

Managing Costs for Efficiency in Production

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ABSTRACT

Purpose: This study aims to provide cost information for the benefit of costs as a measure of the efficiency of a business. Planning tool, meaning that business planning is definitely related to income and costs. Cost control, meaning comparing the costs that should have been incurred to produce one unit of product with the actual costs incurred. Cost is an important factor in ensuring a company's victory in competition in the market. Consumers will choose producers who are able to produce high quality products and services at low prices. Contemporary Cost Management Systems emphasize tracking over allocation. And activity-based management is at the heart of contemporary operations control systems.

Design/methodology/approach: This study used a descriptive research method. Data is the document obtained financial statement for the period of 2022. As for the subjects in this study are companies engaged in manufacturing, by calculating the cost based on the financial statements in 2022.

Findings: Based on the results of research, it can be concluded that recording costs in the company's internal or known as cost accounting is useful to assist company management in preparing plans or making decisions related to finance. There are at least two main factors that must be considered in choosing a cost driver, namely: measurement costs and the degree of correlation between the cost driver and actual overhead consumption. Cost drivers are divided into two categories, namely structural cost drivers and executional cost drivers. The cost driver is the basis used to charge the costs accumulated in the cost pool to products. So that by calculating costs through a Time Driven activity-based costing system, companies obtain more precise and accurate information.

Research limitations/implications: The limitation in this study is that calculating cost can only be done for one entity.

Practical implications: The results of this study can be used as a comparison in this cost has a function to measure production costs with the cost of production results. Activity based accounting will make it easier for accountants to understand the costs and benefits derived from the products the company produces.

Originality/value: The focus of the research is to find ways to calculate the effectiveness of human resources, means of production, as well as the raw materials for the products to be used. This type of cost accounting also calculates the average direct cost required by the company during its production process.

Paper type: Research paper.

Keyword: Cost, Time Driven, Activity-Based Costing

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I. INTRODUCTION

In the 1880s, manufacturing companies in America began to concentrate on developing large-capacity production technologies. Managers and engineers at metal companies have developed a procedure for calculating relevant product costs called scientific management. This procedure is used to analyze the productivity and profit of a product. However, as accounting thinking develops, these procedures begin to disappear from corporate accounting practices. There are financial accounting regulations that have the impact of reducing accounting information that is useful for evaluating the performance of subordinates in large

companies (lost relevance). All managers rely on information related to the main production processes, transactions and events that generate nominal amounts in the financial statements.

Most product costing procedures used in the 20th century were developed between 1880 and 1924. Previous developments (until 1914) emphasized calculating the cost of product calculations at the managerial level, namely tracing the company's profit rate to each product and using this information for strategic decision making. Starting in 1925, after the development of the capital market in America, almost all management accounting efforts to produce information for internal users were then discontinued and replaced with inventory costing, which is the assignment of production costs to products in such a way that the cost of inventory can be reported to external users in the financial statements. Financial reports have become a force shaping the design of cost accounting systems.

Managers and companies are willing to receive information on the aggregate average cost of each product, because they feel they do not need cost information. In the 1950s and 1960s several attempts were made to improve the benefits of the conventional cost accounting system for the benefit of management. The introduction of variable costing to improve the determination of the cost of products is basically aimed at improving the determination of the cost of inventories presented in the balance sheet and in the calculation of profit and loss. Improvements in cost accounting at that time were basically only focused on how to make financial accounting information more useful for outside users, not intended to produce accounting information specifically intended for management interests. In the 1980s and 1990s it was found that traditional management accounting practices were no longer able to serve managerial needs. More accurate product costing is more useful, and one that details the use of inputs, is needed to enable managers to improve quality, productivity, and reduce costs. In response to the drawbacks of traditional management cost accounting. The development of information technology has caused the world to become like a village (from a business point of view), the boundaries between countries are becoming increasingly unclear with the expansion of free trade around the world and competition that is global and sharp. The nature of this competition causes the profits earned by companies entering the level of world competition to shrink. Shrinking profits forced management to look for new strategies that made the company able to survive and develop. Only companies whose management has succeeded in making their companies have advantages at the world level are able to be flexible. Flexibility is a market demand that always requires companies to be able to produce products and services that meet the changing needs of consumers. Flexibility requires company management to continuously improve the benefits contained in consumer products and services. The development of information technology has resulted in consumers having easy access to the quality of the products and services they will buy. Thus, only companies that are able to produce products and services that meet the quality required by consumers, are able to become leaders in competition in the market.

Cost is an important factor in ensuring a company's victory in competition in the market. Consumers will choose producers who are able to produce high quality products and services at low prices. Low prices can only be produced by producers who continuously make improvements to value added activities, and who always try to eliminate non value added activities for consumers. Value-Added Activities Strategy vs. Non-value-Added Activities Strategy In the product manufacturing process, throughput time is required, which is the total time needed to process raw materials into finished products.

A. The Latest Concept of Cost Management

Contemporary Cost Management Systems emphasize tracking over allocation. And activity-based management is at the heart of contemporary operations control systems. And activity-based management focuses on managing activities with the aim of increasing the value received by customers and the profit received by providing this value. This management includes driving analysis, activity analysis, and work evaluation. Even though there are costs that increase disproportionately with an increase in units, so if charged using only driver units it will result in overcosting or undercosting. This loading method is known as the traditional costing system. Traditional costing systems are commonly used because they are considered cheap and easy to apply.

Weaknesses that arise due to the use of the traditional costing system above, it seems that it can be overcome by using an activity based costing system (ABC). The ABC system not only uses output units as cost drivers but also uses non-unit drivers. The ABC system can also direct managers to focus on managing existing activities so that activities that do not generate added value can be minimized, because this system provides complete information about all activities that occur within the company in an integrated manner. Decisions taken by managers based on the information generated by ABC is known as activity-based management (ABM), which is described Hansen & Mowen (2005) as a broad system, with an integrated approach that directs management to focus on activities to increase customer value thereby increasing profit. ABM's goal is to increase the value received by customers so as to increase profits, by first identifying opportunities to make improvements in the company's strategy and operations. The purpose of ABM is achieved through 2

approaches, namely: (1) operational abm; and (2) strategic abm. Strategic ABM focuses more on doing the right thing. Profit per customer analysis is a strategic activity based management, which aims to find out which customers are profitable and which customers are detrimental, so that managers can make decisions whether to retain profitable customers, stop detrimental customers, or take action to streamline activities. operations so that costs can be reduced. As a tool to demonstrate how the ABC method can be used to calculate more precise costing per customer, the calculation below is presented. There are at least two main factors that must be considered in choosing a cost driver, namely: measurement costs and the degree of correlation between the cost driver and actual overhead consumption. In an Activity-based Costing (ABC) costing system, a large number of cost drivers can be selected and used. Whenever possible, it is important to select cost drivers using the information that is already available. Information that is not available in existing systems means that it must be generated, and consequently will increase the cost of enterprise information systems. A homogeneous cost pool can offer a number of cost drivers. For this situation, a cost driver that can be used on the existing information system should be selected. This selection will minimize measurement costs. The available information structures can be utilized in other ways to minimize the cost of collecting cost-driving consumption information. It is possible to replace a cost driver that directly measures the consumption of an activity with a cost driver that indirectly measures that consumption. For example, inspection hours can be replaced by the actual number of inspections per product, this figure can be known.

This replacement applies if the hours used in each inspection per product are sufficiently stable. Some of the cost drivers that are often used in Activity Based Costing (ABC) cost systems are: Labor Group, this group is used in activities where the main cost element is labor or in activities whose activity costs change in parallel with changes in labor . The cost drivers are: working hours, labor wages. Working hours can also spur utility consumption. Operating Time Group (Operating Time Group), is used as a cost driver in a processing operation group which is the operation of a single equipment or several equipment. The cost driver used is machine hours. Occupancy Group, is the right cost driver to distribute fixed costs based on the location of activity or assets

B. Activity – Based Costing System (ABC)

Along with the intense competition in today's industrial world, it has become a necessity for every company engaged in this field to always improve the efficiency and effectiveness of its processes in order to increase the company's competitiveness. On the other hand, fantastic developments in the field of technology and information have made every company try its best to apply technology to improve the quality of its processes. This has indirectly resulted in a paradigm shift in the cost aspects involved in the production process at the company. The mass use of technology in almost every production process has resulted in a significant reduction in direct labor. On the other hand, this has made the amount of overhead costs used increase by a considerable amount.

Activity Based Costing (ABC) is commonly used in companies that have overhead costs of more than 5 to 10 times their direct labor costs. ABC imposes overhead costs on each activity performed by resources and then assigns the costs of these activities to products, services, and consumers. Rayburn & Rayburn (1996) In relation to the production process, costs are categorized into two major groups, namely direct costs and overhead costs. Direct costs are costs incurred as a result of carrying out processes that are directly related to the product being made. Usually these costs are grouped into direct labor costs and raw material costs. Direct costs usually have the nature of variable costs, namely costs whose amount depends on the number of products made. Overhead costs are costs that are not directly involved in the production process, but are necessary for the smooth running of the production process. These costs are usually of a fixed cost nature.

Activity-Based Costing (ABC) has been developed in organizations as a solution to problems that cannot be solved properly by traditional costing systems (Oliviatie, 2013). This ABC costing system is something new so the concept is still and continues to grow, so there are various definitions that explain about the ABC costing system itself. Several cost management experts provide a definition of an Activity Based Costing cost system as follows: Morse et al. (1991) in their book *Management Accounting* (1991) provides a definition of Activity-Based Costing (ABC), as a system of allocating and reallocating costs to cost objects on the basis of the activities that cause the costs. This ABC system is based on the premise that activity causes costs and activity costs must be allocated to cost objects on the basis of activity costs consumed. This ABC system traces costs to products as the basis for the activities used to produce these products. Garrison (1991) in his book *Managerial Accounting* (1991) provides a definition of Activity-Based Costing (ABC), as a cost calculation method that creates a cost group for each event or transaction (activity) within an organization that acts as a cost driver. Overhead costs are then allocated to products and services on the basis of the number of product or service events or transactions produced. Hicks (1992) in his book *Activity-Based Costing for Small and Mid-sized Businesses An Implementation Guide* (1992) provides a definition of Activity-Based Costing (ABC), as a cost accounting concept based on the premise that products consume activities and cost-inducing activities. In this ABC costing system, it is designed in such a way that any costs that cannot be allocated directly to products are

charged to products based on activities and the costs of each activity are then charged to products based on the consumption of each activity.

In the Activity Based Costing (ABC) system, products are defined as goods or services that companies try to sell, including health services, insurance, bank loans, consulting services, gasoline, cinemas, bread, and others. All of the above products are produced through company activities and it is these activities that consume resources. The basics of this ABC cost system include indirect manufacturing costs, activities, cost objectives, and cost drivers and cost pools. Cost drivers are defined as factors used to measure how costs are incurred or can also be said to be a way to charge costs to activities or products. In practical terms, cost drivers indicate where costs should be charged and how much they should be charged.

Cost drivers are the causes of costs incurred, while activities are the impacts they cause. In an Activity-Based Costing (ABC) cost system, several types of cost drivers are used, whereas in traditional cost systems only one type of certain cost driver is used as a basis, for example labor hours, work/person hours, labor dollars, or machine hours. There are at least two main factors that must be considered in choosing a cost driver, namely: measurement costs and the degree of correlation between the cost driver and actual overhead consumption (Arts et al., 2023).

II. METHODS

Descriptive statistics are used to describe or summarize characteristics of a sample or data set, such as a variable's average, standard deviation, or frequency. Inferential statistics can help us understand the collective properties of the elements of a sample data. Knowing the sample mean, variance, and distribution of variables. This study used descriptive research methods to approach the scene, trying to explain that the purpose of accounting is to provide information about relevant economic events, which can be utilized in a variety of decision models. Descriptive statistics is the term given to data analysis that helps describe, show or summarize data in a meaningful way so that, for example, patterns may emerge from the data. However, descriptive statistics do not make it possible to make conclusions beyond the data that has already been analyzed or reach conclusions regarding any possible hypotheses that have been made. They are just a way to describe our data. Through this approach, the financial statements perceived as an indirect communication throughout the relevant accounting events for the company since its origins. Descriptive research method was able to answer the problems studied. From the description above can be described indicators to be studied are Cost Driver applicable based on the financial statements. In this study were used as the sample population is a company that is open and a listing on the stock exchange in carrying out its activities during the period of 2022. The subjects in this study are companies engaged in the manufacturing business that have gone public and are listed on the stock market. In the data collection through the transaction analyze documentation in financial report statement, the authors attempted to obtain data and information. Data is the document obtained financial statement for the period 2022. The financial statement data that has met the requirements set out in accounting principles, the financial statements have been audited by the competent parties and otherwise unqualified. For description data obtained in this study, which is derived from the financial statements, are analyzed with descriptive analysis techniques.

III. RESULTS AND DISCUSSION

One of the main objectives of a cost management system is product costing for external financial reporting. For product costing purposes, externally applicable agreements state that costs can be classified according to the specific purpose or functions, which they seek to accomplish. Costs are grouped into two main functional categories: production and non-production. Production costs are costs related to the manufacture of goods and the provision of services. Non-production costs are costs associated with the functions of design, development, marketing, distribution, customer service and general administration. Marketing, distribution, and customer service costs are usually placed in one category, namely selling costs. Design, development, and general administration costs are placed in the category of administrative costs.

Production costs (manufacturing costs) can be further classified as raw materials, direct labor, and overhead costs. Only these three cost elements can be assigned to products in external reporting. Production costs are often divided into two, namely the main costs and conversion costs. Prime cost is the sum of direct material and direct labor costs. Conversion costs are the sum of direct labor costs and overhead costs. In manufacturing companies, conversion costs can be interpreted as the cost of converting raw materials into final products. The concept of cost relates to input volume, fixed cost versus variable cost, average cost versus

marginal cost, volume profit analysis cost, break event analysis, flexible budget, and contribution margin. In a very different value chain framework, output volume is viewed as capturing a small amount of variation in cost behavior. Therefore, it is common to use multiple cost drivers, that is, different cost drivers for different activity values. Cost drivers are divided into two categories, namely structural cost drivers and executional cost drivers.

Structural cost drivers are determined from the company's choice of the underlying economic structure. The choice is derived from the cost position for the various product groups offered. There are five strategic choices that companies must make regarding the underlying economic structure, namely as follows: Scale: what is the size of the investment in manufacturing, research and development, and marketing resources?. Scope: what is the level of integration vertically (horizontal integration is more related to scale)?. Experience: how much time did the company need in the past and can it still be done in the same amount of time now? Technology: what technological processes are used in each stage of the company's value chain? Complexity: how wide is the product or service line that will be offered to consumers? Executional cost drivers are derived from the company's cost position which includes the following. Work force involvement (participation): is work emphasized for continuous improvement (kaizen in Japan)?. Total quality management (TQM): is work emphasized for total product quality?. Capacity utilization: what is the choice of scale to maximize plant construction?. Layout plant efficiency: how efficient is the current plant's layout compared to existing standards?. Product configuration: is the product design effective?. Linkages with suppliers or customers: what is the relationship with suppliers and describes that a company should be seen as a whole system consisting of various activities, namely planning/design, manufacture/production, marketing, distribution, and after-sales service to products or services produced. In the first stage, activities are identified, costs are assigned to activities, related activities are combined into one group, similar cost groups are formed, and group rates are calculated. In the second stage, each product's demand for group resources is measured and costs are assigned to products using this demand and representative group rates. However, to avoid confusion on the basic concept, we avoid going into any detail of the first few steps of the procedure. We now turn to a more detailed description of the first two steps: (1) identification of activities and (2) classification of activities into like groups. How costs are assigned to activities is discussed in a separate section.

The calculations in Activity Based Costing can be described as follows:

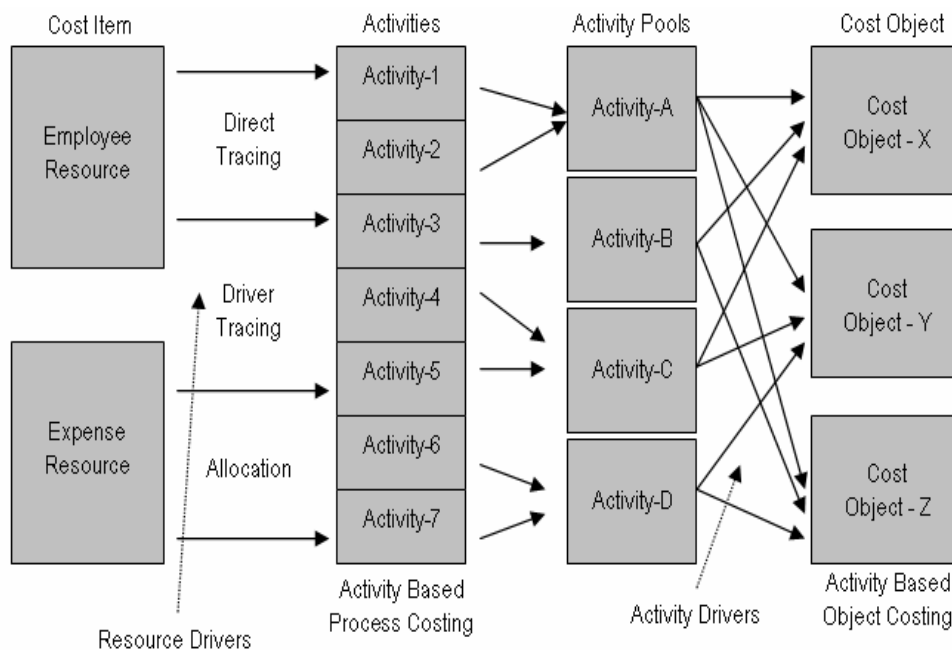


Figure 1. Framework for Calculation of Costs in an Activity Based Costing System

Activity Based Process Costing aims to present cost information for each process carried out by the company. To calculate the total process costs, the types of costs that are included in cost items are charged to activities based on the following sequence: Direct tracing, Driver Tracing, and Allocation. Costs that are directly consumed by activities (such as direct labor costs) are assigned to activities through direct tracing. For costs that are not directly related to activities, but have a causal relationship, they are charged to activities through Driver Tracing. Meanwhile, costs that have nothing to do with activities are assigned to activities through the accurate

allocation of object costs. But more than that, ABC is designed for the purpose of providing information to all parties involved in decision making (personnel) and empowering employees (informing and empowering) to build company competitiveness through a cost leadership strategy.

The cost system Activity-Based Costing (ABC) is a cost system that first traces the costs of activities and then to the products produced. In this ABC costing system, it is also known that there is a procedure for charging activity costs to products based on the activities consumed by the products produced. The stages that belong to the ABC system in its analysis can be divided into two stages, namely as follows: In this first stage, the costs of using resources are charged to the activities that use them. In the cost calculation based on the first stage of the Activity-Based Costing (ABC) system, overhead costs are divided into homogeneous cost groups. A homogeneous group of costs is a collection of overhead costs, namely cost variations can be explained by a cost driver (cost driver). Homogeneous overhead activities when they have the same consumption ratio for all products. In this second stage, the cost of each cost pool is traced to the product. This is done using the group rate calculated in the first stage and multiplied by the number of resources consumed by each product. This benchmark is the quantity of the cost driver used by each product. Thus the overhead assigned to each product cost group is calculated as follows: $\text{Applied overhead} = \text{Group rate} \times \text{Total consumption of the cost driver}$

Cost objects are all items such as products, customers, departments, projects, activities, etc., for which costs are measured and assigned. ABC is a system based on the following four management paradigms (Mulyadi, 1999): First, Customer Value focuses on ABC on creating Value for customers in a cost effective process. Cost effective is a condition where the costs incurred are as much as possible caused as a result of processes that contain added value. Second, the continuous improvement paradigm makes ABC an information system that spurs personnel to make continuous improvements to the processes carried out by the company in creating value for customers. Third, the cross functional paradigm makes ABC an information system that supports integration between functions in creating value for customers. This paradigm suggests that companies that are suitable for using ABC are companies that implement a cross-functional organization. The concept of the ABC System, that product costs are incurred by activities, both activities related to product volume and activities that are not related to product volume. BOP is a cost that will be attributed to products based on cost drivers, not based on product volume.

Activities are repetitive actions to fulfill a business function. Each activity can be determined as value added or non value added. Kaplan & Kaplan (1991), states that, the cost management system has two sides of performance measurement, namely financial and non-financial. Financial performance measurement is used for periodic performance measurement and for accurate product costing. Meanwhile, non-financial performance measurement can be used to continuously develop and improve the production process by reducing non-value added time. This continuous improvement refers to the philosophy of value-added manufacturing, which refers to the best and simplest manufacturing activities, so that the manufacturing system becomes more efficient.

In value added manufacturing, waste is broadly defined as any activity in processing that does not generate added value, such as inspection time, waiting time and moving time. Thus, if there is no waste then the value of each inspection time, waiting time and moving time is equal to zero. Non-value added can be caused by systemic, physical and human factors, for example machines have a system that requires that each production process must be in large batches, unskilled labor results in increased labor costs. Cost drivers or cost drivers are used to charge activity costs to outputs that are structurally different from those used in conventional costing systems. Or the causal factors that explain overhead consumption. The cost driver is the basis used to charge the costs accumulated in the cost pool to products. Identification of cost drivers is an important component in controlling non-value-added costs. If individual performance is affected by their ability to control non-value-added costs, then the selection of cost drivers and how these cost drivers are used can influence individual behavior. If the cost driver for the selected setup costs is setup time, then incentives should be created for workers so they can reduce setup time. So that by calculating costs through a Time Driven activity-based costing system, companies obtain more precise and accurate information.

IV. CONCLUSION

The accuracy of product cost information is largely determined by the accuracy and accuracy of identifying costs in relation to the products produced. Changes in organizational and management paradigms as a result of the information revolution which is characterized by competitive conditions both in the global and domestic markets have a strong influence on the need for changes in cost management systems that are able to adapt to increasingly sophisticated management activities to present accurate information. In conditions of a more complex business environment such as that is happening today, it is time for companies to start implementing the calculation of profit for each customer based on activity based costing, so that management

obtains more precise and accurate information on the costs charged to each customer, management can also increase the efficiency of the company's operations, and can avoid overcosted or undercosted costing and profit calculation. The application of an Activity Based Cost System will improve the accuracy of calculating the company's business process costs.

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