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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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## 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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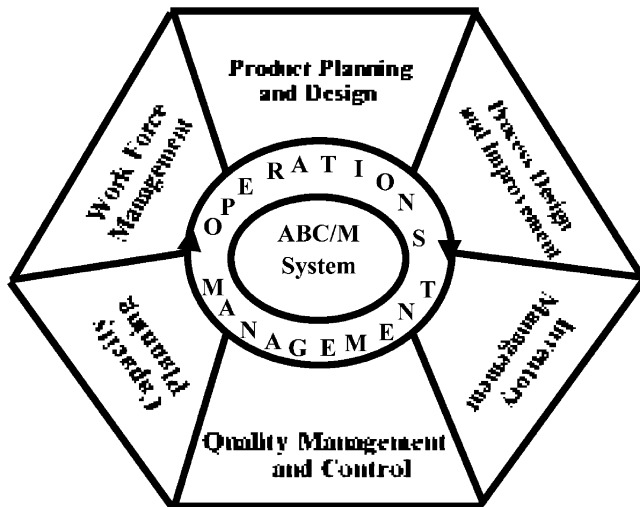


Fig. 1. Operations hexagon.

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-

cisms of traditional management accounting methods. These criticisms include: “management accounting fails to capture a company’s progress towards world-class manufacturing performance; product costs in multi-product companies are incorrect due to overhead absorption methods; and, internal orientation of accounting information is too narrow for strategic decision making” (Clarke, 1995). Manufacturers now realize that becoming world-class manufacturers means: (i) understanding the true profitability of the sectors it trades in; (ii) understanding product costs and knowing what drives overhead and having these items drive process improvement; and (iii) the setting of performance measures. It has given managers a true picture of overhead costs and has done it in a way that allows them to do something about the costs (Vasilash, 1994). ABC/M systems focus attention on the cost of activities as the cost relates to the object of work and forces operations managers to ask questions such as “can I perform an activity less frequently by changing product design or product mix” or “can I share the same part with more than one object of work,” or “Should I outsource this part to China?” It causes the costs associated with ordering, expediting, storage and quality, for example, to be correctly associated with an object, rather than being lumped into overhead. This shift from a micro-unit focus to a macro, factory focus has led to performance improvement of the entire factory process through simply looking at an activity as a whole rather than as a part.

## 2.2. From ABC to ABC/M system

In order to address the problems of traditional cost systems, companies reengineer their accounting systems by incorporating their understanding of cost drivers and applying these drivers to the cost of products in proportion to the volume of activity that a product consumes. This view was termed ‘activity-based costing’ and primarily used to analyze decisions such as pricing, product mix and product sourcing. The increased knowledge of ‘cost drivers’ has prompted many companies to reengineer their business processes by monitoring each of their processes and then, eliminating (or improving) the processes which are non-value added (Keegan and Eiler, 1994).

The major change in focus required for moving from Activity based costing (ABC) to an Activity-based Management (ABM) system is one shifting from a cost-assignment view (i.e. from resources → activities → cost objects) to a process management view (i.e. cost drivers → activities → performance measures) (see Fig. 2). Turney (1992b) proposes that an ABM system takes the information gleaned from ABC and applies it to the organization in a continual push for identifying improvement opportunities and ways to improve the processes. Cooper and Turney (1990) termed systems where the

main focus is to provide information to product designer and process engineers about how to improve the manufacturing capability of the firm as ‘internally focused ABC systems.’ They discussed how a number of companies such as Tektronix, Hewlett Packard and Zytec Corporation are successfully using such systems. Player and Keys (1995) also reported a number of successful implementations of ABC/M systems by Arthur Andersen’s Advanced Cost Management Team and the researchers involved with the Consortium for Advanced Manufacturing-International.

The strategic value of an ABC/M system is that it can provide useful insight into decision-making processes because it not only supplies financial data, but examines processes and activities to identify value-added and non-value added activities. When the ABC/M system was first introduced in the 1980s, it was viewed as an upgrade or replacement for the general ledger system. However, viewing the ABC/M system strictly as an accounting system overlooks its true value. The fact that the ABC/M system examined activities across departmental boundaries forced managers to think about business processes and change their mental ‘model’ of the organization. ABC/M system fits into an overall paradigm shift that emphasizes the interconnectedness of all aspects of a firm. Below, we demonstrate the usefulness of ABC/M systems to operations decision-making, as shown in Fig. 1.

## 3. ABC/M systems and its impact on operations function

Generally, the operations management decision-making process has been defined to constitute decision responsibility in six major areas: Product planning and design, quality management and control, process design and improvement, inventory management, capacity management and work force management (Schoreder, 2000). Although in practice a system may vary depending on particular organizational preferences, culture and history; a general dynamic model, the ‘Operations Hexagon,’ as shown in Fig. 1, has broad applicability. The operations function’s circular path traces through each of the six OM decision-areas, providing internal linkages as well as feedback and the realignment of decisions in each of these areas. The proposed framework further depicts that the mechanism for relating these OM decisions in an integrative manner is the control and measurement system represented by the circle in the middle. A broad based management accounting system, such as an ABC/M system, extracts inputs from internal focus, while keeping all the outside segments in balance. In this paper, we show that an ABC/M system is a natural candidate for this inner circle on which the operations wheel is mounted.

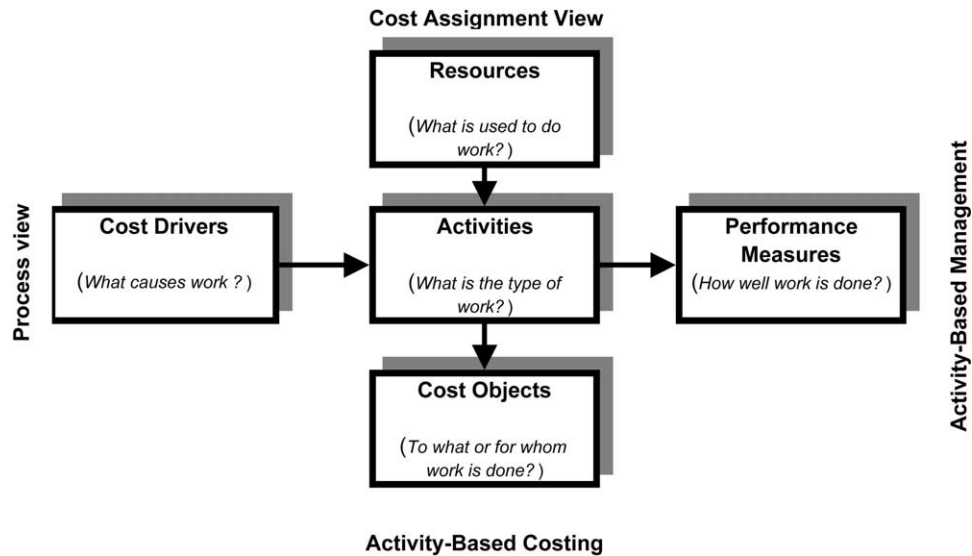


Fig. 2. Activity-based costing/management information system (adapted from Turney, 1992a).

Next, we consider each of the outer segments individually to evaluate compatibility with the ABC/M concepts and demonstrate how many companies have successfully used ABC/M systems with varying sophistication levels to address various OM decisions.

### 3.1. Product planning and design

An ABC/M system can provide useful insight into product design decisions. In a firm, which manufactures only one product, it is simple to assign costs to that product. However, in a firm with a complex product offering, cost assignment becomes more difficult. Product complexity “results in high manufacturing overhead costs incurred for such activities as supervision, quality control, inspection, machine and tool maintenance, and production control” (Cooper and Kaplan, 1991). Cost accounting’s allocation based on machine hours or direct labor hours does not provide a clear picture of the true allocation of resources. “Product costs thus become distorted, leading to a biased analysis of design for manufacturability, product profitability, outsourcing, and make or buy decisions” (Banker et al., 1990, p. 270). A clear example of the impact that ABC data provide is with respect to the decision of which product line to eliminate. For instance, imagine a firm that makes products to fill orders in large quantities or small batches. Often small lot sizes appear more profitable under traditional cost accounting systems, so the firm might decide to drop the products that are produced in large lots to concentrate on the more ‘profitable’ niche products.

However, ABC/M information may show that the small lot product is actually much more expensive than estimated because ABC data will include factors not usually considered, such as order processing. Relying on old

methods of cost allocation may lead a company to a death spiral in which the ‘least profitable’ product lines are dropped one after the other in order to reduce costs. The critical information ABC supplies is that often the profitability picture has been distorted in the past. Without a true picture of accurate costs for each product, it is extremely difficult to evaluate whether or not a product is contributing to the profitability of the firm. And, of course, if evaluating an entire product is difficult, then evaluating specific design characteristics becomes impossible.

*Product design* should be a group process with input from marketing, finance and operations. Unfortunately, each of these groups tends to look at design from their individual perspectives. ABC assists the process of synthesizing these different perspectives by identifying specific cost drivers. For example, setup times may be a significant cost driver that was not recognized by cost accounting. However, the setup changes might only be required for a relatively minor feature that marketing added as a ‘bonus’ or afterthought that does not significantly impact the product’s desirability. Once this driver is recognized, product designs can be modified with the goal of reducing or eliminating unnecessary setup changes, thus lowering cost.

The implementation of an ABC/M system provides an opportunity for clearer communication between functional areas on issues of product design. An engineer in Hewlett Packard’s Roseville Network Division described the impact on their design process as follows: “We created a lot of tighter relationships among accounting, research and development, manufacturing, and marketing. We were all learning about the business. We have broken the back of the cost system design problem and are now refining it and our intuitions about the economics of product design. Overall, the whole experience for-

ced us to understand our design process” (Cooper and Turney, 1990, p. 296).

### 3.2. *Quality management and control*

A major trend in American business is the focus on continuous improvement of quality — quality products, quality systems, quality improvements. The attitude of the world-class company has often been summarized as ‘improve quality, and all else will follow.’ The idea that costs will take care of themselves if managers focus only on improving quality and reducing lead time makes one wonder how Baldrige Award winners could encounter severe financial difficulties. (Kaplan, 1992, p. 60). But all projects cannot be pursued simultaneously because resources are limited. How can a firm determine what priority to give to the quality improvement and cost reduction plans it identifies?

The ABC/M system can play a significant role in the prioritization and cost justification of quality improvement projects. Because it includes non-value added activities in the costs, ABC/M can provide information that allows a firm to determine what impact each project would have, and therefore a means to determine which ones to pursue first. Without this insight into prioritization, a firm can pursue several low impact improvement projects at great cost and little gain, while overlooking other projects that might have a tremendous impact. Nutrilite Products, Inc., a food supplement business, gained ‘focus and direction’ for their process improvement efforts when they adopted ABC/M and found practical applications of information in the area of pricing and product abandonment decisions.

ABC/M information can also play a role in quantifying the costs of quality. What are the costs of quality? There are four categories: (i) *prevention* (i.e. costs of activities performed to prevent errors from occurring); (ii) *appraisal* (i.e. costs of inspection such as determining if the product conforms to standards); (iii) *internal failure* (i.e. the costs of correcting errors before they reach the final customer, such as scrap, rework and change orders); and (iv) *external failure* (i.e. costs associated with errors that reach the final customer, such as correcting the error, handling complaints, and customer ill will resulting from the error). These four types of quality costs fall into two categories: product design and compliance with standards. Many of these quality costs can be categorized as non-value added costs that would not have been identified with traditional cost accounting (Schneider, 1992).

An example of how ABC/M helped operations managers to improve quality can be seen with a large telecommunication company. After performing an activity analysis of all positions at the company, it was determined that approximately 30% of personnel times were spent on reworks. This activity has not been detected on

the customary reports using traditional accounting data and was never questioned. Afterwards the causes were traced and eliminated. The company then found itself with the availability of almost one-fourth of the shop’s workers (Johnson, 1993). ABC/M simplifies the determination of quality costs by revealing such activities and their costs, which can be used in detecting and correcting activities.

### 3.3. *Process design and improvement*

ABC offers significant insight into equipment and process decisions. ABC “challenges manufacturing and financial teams to identify, desegregate, and analyze the underlying manufacturing activities that drive overhead” (Owen, 1993, p. 27).

Traditionally, accounting systems focused on monitoring and controlling costs incurred subsequent to the product design process. In modern manufacturing environments where product complexity significantly influences costs, a large portion of the costs is determined at the design stage. Banker et al. (1990) reported a development of an advanced ABC/M system, which analyzes the determinants of activities in terms of product and process design features, and thereby provides valuable information to the product designers by supplying the cost implications of alternative design choices. The system can isolate the various factors that are under the control of design engineers and that can be used to influence manufacturing costs. Lacking such systems, companies tend to add more features and design more complex products because the price and market share advantages are perceived to outweigh the additional costs of designing, manufacturing and supporting complex products. Banker et al. (1990) reported the application of their ABC/M system to a plant that manufactures a wide variety of rear, park, signal and other lamps for a wide variety of automobiles. Their ABC/M system showed that those products classified as outsourcing candidates were precisely the simpler products that were being over-cost by the traditional cost system.

ABC/M information can also be used by both pure cellular manufacturing (CM) or those that combine job shop and CM. CM is a configuration of job-shop into mini assembly lines, also called cells, that manufacture similar products. Using an ABC/M system, the distinction between a direct and indirect cost disappears in CM as each cost can be traced to a particular cell, rather than to individual products in a family (Dhavale, 1992).

Western Zirconium, a 1988 Baldrige Award recipient that supplies its parent firm, the Commercial Nuclear Division of Westinghouse, examined its production processes with an ABC perspective and achieved dramatic results. “Mapping existing work flow demonstrated that the work-in-process traveled over two miles during a 45-day time span and quickly showed that improvements

could be made by rearranging the manufacturing floor to cluster the work more efficiently and eliminate unnecessary movement of in-process production. In addition, control systems that measured performance on overhead absorption and labor efficiency were found to foster inventory buildup, which is counterproductive to achieving total cost competitiveness” (Schneider, 1992; p. 23). Western Zirconium used ABC/M to focus on cost drivers and value-added processes. As a result, a number of advantages were reported. For example, work-in-process inventory was reduced from \$12.3 million to \$4.2 million. First-time product acceptance increased from 34% to 92%. Elapsed production time was reduced from 45 days to 10 days (Schneider, 1992, p. 23).

### 3.4. *Inventory and procurement management*

Strategies for inventory reduction, such as JIT, address the fact that carrying inventory at all stages — raw materials, work-in-process, finished goods — increases costs. However, inventory buildups occur for a reason. The process of implementing an ABC system can help identify some of those reasons. For example, if the purchasing department is rewarded on the basis of lowest cost, large lots may be ordered to get a quantity discount. If the lot size is more than what is needed for the tasks at hand, inventory buildup occurs. If individual units are evaluated on their throughput, they will produce as much as possible without regard for whether the product moves on to the next work stage or into a warehouse. ABC supports measures that place the emphasis on the whole firm, not individual units or departments, and thus may make it more feasible from the unit or department standpoint to lower inventory levels.

In an ABC/M pilot study carried out at Lord Corporation, numerous revealing insights were found. Rupp (1995) reported that it only made sense that a 10 cents part should take a penny’s worth of overhead, as our standard cost system used to show but what ABC/M system revealed was that even those inexpensive parts were being purchased, received, inspected and stocked in a manner that created significant costs.

Datar et al. (1991) discuss the results of a field study which illustrates the use of activity-based costing to analyze material handling expenses (which exceeds \$5,000,000 per year and comprise approximately 10% of total factory costs). They identified relevant material handling cost drivers, such as ‘number of moves’ and ‘distance moved’, and used department cost accounts pertaining to three stages of material handling (purchased parts, WIP and finished goods) to create cost pools and then, allocate to each product (or production part). Thus, they demonstrated how an ABC/M system can quantify the potential for actual dollar savings, which could come from reductions in material handling, labor force, equipment, supervision etc.

Player and Kramer (1995) reported a successful implementation of an ABC/M system based automatic replenishment system in more than 50 companies. The system, initially piloted in TTI Inc. Company, has significantly reduced inventory investment as well as administrative costs. Typically, the purchasing process for a manufacturing company begins with the Manufacturing Resource Planning (MRP) system determining the production requirements for various component parts. Following the determination, the company may obtain competitive bids and then place an order. The purchasing department then receives, inspects, and inventories each item. All these activities must occur before the parts can be used. Under this new program, the team performed an activity analysis of the procurement process, and reduced 15 traditional purchasing steps to three and reduced the purchase cycle-time from 9 weeks to 1 week.

### 3.5. *Capacity and investment management*

Cokins (1993) argued that most organizations have very little insight and understanding about the location and cost of their unused and non-productive capacity. In addition, there is a tendency to load all costs onto products delivered, which hides these costs, and consequently, the firms lose the opportunity to decrease them. ABC/M systems help firms understand the link between increasing owner’s wealth and minimizing unused capacities. With an ABC/M system, these costs are isolated and measured in three segments: idle (i.e. unused and available), non-productive, and productive. Equipped with this insight, firms can act on this new data, motivating operations managers to decrease the non-productive capacity which will increase idle capacity and then, in turn, provide incentive to either fill the idle capacity with more customer orders or remove the idle capacity. Baxendale and Gupta (1998) discussed how a small custom screen-printing company benefited from implementing an ABC/M system. The system provided information on unused capacities of activities as well as the relative profitability of the various products. The owners of the firm were able to embark on a continuous improvement process by focusing their efforts on the most constrained activity (i.e. the activity with no unused capacity).

Long-term capacity decisions involve choices between the alternative uses of resources, such as acquiring or disposing of capacity. Just as ABC/M systems can improve the accuracy of cost data to help in prioritizing quality improvement projects, they can provide information to help assess capacity decisions. When processes are evaluated in the ABC/M implementation process, bottlenecks caused by inadequate or outdated equipment can be identified. Decisions between alterna-

tives on how to address these equipment needs are supported by ABC data.

Traditional cost accounting may provide misleading information regarding the costs of equipment that bias decisions about upgrading or replacing equipment. New technologies are often expensive, and many companies require detailed justification proposals for new purchases. Preparing comparisons of current versus proposed equipment becomes clearer using ABC/M systems.

A survey cosponsored by the National Association of Accountants and computer-aided Manufacturing International concluded that even though most US firms attach a critical importance to the strategic justification of advanced manufacturing technologies, they fail to explicitly incorporate the firm's strategy into the investment analysis. Brimson (1989) suggested an activity-based investment analysis system that analyzes in detail the impact of a new technology on the cost, performance, and interdependence of key activities. The system provides a mechanism to systematically decompose the company goals and objectives into a base set of activities that are impacted by the investment.

Thus, Brimson (1989) argued that the activities provide a consistent basis for analyzing investment and monitoring the actual results through an ABC/M system.

### 3.6. Work force management

The ABC process can have a significant impact on a firm's employees, particularly in areas of employee empowerment and accountability, roles and responsibilities, and performance measures. (Turney, 1993) ABC starts with identifying activities that are performed in a firm. An excellent starting point for gathering ABC information is the front-line employee.

#### 3.6.1. Empowerment and accountability

ABC takes information that was previously couched in pure financial terms and translates it into terms that relate to specific activities. With ABC, performance measures can be described in meaningful terms. An employee becomes aware of how his activities contribute to the firm's financial performance. ABC gives the employee the tools he needs to evaluate not only how he is currently contributing, but how he might improve his performance to increase that contribution.

"Operators, who know the full cost of the raw materials and the full cost of reworking defective units, are able to decide whether to scrap bad production or rework it, without intervention by more senior management." (Armitage and Russell, 1993, p. 7) Empowering employees to make these types of decisions can help prevent costly reworking or poor quality product. It can also have an impact on employee commitment and morale.

#### 3.6.2. Roles and responsibilities

With accountability and empowerment moved to its lowest level, the roles and responsibilities of employees versus supervisors can shift. Rather than performing as 'organic robots' that basically follow orders without using critical thinking, employees "can accept responsibility, and participate in business decisions...Managers, freed from some of their traditional responsibilities, spend more time as coaches, facilitators, communicators, and resources" (Turney, 1993, p. 31). Rather than spend time looking over an employee's shoulder to ensure he does what he is supposed to do, managers can concentrate on enabling employees to maximize their potential.

#### 3.6.3. Performance measures

A serious problem with performance evaluation is that managers are often evaluated on measures that cause them to act against the best interests of the firm in order to improve their departmental or unit rating. To combat this narrow, department-focused view and steer managers toward integrated, company-wide goals, ABC can be used to establish benchmarks, which can be used as a basis for performance evaluation. Once these benchmarks have been created, "the actual achievement of them needs to be continually assessed — not just against absolute cost levels but also against other important criteria such as service levels, quality and timeliness, as well as against other equally important performance areas, e.g. those relating to customers" (Connolly and Gary, 1994, p. 33). ABCs focus on processes that affect costs and it emphasizes the interconnectedness of each department, crossing functional boundaries to support processes that produce most efficiently.

## 4. Conclusion

Traditional cost accounting methods, which allocate overhead costs on the basis of one driver (e.g. direct labor or machine hours) are inaccurate and misleading as these methods often allocate too much cost to one product and not enough to another. To address this problem, activity-based accounting was developed to provide a means to create a more accurate representation of how activities performed in the creation of a product or service actually impact its cost. ABC/M systems examine processes or activities to determine their effects on costs. An ABC/M system can be used by any firm which is able to identify activities that drive costs and allocate those costs to its particular products or services. Rather than allocating overhead on the basis of one variable, such as direct labor, ABC/M systems use multiple cost drivers to present a more accurate foundation for overhead allocation. Cost drivers are identified by actually reviewing the entire production process to uncover what activities cause those costs. ABC/M systems can be inte-

grated with TQM, employee empowerment, and many other changes taking place in business today. While discussion of ABC/M systems was at first limited to its use as a placement for cost accounting, the focus has shifted to the identification of processes and their effects on costs.

What is the future for ABC/M systems? The next logical step would seem to be linking activities between business units together, creating an ABC/M system that provides information for the whole company (Mecimore and Bell, 1995). However, it is important to realize that all functional areas must be involved in implementing an ABC/M system at the business unit level. Accountants have the important role of deciphering what activities are of value to the customer and to the organization, but it is the operations manager who should do the implementation (McConville, 1993). The company should work together to first improve the value received by customers, and then to improve the products by providing this value (Turney, 1992a).

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