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Technovation 23 (2003) 131–138

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**technovation**

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# Activity-based costing/management and its implications for operations management

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## Abstract

Activity-Based Costing/Management (ABC/M) is an Information System developed in the 1980s to overcome some of the limitations of traditional cost accounting and to enhance its usefulness to strategic decision-making. In this paper, we show how an ABC/M system can serve as a useful information system to support effective operations decision-making processes. We propose a conceptual framework, Operations Hexagon, to discuss the managerial implications of an ABC/M system for various operations management decisions related to product planning and design, quality management and control, inventory management, capacity management and work force management. By viewing an ABC/M system as an enabler to improve the operations decision-making, we demonstrate that these systems enable an operations manager to enhance the quality of the decision-making process.

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*Keywords:* Activity-based costing; Activity-based management; Operations management; Operations decision-making framework

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## 1. Introduction

The present era of global competition, evolving technologies and information systems is leading companies toward a renewed commitment to excellence in manufacturing. Increasing attention to the introduction of new products, the quality of products and processes, the level of inventories, and the improvement of workforce policies have helped companies to become world-class. Accurate cost information is critical for every aspect of a business, from its pricing policies to its product designs and performance reviews. However, most companies are still using the same traditional cost accounting systems that were developed decades ago (Kaplan and Cooper, 1998). For the last two decades, a new type of accounting system, Activity-Based Costing/Management (ABC/M), has been gaining acceptance in the USA as well as in Pacific Rim and European-based companies (Keegan and Eiler, 1994). ABC/M systems represent a shift from a strictly financial perspective to a ‘whole-system’ perspective because they include both financial and non-financial data in its reporting. Rather than just

listing cost factors and assigning them to products based on artificial allocations, ABC/M examines processes and work-flows to identify actual activities that add costs. This wider and more realistic view of costs allows managers to base strategic decisions on more accurate information, which should improve the quality of those decisions. While an ABC/M system alone will not transform a firm into a world-class competitor, it is an important tool to help world-class firms make effective strategic decisions. A significant amount of research is available that deals with the design and implementation of ABC/M systems (Cooper and Kaplan, 1991; Shank and Govindarajan, 1993; Turney, 1992b; Damito et al., 2000).

### 1.1. Purpose

The purpose of this paper is to discuss how ABC/M systems can support effective operations decision-making processes. We propose a conceptual framework, operations hexagon, which employs ABC/M system to enhance operations decision-making processes (Fig. 1). The operations hexagon shows how an ABC/M system provides a mechanism for integrating various OM decisions. The rest of the paper is organized as follows: in the next section, we will introduce the basic concepts of ABC/M systems. In the third section, we will discuss

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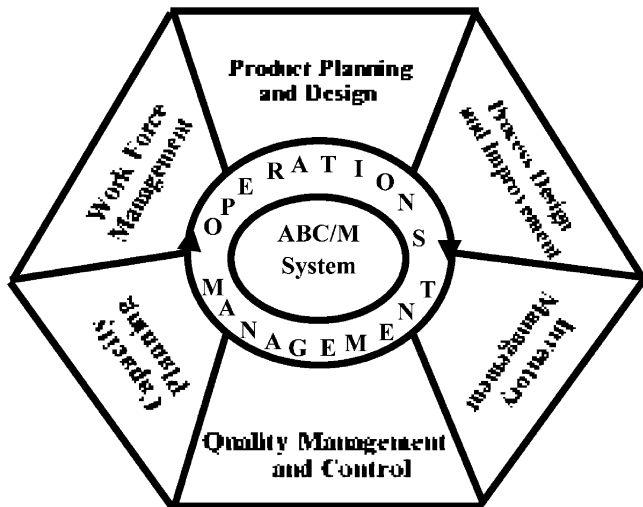


Fig. 1. Operations hexagon.

the managerial implications of ABM systems implementations for operations managers. Finally, we conclude our paper with some general guidelines and recommendations to managers.

## 2. Activity-based costing and management

ABC/M systems are designed and implemented on the premise that products consume activities, activities consume resources and resources consume costs (Sprow, 1992). ABC/M systems assign costs to activities based on their consumption of resources, and then activity costs are assigned to products or services in proportion to a selected measure of their individual workloads (Anderson, 1993; p. 7). ABC/M systems examine all processes (or activities) that are actually relevant to the production of a product and attempt to determine exactly what portion of each resource is consumed i.e. which activity a particular product uses. The information ABC/M systems provide can help determine which products are profitable, which customers are the most valuable, whether processes are value-added or not, and where efforts toward improvement should be made. These systems are being used more commonly than ever today in an effort to obtain more reliable product costs, improve processes and develop improved marketing strategies. They have led to many improvements in product design, internal processes, supplier relationships and customer satisfaction.

Central to the ABC/M systems is the concept of cost driver. A “cost driver is an event associated with an activity that results in the consumption of the firm’s resources” (Babad and Balachandran, 1993). Traditional cost accounting uses one cost driver (direct labor or machine hours) as the basis for allocating overhead costs, and this can be inaccurate and misleading because

it may apply too much cost to one product and not enough to another. An ABC/M system achieves improved accuracy in the estimation of costs by using multiple cost drivers to trace the cost of activities to those products associated with the resources consumed by those activities (Babad and Balachandran, 1993). To identify cost drivers, the accountant must investigate the process of production to determine what activities must be performed to produce a product. Departmental managers can often identify these activities. For example, in the purchasing department, a portion of product cost might lie in the number of purchase orders generated for each product. Manufacturing costs might be based on the machine setups required for each product run. Each of the activities that have an effect on the cost of a product is a cost driver. Ideally, all cost drivers for a product are identified, but in practice the number of drivers is usually limited to those that have the most significant impact on cost.

Concisely, an ABC/M system development process involves: (i) *identifying resources* (i.e. what is used to do work); (ii) *identifying resource drivers* (i.e. what is assigning the cost of the resources to activities based on effort expended); (iii) *identifying activities* (i.e. work); (iv) *identifying activity drivers* (assigning the cost of the activities to products based on unique consumption patterns); and (v) *identifying the objects of work* (to what or for whom work is done) (Cokins, 1993).

### 2.1. Manufacturing changes that led to ABC/M system

During the last twenty years, manufacturing has dramatically changed. Whereas dramatic improvements have been made in efficiencies and per-unit costs, profits have shrunk; ‘overhead’ has risen dramatically, and businesses have seen fierce competition by foreign companies, who are responding to market needs better and faster than ever with high quality and innovative products. Manufacturing today, with its focus on continual improvement, minimal inventory and speedy turnaround, bears little resemblance to manufacturing of yesterday, with its forced quality checks on end-stage products, large inventory and slow response to market needs and orders.

These changes in the environment have led managers to search for explanations, which could account for why increasing efficiencies was not increasing profitability and competitiveness. Employing different methods of costing products, accounting for increasing overhead costs, and deciding which processes truly add value to a product or service have become a necessity. Traditional management accounting has been challenged to find ways to help companies better understand and identify company processes and costs.

Perhaps the rationale for the surge in interest in ABC/M can best be seen by looking at some major criti-

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