

## Gaining and sustaining competitive advantage with activity based cost management system

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### Abstract

In the era of competitive global environment and technology-based organizations managers are, more than ever, pressured to find ways to maintain their competitive advantage. In order to achieve and sustain a competitive advantage, managers must examine the internal processes of their companies. The firm produces products or provide services by performing a set of activities that create value. Increasing the value of these activities can increase the competitive advantage of a firm. There are several methods that have been developed for adding value to the core activities in the firm. One method that is gaining popularity among companies is activity-based cost management (ABCM). ABCM as a system can provide managers with a strategic view of the activities that are essential to the competitive nature of the enterprise.

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### Introduction

In the present global business environment, firms must develop a competitive strategy that determines the position of the firm with respect to other firms in the industry. A structural analysis, which is fundamental in developing a competitive strategy, relates the firm to its environment. The firm must determine what its critical strengths and weaknesses are, and in what areas a change in strategy will yield the greatest benefit.

The competitive advantage can be achieved if the organization is able to develop an overall cost leadership without ignoring quality and service. The competitive advantage of being the low cost producer of a product is that, even in strongly competitive markets, the firm will earn above average returns. Those returns can be reinvested into the firm and used to purchase new equipment and facilities that will help perpetuate the firm's low cost position.

In order to become the low cost producer, firms must examine their internal processes. Firms manufacture their products or provide their services by performing a set of activities that create value. These activities form a value chain. A firm is profitable if the outcome of the value chain provides a service or product that can be sold for more than the producer spent in product creation and delivery. The firm must examine how to increase the value of the activities in the value chain. The value chain must be analyzed as a system, from supplier to firm to distribution channel.

There are several methods that have been developed for adding value to the value chain. One method that is currently popular is activity-based cost management (ABCM). ABCM unites activity-based costing (ABC) and activity-based management (ABM) techniques into a valuable system for managerial decision-making.

ABCM started as an accounting method to deal with the phenomenon of misallocated overhead costs. This method has become a management tool, a corporate philosophy, which can identify inadequacies and waste in product costs, business processes, and management practices. It should not be viewed as the exclusive property of any particular department or group such as finance or accounting, but should be integrated into the corporate strategy and culture.

Techniques such as ABCM must be used in the present competitive global business environment to create and maintain an overall cost leadership. Managers and employees must understand the basic principles of ABCM so that it can be used to its fullest potential. Commitment by management is necessary to the success of ABCM program.



This commitment needs to be incorporated into the business culture and employee population through the use of training programs, team building efforts, and recognition of each small success.

The ABCM system can be linked with continuous improvement and planning tools such as total quality management (TQM), statistical quality control, business process analysis and value engineering programs. Activities performed during the work process become the key element in determining the value of the process. ABCM can be used to determine competitive competencies, product and customer profitability, or the value of a work process. ABCM is a system capable of tracing costs to products, services, processes, and customers. The common denominator in every business is the activities performed to produce a product or service. The ABCM method is based on the principle that activities consume resources and resources cost money. Therefore, if one can trace the activities to the product or service the true cost is determined. The focus of ABCM is to provide management with cost and operational information necessary to make strategic decisions concerning their competitive position. This system allows managers to identify products and services that are money makers or money losers (Chen, 1996; Chutchian-Ferranti, 1999).

## Concept

In order for a firm to be the low cost supplier of a product or service and achieve its competitive advantage, the organization must have accurate cost data. Managers must know what activities consume the most resources and consequently, incur the most costs. The main objectives of ABCM system are (Cokins, 1996):

- to eliminate or minimize low value-adding costs,
- to find root causes of problems and correct them, and
- to introduce efficiency and effectiveness and thus, streamline the value-adding activities that are executed in business processes to improve yield.

ABCM is a method that assigns costs, generated in the production of a particular product or service, and allocates those costs to the activities required to manufacture the product or provide the service. ABCM uses such terms as non-value and value-added, cost pools, cost drivers, cost objects, activities, and activity analysis. To understand the concept of ABCM, the terms must be understood. Non-value added activities are those activities that do not contribute to meeting customer

requirements, and could be eliminated without degrading the product, service, or ongoing stability of the business. Conversely, value-added activities are those activities that contribute to meeting customer needs and could not be eliminated without degrading the product, service, or are essential to the ongoing stability of the business. Cost pools represent the value of resources to be used in the performance of activities. Cost drivers are those events, which drive the expenditures of the resource. Cost objects are the output associated with a process. An activity is the collection of actions performed to produce an output. An activity analysis is a process used to develop an understanding of the business's work methods and helps to quantify those methods.

Historically, companies used the traditional method of costing. The traditional method assigns overhead costs to various products as a function of the intensity of labor consumed by the product or as a function of the volume of product produced. This traditional method of assigning overhead was realistic when labor was a significant percentage of the cost involved in creating a product. However, as businesses have evolved and technology has become a major factor in business, this method of costing can be misleading. Certain products may in fact use costly, but low-labor intensive activities during production. Conversely, other products that are labor-intensive may have low activity costs. In this case, the traditional costing method would mistakenly assign higher costs to a low cost product based on the labor intensity and assign a low cost overhead to a product that has actually incurred the higher cost. Management decisions, based on this faulty information, would be inaccurate. As businesses have become more cost conscious, the traditional method of costing has become inadequate for effective decision making. Firms that are developing the low cost competitive advantage must have accurate cost information in order to become the low cost producer.

The ABCM system generates a more representative analysis of how costs are actually consumed within an organization. The system analyzes the activities involved in the creation of the product or service and determines the cost of the resources those activities consumed. The cost of all the resources consumed in the activities used to manufacture the product are identified by assigning resources to activities and then assigning cost objects to the activity based on the amount of usage. This method of costing is more comprehensive than the traditional method of allocating overhead costs to products.

ABCM explores the relationship of activities with business processes and helps identify all of the issues, activities, policies, and technologies that consume resources, create costs, and require work to be performed (Cooper and Slagmulder, 1999). The goal of the system is to utilize all the information that has been gathered and analyze it with the objective of eliminating surplus costs from the value chain. ABCM can be used for making critical business decisions such as make or buy, outsourcing, vertical integration, and benchmarking. Without a reliable picture of the true cost, management can easily make an incorrect decision that can cut profitability or even destroy the business. Before an organization can begin to benefit from the ABCM system, there should be a good understanding of processes and work methods of the organization. The activity analysis quantifies the business's work methods and identifies the work that is being done. Detailed information is gathered through interviews with those who have a clear understanding of the processes. Major activities are identified and resources consumed are traced to these activities through the use of time studies, number of items processed, and the determination of cost drivers. Through this process, value-added and non-value added activities are identified. As these activities are determined, opportunities and challenges are recognized. Costs are assigned for the development of action plans. Performance measurements are developed to help monitor the system's progress. After reviewing and refining the results of the analysis, improvement opportunities are identified. There is a need to establish process controls to meet cost, quality and throughput requirements. At this point it is possible to trace business processes and activities to products and customers in order to create an activity-based cost. Activity is traced based on a cause and effect relationship using the number of activities consumed in the cost object. As a result of this step-by-step process, the resources needed to do the job are determined.

ABCM should be considered as the property of all employees. Cross-functional teams must be used to gather information, identify major activities, develop action plans and evaluate performance. All employees must become involved in seeking out non-value added activities and eliminating them. Important to all improvement techniques, ABCM must have the commitment and support of top management. The culture of the business must change from thinking of expense categories to activity thinking. Management and employees must believe that the customer is the only reason why there is an organization and strive to perform those activities

that add value to the product. In some cases, the corporate philosophy must be refocused entirely. This could also include changes in the organizational structure to facilitate the flow of communication between management and employees.

The most difficult task in the effective utilization of the ABCM program is the education of employees at all levels to minimize or eliminate employee resistance. This is an important key to the success of an ABCM system. Education and training in the concept, methods, and benefits of the ABCM system helps deter resistance to change inherent in any continuous improvement process (Ness and Cucuzza, 1995).

### **Continuous improvement role**

ABCM should be used as a part of the continuous improvement process for increased business efficiency and profitability. ABCM can provide managers with valuable information for analyzing business activities and processes. Poor quality and most costly areas of the operation can be identified and improved or eliminated. This management tool is used as a structured way to identify and evaluate the key activity work methods critical to the success of the business. Once those processes and activities with the highest potential for improvement are identified, focused efforts and action plans are needed to realize the improvement opportunity. ABCM builds upon or enhances other management improvement tools and assists managers in the monitoring of results facilitated by these continuous improvement methods.

### **Business process analysis**

The business process analysis and activity-based study must examine the activities thoroughly by using cross-functional teams to perform the analysis. Through the use of cross-functional teams, the activities are evaluated from many perspectives and can be validated as value or non-value added. This method also allows the manager to identify activities that may add value but at unnecessarily high costs. The manager can look for ways to effectively reduce those costs while maintaining, if not improving, the overall quality. This method also allows for ownership of the analysis to spread to many parts of the business. This is a key element for team building, employee empowerment, and the integration of continuous improvement techniques for the daily operations of the business.

## Statistical quality control

The use of statistical quality control ensures that business processes are within certain control limits, thus limiting the consumer's and the producer's risk of inferior products and services. When there are breakdowns within a process causing an out of control event, ABCM helps determine the root cause of the event, quality costs relative to the breakdown, and provides a method of estimating the cost to improve the process. By using ABCM managers can compare the before and after costs and performance measures of the process in order to determine the impact of improvements. The cost impacts of the process improvements are much easier to track at this point since ABCM has helped to separate all activities involved in the process. This activity separation allows for a more direct measurement and comparison of specific operational activities.

## TQM

TQM operates on the premise that management continually seeks opportunities to eliminate waste and improve quality. One of the challenges of TQM is to establish a system to determine the true cost of quality in an organization. Accurate assessment of quality costs is not possible without proper monitoring. Without overall monitoring capability, basic decisions such as budgeting, performance goals process re-engineering, and customer service as they relate to the quality costs cannot be made. After monitoring and subsequent evaluations are performed, decisions relative to the targeted process activity can be made. The fundamental issue for ABCM is that costs are caused by activities, and until managers understand the activities involved in a process they cannot understand the reasons that costs are generated.

The ABCM system provides a method for identifying the cause and effect relationships among the elements of the system. By linking ABCM to quality improvement efforts, the costs of quality for a business can be measured and performance indicators developed. The overall key to becoming the low cost and high quality producer, however, is to foster an atmosphere of continuous improvement through process refinement. The increases in productivity and profitability due to continuous improvement can be significant. Continuous improvement is a key factor in maintaining competitive advantage.

## Value engineering

Value engineering is a management tool that can be used to reduce design and acquisition costs without reducing product or service quality. This method involves conducting an organized study of a product's function in relation to the consumer's needs. Value engineering involves developing creative products or service applications while maintaining quality at lower costs. Value engineering is useful for discovering and developing different ways to differentiate a product and to be more competitive through increased productivity and decreased costs.

Value engineering was popular during the 1950s. However, management abuse of the value engineering concept and improper implementation caused value engineering to become less popular in the 1960s and 1970s. Management used value engineering teams to reduce costs to the point that product quality suffered. Employees began to perceive value engineering as a cost cutting method that reduced product quality. The development of inferior end products gave the value engineering methodology negative connotations. However, with increased global competition, value engineering has made resurgence in corporate programs as a valuable method designed to add value to a firm's products. The objective of the value engineering process is to design an investigation in such a way that quality is increased and costs are reduced. Sometimes value engineering may result in business process re-engineering especially when value engineering results in process innovation (Drago and Geisler, 1997; Zhang and Cao, 2002). If implemented properly with a focus on increasing or maintaining product quality, value engineering can be a valuable managerial tool.

There are several steps for implementing the value engineering concept. First, a project must be targeted for investigation. Value engineering can be used for analyzing programs, systems, products, and services. Next, management must decide what characteristics of the targeted project to analyze. The management must form a cross-functional team of qualified individuals for carrying out the value engineering process. The value engineering team is responsible for considering project costs and usefulness. Team members should bring new ideas and technologies into the analysis.

The value engineering team should review performance records of the product under investigation in order to verify that the original intent of the product is met. The team should recommend changes, if any, to the product in order to meet consumer needs. Also the value

engineering team can be used to implement technological advances that were not available during the initial design phase of the product. The team can provide value since they are able to review a product without the same time and money constraints that may have been present during the product's original design stages.

The final step in the value engineering process is implementation of the recommended changes. Successful implementation requires the full support of top management. The value engineer should have access to all company specialists and resources in various departments relevant to the project in order to utilize the pool of knowledge available within the corporation. This interdepartmental accessibility requires that management support the value engineering process. Successful implementation will result in increased quality and decreased cost.

ABCM can provide the value engineering team with information regarding activities and customer-specific nuances in the business process. These two methods can play complementary roles in managerial decisions concerning product and process improvement initiatives that increase the end product value and quality.

## Competencies

By evaluating the business methods in a way that assigns resource costs to the proper output, ABCM can identify a business's core competencies. Activity-based cost systems can indicate a business's strengths and weaknesses. By evaluating core competencies through the use of ABCM, a business may realize the need to discontinue selling in a certain market and search for new markets, distribution channels, and better suppliers and customers.

There are other specific uses and benefits of ABCM besides the obvious benefits of determining product or service cost. These include: improving the performances of processes and activities to determine which costs to cut when downsizing a business, evaluating the outsourcing of activities or to consolidate operations, to affect strategic deployment, to manage projects, to budget, and to help set target costs. Many benefits can be utilized from ABCM when a business is faced with any strategic decisions. Although the initial analysis may involve time-consuming training, information gathering, and tough analysis work, each additional study becomes easily focused. The philosophy of thinking in terms of activities replaces the traditional actual versus budget scenario and variance reporting.

## Case studies

In the 1980s Chrysler Corporation made improvements in its operating efficiencies, cut costs, and revitalized its products. Management was determined to flatten out the complex hierarchical functional structure to become more flexible, efficient, cross-functional, and process oriented. However, the company's cost accounting system was based on direct costs and relied heavily on the traditional method of cost allocation for overhead. In fact, few believed that the system could deliver a true picture of the process or product's cost. In order to improve the overall cost effectiveness and to provide more accurate cost information, the automaker decided to launch a corporate-wide initiative to implement an ABCM system.

The implementation of an activity-based cost system at Chrysler was met with resistance from the general population. The first obstacle to overcome was the recovery of automobile industry about the time of Chrysler's first ABC initiative. The question of "Why change at all?" arose with all plants operating at full capacity. The ABCM became the joint responsibility of both controller and director for continuous improvement. Chrysler has invested the time and effort to train in excess of 18,000 employees in the basics and use of ABCM system. The pilot project for automaker was launched in 1991 at its plant in Warren Michigan. Because this plant was low volume in production, the conventional overhead allocations were showing that the output costs were much lower than they truly were. The ABCM analysis indicated that the actual costs were some 30 times over the stated standard costs and provided information for plant management to cut back costs in a number of areas. For example, the system guided management to develop a new strategy for producing blanks that saved the company some \$3,000 per day. With such successful results, Chrysler methodically rolled out their ABCM program into all areas of the business to demonstrate that this method was for every process and not just manufacturing (Auguston, 1993; Ness and Cucuzza, 1995).

Safety-Kleen is a leading environmental services in North America that has a service network of over 250 collection and processing facilities and provides services to over 400,000 customers. This company was founded in 1968 to provide safe ways to remove and recycle hazardous waste for industrial companies. The company began operations with one plant and needed only a basic cost accounting system. By 1990, Safety-Kleen had become a large and more complex corporation and had outgrown its accounting system.

The number of hazardous chemicals it handled had rapidly increased from mineral spirits to over 100 different types of chemicals. The management turned to activity-based cost system to help change their accounting functions from a bookkeeping function into a system to provide operations with product and process information. During the years of rapid growth at Safety-Kleen, the industry had also grown, increasing in competition for the hazardous waste and recycling business. The focus at Safety-Kleen had changed from exploiting the vast opportunities in an undeveloped market to intensified pressure on profits. Operations and marketing had developed their own systems for making decisions on capital expenditures, pricing, and plant utilization, unable to trust the accounting information. Plant managers handled decisions based on what the best for the plant. Top management realized that the company needed to base decisions on what best for the business as a whole rather than the individual plant. For this reason, the company decided to implement an activity-based cost management system.

The ABCM approach was resisted at first. Plant managers were skeptical initially about the new accounting methods, fearing that the system would change the existing power structure. They also knew that ABCM would reveal inefficient processes and practices that had been buried in the traditional costing system. Employees were also afraid that in changing the operational processes, their jobs would be eliminated. Safety-Kleen mounted a major training program to educate employees on ABCM at all levels and highlighted every success. The company used one location as a pilot project to demonstrate the power that ABCM contained, cutting costs by \$3.5 million in the first year (Miller, 1995; Ness and Cucuzza, 1995).

## Conclusions

In the current global business environment, firms must be competitive in order to survive. The firm must analyze the nature of its particular industry and environment. Once the firm understands where it needs to position itself within its industry, the firm can determine which competitive advantage it must achieve and maintain in order to succeed. Once the firm decides on the competitive advantage that will provide the best position within the industry, the firm must develop a method for gaining that advantage.

A popular method for achieving the competitive advantage is the ABCM. The popularity of ABCM is attributed to its ability to address the strategic issues concerning the profitability potential of an

organization. This method is particularly useful in providing management with the types of information necessary for making critical and cost saving decisions. When a business understands how different outputs and customers consume different activities, then the business can focus on profitability. Profitability for a business is the ability to produce and sell an output for more than the output costs to produce. By using this simplistic definition of profitability, it is easy to demonstrate how the ABCM system can help guide a business to concentrate on profitability and the Pareto rule of 80/20. For the majority of businesses, 20 percent of the organization's output is generating 80 percent of the profit. The same rule applies to customer accounts, that is, 20 percent of the customers account for 80 percent of profits indicating that 80 percent of the accounts are either unprofitable, at break-even, or slightly profitable. By assigning costs to the activities consumed by products and customers using ABCM's cost driver method, the true nature of costs and profits of these activities can be determined.

ABCM methods, whether used as a product costing tool or as a cost management tool, can be powerful. ABCM does not supply all the answers to all the problems of all the companies, but it does offer a logical approach to cost management that can guide management in the direction of root causes to problems. It can quantify these problems and helps identify opportunities for better decision-making.

In summary, a business can create and maintain a competitive advantage using ABCM by:

- identifying core activities,
- determining the industry's value chain for the core activities,
- determining the cost drivers for each value activity in the value chain,
- finding ways to control cost drivers better than competitors and striving to reduce activity costs, and
- finding ways to increase the value of the activities in the value chain.

By continuously executing the above, a business can achieve both low cost and differentiation status.

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