

Activity Based Costing: A Tool To Aid Decision Making In Pharmaceutical Firms

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Abstract

This study aims to determine the application of activity based costing in the decision making of pharmaceutical companies in Deli Serdang in determining which products will be a top priority for mass production. A descriptive approach is applied in this study through a collection of previous literature on activity based costing in making decisions in producing an item. This study will provide a theoretical description of a method to assist decision making in pharmaceutical companies using activity based costing. Therefore, the methodology used is interviews, surveys and pure literature and conclusions are drawn from theoretical analysis and discussion results. This research will add insight into management accounting, especially activity based costing. Based on the determination of production prices using activity based costing, it results that the manufacture of product B results in a unit price for each product produced which is more expensive than product A. This is the basis for PT. XXY to be able to determine which products are better produced. The cost per unit for product A is Rp.8,506 while for product B is Rp.10,535. Taking this into account, the production costs are 19 - 20% lower after calculations are carried out using the activity based costing method. Researchers try to convey matters relating to the production carried out to the company. So that the basis for making decisions in determining the production of one of the two products that the company chooses will make it easier for the parties involved who produce drugs.

Keywords: Activity Based Costing, Decision Making, Cost of Production, Pharmaceutical Companies.

INTRODUCTION

Companies that carry out production activities will have various activities in it, starting from the incoming raw materials, the raw materials are processed, to produce a product. The rapid development of technology and information also affects the production process. With the increasing use of machines for production that replaces the use of labor, the need for labor also decreases. The company is slowly experiencing changes, namely, there is a decrease in labor costs and an increase in factory overhead costs. The assignment of Raw Material Costs and Direct Labor Costs to the products produced can be done precisely and easily because these costs can be allocated directly to finished products, while the assignment of Factory Overhead Costs to the products produced needs to be done carefully because these costs cannot be identified directly on the product so that it requires a particular allocation method.

The traditional accounting system, which shows the imposition of production costs is carried out on the direct and indirect costs associated with the product. Traditionally, indirect costs are assigned on an overall or departmental basis. This will cause many problems because the resulting product cannot reflect the costs absorbed to produce the product. As a result, under-costing and over-costing products will emerge. This is what underlies the development of the Activity Based Costing (ABC) method. Therefore, estimating the cost at the design stage, i.e. product costing, is one of the vital enablers for accurate pricing in customer negotiations. Moreover, product costing can discover the linkages between design specifications and cost factors and then find the method to reduce costs at an early stage. New methods were introduced in the manufacturing industries in the late 1970s and early 1980s. Activity-based costing (ABC) is one of these new methods. Its primary advantage is that it allocates the overhead costs with a direct causal link with the real resources consumed (Rchid et al., 2013).

Effective decision-making about the areas of price and product mix in manufacturing requires accurate individual product cost measurement (Hanum, 2020). Unfortunately, the only commonly available data are those used for operational control. These data are derived from financial accounting entries and concepts and are very precise in that all measurements are objectively tied

to dollar expenditures. However, they can also be misleading because each product does not necessarily appear at its own true cost. This is because the resources expended may not be correctly allocated among the various products, even though the total of all costs for all products lumped together is correct. Activity-based costing (ABC) can be an extremely useful technique that allows managers to identify true cost relationships and make better decisions in the critical area of pricing and product mix.

PT.XXY, which is located in Deli Serdang, North Sumatra, wants to produce two types of drugs, namely anesthetic drugs for dental surgery and pain relievers. Researchers conducted in-depth interviews with the company and tried to assist in decision making for the company. In this case, PT. XXY wants to apply the activity based costing method in determining the cost of production, which as a result, the cost of production is determined to be the basis for making decisions for selecting the products to be produced. Starting from the description above, the authors are interested in conducting research on overhead costs at PT. XXY.

LITERATURE REVIEW

Decision Making

Habermas (Mykkänen and Tampere, 2014) found the fact that activities between individuals require a number of communications that must be fulfilled to coordinate effective actions aimed at satisfying needs. In organizations, the act of fulfilling these needs is an effective problem-solving process, in other words, decision-making. Simon (Mykkänen and Tampere, 2014) argues for the organization as a goal-oriented system so that decision making is mostly related to an effective pattern of activities directed towards certain goals. Decision making can be said to be successful if the individual does not only decide on a decision, but also involves his ability to make and get opportunities from the decisions he has made (Russo & Schoemaker, 2002, Silalahi, 2020). A decision making can be said to be successful if the individual does not only decide on a decision, but also involves his ability to make and get opportunities from the decisions he has taken (Russo & Schoemaker, 2002).

According to (McShane and Von Glinow, 2005), Decision making becomes a process of making several alternative choices that focus on the desire in an effort to achieve goals. Decision making process includes:

1. Identify problems and opportunities
2. Determine the best decision process
3. Develop alternative solutions
4. Determine the best alternative
5. Implement the selected alternative
6. Evaluate decisions.

The importance of Decision Making in an organization is a logical consequence of the complexity of problems in institutions that can be sure to appear all the time, especially in the midst of an ever-moving dynamic era. It is this fact that requires managers or institutional leaders to have sensibility and responsiveness in making decisions. Accuracy in making decisions will determine the extent to which the institution can overcome its problems, both caused by internal and external conditions. This task is actually not only the responsibility of a manager or leader, but also the staff and members involved in accordance with the division of their respective tasks.

Cost of Production

The Cost of Production (goods production costs) is the cost of goods purchased to be processed to completion, both before and during the current accounting period (Charles T. Horngren, Srikant M. Datar, & George Foster, 2016). In addition, Cost of Production in the form of production costs related to goods completed in one period". Based on some of the opinions of these scholars it can be interpreted that the Cost of Production is all production costs used to process raw materials to become finished goods within a certain period. The valuation of the Cost of Production is used to calculate the company's profit or loss which will be reported to external parties of the company.

The cost of Goods Manufactured has a role in making company decisions for several things such as accepting or rejecting orders, making or buying raw materials, and others. Information regarding the Cost of Goods Manufactured becomes the basis for management in making decisions on the selling price of the product in question (Shephard, 2015). Therefore, the costs incurred by the company to produce a finished product can be calculated to determine the right selling price. Determination of the Cost of Production is used to calculate the company's profit and loss which will be reported to external parties of the company. Information regarding the Cost of Goods Manufactured becomes the basis for management in making decisions on the selling price of the product in question.

Each company has a different method of calculating the Cost of Production. The method of collecting the cost of goods can be grouped into two methods, namely the cost of orders and the cost of processes (Muda et al., 2021). In the job-order costing

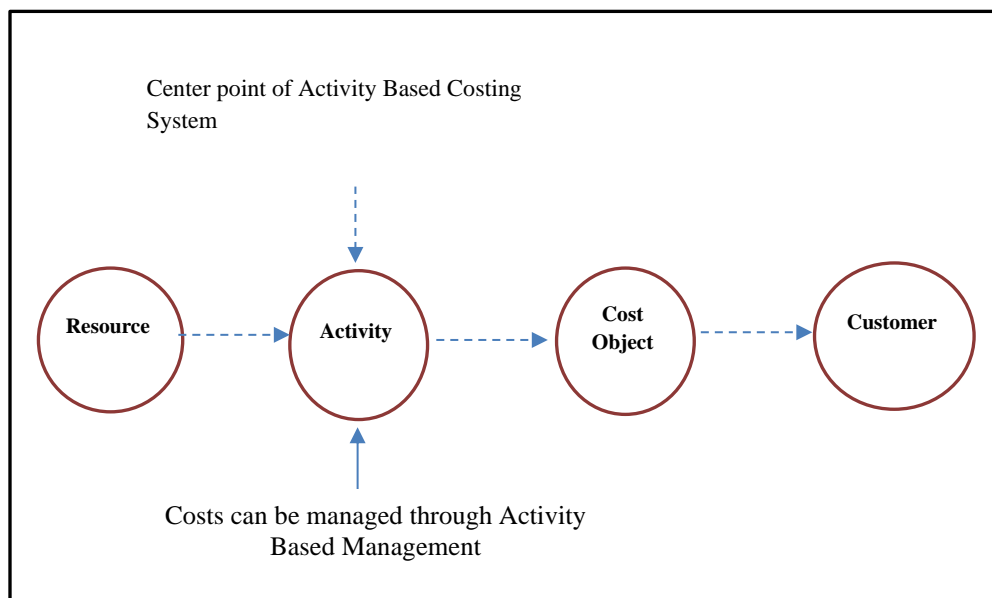
method, production costs are accumulated for each separate order. To effectively calculate job-order costs, orders must be separately identifiable. To calculate the cost based on the order by the work done, there must be a difference in the cost per unit of order with another order. The cost-to-order method is used in situations where companies have many different products, jobs, and production batches (Vincent, 2018).

Under the job-order costing method, production costs are collected for each separate job. Meanwhile, process cost is a method of collecting the Cost of Production where costs are collected for each specific unit of time. In this method, the company produces a homogeneous product and the type of product is standard (Brown, 1979). The production budget for a certain time unit is the basis for the company's production activities. The process cost method is generally used by companies whose production is continuous or the product produced is a mass product. A continuous production process is a production process that has a definite pattern. The sequence of the production process is relatively the same and takes place continuously by the established production plan

Activity-based Costing

The system allocates the overhead cost to multiple activity cost pools and assigns the activity cost pools to products or services using cost drivers that represent the activities used (Swan, 2002). Liggett, Trevino, and Lavelle (1992) argued that certain activities are carried out in the manufacture of products. Those activities consume a firm's resources, thereby creating costs. The products, in turn, consume activities. By determining the amount of resource (and the resulting cost) consumed by activity and the amount of activity consumed in manufacturing a product, it is possible to directly trace manufacturing costs to products.

As managers become focused on activities, and as the cost system reflects their relative values, the activities that add no value, or have excessive costs, will be reduced or eliminated. Setup times and expenses may be reduced, the number of vendor negotiations may be reduced, and excessive batch sizes may be discouraged. Activity-based costing allows costs to be managed in compliance with the objectives of advanced manufacturing or manufacturing excellence (Swan, 2002 and Lubis et al., 2018). One of the biggest benefits of ABC is overhead reduction because only traceable costs are controllable. Activity-based costing makes overhead costs traceable. Managers can track how much overhead costs, who is using it, and how to measure its productivity, but, most importantly, ABC tells executives what causes overhead. The quickest way to reduce costs is to streamline operations. Activity-based costing suggests which high-cost operation to streamline (Van Damme & Van Der Zon, 1999).



Picture 1. The basic belief of an activity based costing system: The reason for the existence of costs
Source: Mulyadi, 2017

The causes for which costs are incurred (ie activities) can be managed. Through managing the activities that cause costs, company personnel can influence costs. Management of activities requires various information about activities. In the Activity-Based Costing System, products are defined as goods or services sold by the company. The products sold by the company include health services, insurance, consulting services, books, clothes and so on. All of these products are produced through company activities. These activities consume resources. Costs that are not charged directly to products will be charged to activities that cause these costs to arise. The cost for each of these activities is then assigned to the product concerned (Van Damme & Van

Der Zon, 1999).

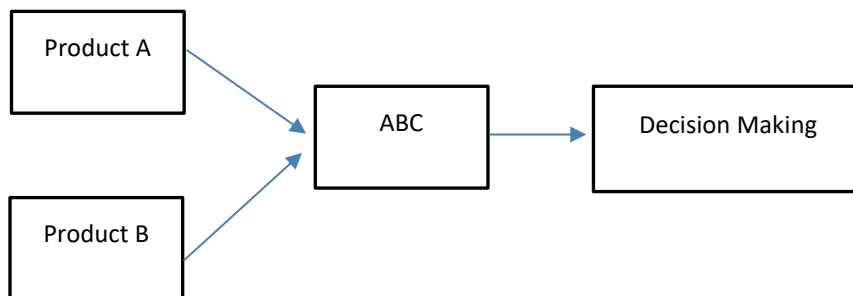
Activity based costing and Decision Making

The system which allocates the overhead cost to multiple activity cost pools and assigns the activity cost pools to products or services by means of cost drivers that represent the activities used (swan, 2002). Ogoun (2013) stated that, ABC will lead to more than effective and efficient tactical decisions. Chea (2011) argued that, using ABC Improve managerial decision making, as well as ABC can be used as a tool for determining costs and help firms make better decisions based on more accurate costing information. While Radi and Ismail (2011) stated that ABC system is more accurate and fair in allocating costs which enhance management decision, Aho (2006) argued that activity based costing can be used as a base for process improvement decisions. Furthermore, ABC method has contributed effectively to the top management's decision making process. In the past, business environment is not as complex as today. For example, organization was producing simple product which means they can know which product or service is more profitable. However with the revolution of technology and the complexity of business environment, it is becoming difficult to know the accurate cost of product/service due to the increase of the percentage of overheads compared to material and labour costs. Decision makers cannot make accurate decision based on inaccurate information. Due to the deficiencies in traditional costing system, in 1980 Cooper Robin invented a new system called activity based costing and some manufacture adopted this system to provide them accurate information about the cost of product/service and to make accurate decision (Santoso, 2020). The effects of decision can be evaluated in many ways such as effectiveness improvement, efficiency improvement, productivity improvement, and process improvement (Van Damme & Van Der Zon, 1999).

Gorbunova and Moisello (2008) stated that the theory of ABC regarding the allocation of costs starts from the assumption that the production and transfer of output to the market requires activities related with that transactions within organizations, which in turn leads to the incurring of costs. Cho and Boulianne (2005); Jinks (2012) stated that the theory behind activity-based costing is that all activities to support the production and delivery of a company's goods must be taken into account in the product costing process.

METHODS

A descriptive approach is applied in this study through a collection of previous literature on activity based costing in making decisions in producing an item. This study will provide a theoretical description of a method to assist decision making in pharmaceutical companies using activity based costing. This study aims to examine various methods of determining the cost of production using the concept of activity based costing. These concepts are combined to draw conclusions as a material consideration in controlling managerial accounting problems in the pharmaceutical industry. Therefore, the methodology used is interviews, surveys and pure literature and conclusions are drawn from theoretical analysis and discussion results. This research will add insight into management accounting, especially activity based costing.



Picture 2. Research Framework

RESULT AND DISCUSSION

Researchers conducted interviews with pharmaceutical companies that are currently conducting consideration of the two drug products that are being worked on. Based on the information obtained, the first product is an anesthetic drug that is used to facilitate dentists in performing partial surgery. While the second product is a product used for the production of pain relievers (Mefenamic acid). Researchers detail production costs in the following table.

Table 1. Overhead Cost Using the ABC Method and Product Per-Unit Cost

Product A (10.000 tablet)				
Activity	Fee	Consumption	Overhead Cost	Overhead Cost/Unit
Homogeneity	1,800	5700	10,260,000	1,026
Compound engineering	1,600	4300	6880,000	688
Setup	310	700	217,000	21.7
Moulding	440	550	242,000	24.2
Packaging	200	340	68,000	6.8
Total	4,350	11.590	17,667,000	Rp.1,766.1
Product B (10.000 tablet)				
Activity	Fee	Consumption	Overhead Cost	Overhead Cost/Unit
Homogeneity	1800	5700	10,260,000	1,026
Compound engineering	1600	4300	6880,000	688
Setup	310	700	217,000	21.7
Moulding	440	550	242,000	24.2
Ekstraktion	530	550	291,500/100/	29,15
Packaging	200	340	68,000	6.8
Total				1.795,85
Product Per-Unit Cost				
	Product A		Product B	
Fixed Cost	67.400.000		87.400.000	
Overhead Cost	17,667,000		17.958.500	
Production Unit	10.000		20.000	
Cost/Unit	8.506,7		10.535,85	

Based on the determination of production prices using activity based costing, it results that the manufacture of product B results in a unit price for each product produced that is more expensive than product A. This is the basis for PT. XXY to be able to determine which products are better produced. The cost per unit for product A is Rp.8,506 while product B is Rp.10,535.

A costing system in which more than one pool of factory overhead costs is allocated using a basis that includes one or more non-volume-related factors. So, by determining the Activity Based Costing method, the determination of the cost of goods sold will be more accurate because it is Activity Based. So, by establishing the Activity Based Costing method for determining the cost of goods sold, it will be more accurate because Activity Based Costing focuses on the costs attached to products based on the activities carried out to produce, operate, and distribute or support the product in question.

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Taking this into account, the production costs are 19 - 20% lower after calculations are carried out using the activity based costing method. Researchers try to convey matters relating to the production carried out to the company. So that the basis for making decisions in determining the production of one of the two products that the company chooses will make it easier for the parties involved who produce drugs. However, the discussion in this study needs to consider the factors that influence decision making, namely:

1. The stability of the bid price
2. stability of raw material prices, direct labor and overhead rates
3. The increase in demand that exceeds production capacity requires to buy from outside
4. Changes in productivity levels
5. Changes in production systems and efficiency levels
6. Additional resources
7. Changes in the number of requests.

If the four things above have changed and the production system and the addition of resources, research is carried out from the beginning and is continuously updated for decision making. Changes in the formula for overhead costs are generally due to production capacity which automatically adds to the activities and assets of business entities. With changes in production capacity, in making a decision between buying or making product A yourself, pay attention to changes in the cost formula that

are relevant and sensitive to changes in decision-making regarding existing costs.

CONCLUSION

Accurate, logical and relevant information must promise overall utility. With activity based costing pricing can be done logically due to logical cost drivers. Activity-based costing makes it easier for stakeholders to make decisions to consider decisions that will be taken either to choose the production of a product from the existing choices. Taking this into account, the production costs are 19 - 20% lower after calculations are carried out using the activity based costing method. Researchers try to convey matters relating to the production carried out to the company. So that the basis for making decisions in determining the production of one of the two products that the company chooses will make it easier for the parties involved who produce drugs. The unavailability of accurate information will have an impact on the wrong performance assessment to product pricing. So that further research is able to use the logical level and determination of definite activities to determine effective overhead costs.

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