "design for manufacturability", according to Dan O'Callaghan, director of product cost at HD (Teresko, 2002). Harley-Davidson adopts an enterprise strategy that goes beyond the function of product development. This strategy extends to their suppliers.

To achieve a successful design-cost management strategy, Harley Davidson used a target-based performance model. This model, according to HD, sets, validates, and measures progress towards cost targets which are reached through integrating suppliers into the product development process (Teresko, 2002). As result, the company now commands close to 50 % of the U.S. motorcycle market. The company claims an annual revenue growth in the double-digit range. 📖

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