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Implementation of Activity Based Costing (ABC) for Rub Oil Products at UD. Making Oil Rub Hero Samarinda

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Abstract

The emergence of the concept of ABC (Activity Based Costing) because the ABT (Traditional Cost Activity) system does not connect supporting activities with the products produced. The purpose of this study is to find out the application of Activity Based Costing (ABC) to UD. Hero Rub Oil. Data collection methods use observations, interviews, and documentation. Data analysis techniques use the Activity Based Costing (ABC) method on UD. Hero Rub Oil. The results of calculations using the Activity Based Costing (ABC) method obtained for the processing and packing of oil for 1 ml are Rp 2,891.43 / bottle on UD. Hero Rub Oil.

Keywords
activity based costing; rubbing oil; production

I. Introduction

The economic condition of the population is a condition that describes human life that has economic score (Shah et al, 2020). Economic growth is still an important goal in a country's economy, especially for developing countries like Indonesia (Magdalena and Suhatman, 2020). Today the economy is growing quite rapidly, both in the field of industry and in the field of trade. This is happening in East Kalimantan Province in general and Samarinda Municipality in particular, there have been many large, medium, and small companies, one of which is The Hero Rub Oil.

Calculation of the Cost of Production in UD. Rub oil has been using a conventional system that causes inaccuracies in the calculation of the Cost of Production which ultimately has a detrimental impact on the company, because the Cost of Production serves as a basis for setting selling prices and profits, as a tool to measure the efficiency of the implementation of the production process and as a basis for decision making for the company's management.

Based on this comes a new method in the calculation of The Cost of Production known as Activity-*Based Costing (ABC)* System. *Activity-Based Costing System* is a method of cost accounting where the loading of the cost of goods is the sum of all the costs of activities that produce (products) goods or services. The basis of the allocation used is the amount of activity in each Cost *Pool.* This method uses more types of cost triggers so that it can measure the resources used by the product more accurately (Rahmaji, 2013).

One study of 162 U.S. companies (including 29 companies in the service sector) reported the ANC *System's* key implementation ratings as follows: (1) calculation of product or service costs, (2) cost reduction, and (3) process improvement. Fields that are considered to produce significant or very significant changes in the presence of ABC System information are sorted as follows: (1) pricing strategies, (2) processes, and (3) product mixes (Sugianto, 2013).

Previous research on the application of *Activity Based Costing* (ABC) method by Sadewo (2013) entitled "Application of Activity Based *Costing System* to Determine the Cost of Production (Case Study on Automotive Autobody Companies and Automotive Components at CV Pomegranate Mandiri)". In this study concluded dump truck products

with traditional systems get results of 81,490,851.75 and with activity-*based costing* system get results of 102,770,607 so that undercast results of 21,279,755.25 while in Delmas truck products with traditional systems get results of 52,890,269.75 and with activity-based *costing* system get results of 49,896,486 so that overcast results are obtained. 2,993,783.75.

The same research has also been conducted by Saputri (2013) and Wijayanti (2011) who concluded that using *the activity-based costing* method obtained *over cost* and under cost results on every product in the company, this is due to the difference in cost *drivers* used between traditional systems and activity-based *costing methods*. Based on the background above, the formulation of the problem in this study is how to calculate the cost of production by using *activity-based costing* on UD. Hero Rub Oil.

II. Research Method

2.1 Data Collection Methods

For the collection of data as supporting material in the writing of this report, the following authors present the method of data collection:

a. Interview is a technique of collecting data by way of in-person interviews with related parties.
b. Observation or Field Studies is a technique of collecting data by making direct visits to the field.
c. Documentation is a technique of collecting data by recording documents in UD. Hero Rub Oil.
d. Literature studies is a technique of collecting data by finding sources of information from relevant books or literature.

2.2 Analysis Tools

Analytical tools used for cost determination by using the Activity Based Costing (ABC) method (Wijayanti, 2011). The use of the ABC method for the cost of raw materials with labor costs is by direct loading to the resulting unit and for factory overhead (BOP) using the activity.

$$\text{Raw Materials/bottle tariffs} = \frac{\text{Estimated Raw Materials}}{\text{Production Capacity}}$$

$$\text{Wage/hourly rates} = \frac{\text{Estimated Labor Costs}}{\text{Number of Working Hours}}$$

$$\text{BOP/bottle rate} = \frac{\text{BOP estimates}}{\text{Production Capacity}}$$

If the driver costs unit-level activities using machine clocks (JM), batch level using the number of batches, product level using lane-level production, facility level using facility floor area (LL).

III. Results and Discussion

After the classification of costs and determination of the cost drivers, the process of calculating costs using Activity Based Costing (ABC) in each production process is obtained as follows:

3.1 Oil Processing Process

Table 1. Cost of Raw Materials

No.	Material	Cost
1	Crude oil	Rp 6.750.000
2	Choice Nutmeg	Rp 1.200.000
3	Clove	Rp 600.000
4	Ginger	Rp 580.000
5	Laos	Rp 120.000
6	Eucalyptus Oil	Rp 4.950.000
7	Lemongrass Oil	Rp 4.800.000
8	Camphor	Rp 1.200.000
9	Gondo Puro	Rp 1.120.000
10	Menthol	Rp 1.200.000
11	Clove Oil	Rp 3.375.000
	Amount of raw material costs	**Rp 25.895.000**

3.2 Loading the Amount of Product Results

Production in this process is 1,440,000 ml.

$$\text{For a 60 ml bottle is} = \frac{1.440.000}{60}$$

So, the production for a 60 ml bottle is = 24,000 ml

$$\text{Cost of raw materials each bottle} = \frac{\text{Amount of material supply cost}}{\text{Amount of each bottle 60 ml}}$$

$$= \frac{\text{Rp. 25.895.000}}{\text{24.000 ml}}$$

$$= \text{Rp 1.078,95 / bottle}$$

So, the cost of raw materials bottle is Rp 1,078.95 / bottle

3.3 Labor Costs

a. Pounding Wage Rates

Workers' wages = Rp 1.750.000

$$\text{Number of hours worked} = \text{8 hours X 7 days X 15 people}$$

$$= \text{840 hours}$$

$$\text{Hourly pounding wage rates} = \frac{\text{Amount of wages is pounding}}{\text{Number of hours worked}}$$

$$= \frac{\text{Rp 1.750.000}}{\text{840 hours}}$$

$$= \text{Rp 2.083,33 /hour}$$

So, the hour-long pounding wage rate on the oil processing process is = Rp 2,083.33

b. Cooking Wage Rates

Workers' wages = Rp 2.250.000

Number of hours worked = 8 hours X 7 days X 15 people
= 720 hours

$$\text{Hourly pounding wage rates} = \frac{\text{Amount of cooking wages}}{\text{Number of hours worked}}$$

$$= \frac{\text{Rp } 2.250.000}{720 \text{ hours}}$$

= Rp 3.125 / hour

So, the wage of cooking one hour in the process of oil processing is = Rp 3,125/hour

c. Prescription Processing Wage Rates

Workers' wages = Rp 896.000

Number of hours worked = 8 hours X 7 days X 15 days

= 840 hours

$$\text{Hourly pounding wage rates} = \frac{\text{Amount of prescription processor wages}}{\text{Number of hours worked}}$$

$$= \frac{\text{Rp } 2.250.000}{840 \text{ hours}}$$

= Rp 1.066,66 / hour

So, the hourly wage dance in the oil processing process is as large as = Rp 1.066,66 / hour

d. Cardboard Scissor Wage Rate

Workers' wages = Rp 750.000

Number of hours worked = 8 hours X 10 days X 15 days

= 1200 hours

$$\text{Cardboard Scissor wage rates} = \frac{\text{Amount of cardboard scissors wages}}{\text{Number of hours worked}}$$

$$= \frac{\text{Rp } 750.000}{1.200 \text{ hours}}$$

= Rp 625 / hour

So, the wage rate of one hour cardboard scissors in the oil processing process is equal to Rp 625 / hour

3.4 Factory Overhead Costs

a. Cost of Key Materials

For the main ingredients of the 60 ml bottle = Rp 3.540.000
Amount of production each bottle 60 ml = 24.000 ml

$$\text{Cardboard Scissor wage rates} = \frac{\text{Cost of main materials}}{\text{Amount of one bottle 60 ml}}$$
$$= \frac{\text{Rp 3.540.000}}{\text{24.000 ml}}$$
$$= \text{Rp 147,5/ bottle}$$

So, the cost of the main ingredient of one bottle is Rp 147.5 / bottle

b. Cost of Wages

Purchase transport costs = Rp 1.650.000
Amount of production each bottle 60 ml = 24.000 ml

$$\text{The cost of buying one bottle} = \frac{\text{Purchase transport costs}}{\text{Amount of one bottle 60 ml}}$$
$$= \frac{\text{Purchase transport costs}}{\text{24.000 ml}}$$
$$= \text{Rp 68,75 / bottle}$$

So, the cost of transporting the purchase of one bottle is Rp 68.75 / bottle

c. Cost of Electricity

1. Electricity Costs

Electricity costs for April = Rp 300.000
Number of kwh = (504) kwh

$$\text{Electricity cost} = \frac{\text{Electricity costs}}{\text{Number of kwh}}$$
$$= \frac{\text{Rp 300.000}}{\text{504 kwh}}$$
$$= \text{Rp 595,2}$$

Amount of kwh charged:
For production
175 kwh X Rp 595,24 = Rp 104.167

For the office
200 kwh X Rp 595,24 = Rp 119.048

For the Warehouse
129 kwh X Rp 595,24 = Rp 76.785

2. Phone Cost

Phone charges for April = Rp 200.000

Amount of production each bottle 60 ml = 24.000 ml

$$\text{Bottle unit phone fee} = \frac{\text{Phone cost}}{\text{Number of bottles 60 ml}}$$

$$= \frac{\text{Rp 200.000}}{\text{24.000 ml}}$$

$$= \text{Rp 8,33 / bottle}$$

So, the cost of a bottle unit phone is Rp 8.33 / bottle

3.5 Working Consumption Rates

Cost of April work consumption by = Rp 1.027.500

Amount of production each bottle 60 ml = 24.000 ml

Number of hours worked = 8 hours X 20 days X 15 people
= 2,400 hours

$$\text{Hourly working consumption rate} = \frac{\text{Cost of consumption}}{\text{Number of hours worked}}$$

$$= \frac{\text{Rp 1.027.500}}{\text{24.000 ml}}$$

$$= \text{Rp 428.12 / bottle}$$

$$\text{Amount of each bottle produced every hour} = \frac{\text{24.000 ml}}{\text{2,400 hours}}$$

$$= \text{10 bottles/hour}$$

$$\text{Amount of Rp / bottle} = \frac{\text{Hourly consumption rate}}{\text{Amount of production every hour}}$$

$$= \frac{\text{Rp 428,12}}{\text{10 bottles}}$$

$$= \text{Rp 42.81 / bottle}$$

So, the consumption rate of each bottle is = Rp 42.81 / bottle

3.6 Miscellaneous Costs

Miscellaneous costs in April amounted to = Rp 420.000

The amount of production per bottle is 60 ml = 24.000 ml

$$\text{Miscellaneous cost of each ml} = \frac{\text{Amount of miscellaneous expenses}}{\text{The amount of each bottle is 60 ml}}$$

$$= \frac{\text{Rp 420.000}}{\text{24.000 ml}}$$

$$= \text{Rp 17.5 / bottle}$$

So, the miscellaneous cost of each bottle is Rp 17.5 / bottle

3.7 Oil Packing Process

Packaging costs

Bottle	Rp 3.250.000
Stickers	Rp 1.000.000
Amount of packaging costs	Rp 4.250.000

Loading the amount of product results

Amount of packaging costs	= Rp 4.250.000
The amount of production per bottle is 60 ml	= 24.000 ml

$$\text{Amount of production per bottle} = \frac{\text{Amount of raw materials}}{\text{The amount of each bottle is 60 ml}}$$

$$= \frac{\text{Rp } 4.250.000}{24.000 \text{ ml}}$$

$$= \text{Rp } 177.08 \text{ / bottle}$$

So, the cost of packaging each bottle is Rp 177.08/bottle

3.8 Labor costs

a. Packing worker's Wage Rates

Wages of workers Bottle 60 ml	= Rp 840,000
Number of working hours	= 8 hours X 6 days X 15 people
	= 720 hours

$$\text{Hourly Packing Wage Rate} = \frac{\text{Amount of workers' wages}}{\text{Number of hours worked}}$$

$$= \frac{\text{Rp } 840.000}{720 \text{ hours}}$$

$$= \text{Rp } 1.166.6/\text{hour}$$

So, the worker's wage rate in the packing process is Rp 1,166.6 / hour

b. Factory Overhead Costs

Employment consumption rates:

Amount of production per bottle 60 ml	= 24.000 ml
Cost of April work consumption	= Rp 1.027.000
Number of hours worked	= 8 hours X 10 days X 15 people
	= 1,200 hours

$$\text{Hourly working consumption rates} = \frac{\text{Cost of consumption}}{\text{Number of hours worked}}$$

$$= \frac{\text{Rp } 1.027.500}{1.200 \text{ jam}}$$

$$= \text{Rp } 856,25/\text{ml}$$

So, the consumption rate of each bottle is = Rp 42.81/bottle

Table 2. Recapitulation of Oil Processing and Packing Costs

Cost Element	Loading Policy	Rates/activities (Rp)	Amount of cost (Rp)	Cost Each Bottle (Rp)
Cost of raw materials Electricity costs (Warehouse)	-129 kwh	-595,24	-76.785,96	1.078,95 3,19
Labor costs	4.320 Jam	8.066,59	34.847.668,80	1.451,98
Factory overhead costs				
1. Freight costs	-	-	-	68,78
2. Phone cost	-	-	-	8,33
3. Cost of consumption	-	-	-	85,62
4. Miscellaneous costs	-	-	-	17,50
5. Packaging costs	-	-	-	177,08
Amount of cost on oil processing and packing				2.891,43

From both counts in each production process above can be collected the cost of each production process so that it can be known the total cost amount for 1 ml of production. The process of processing and packing oil is Rp 2,891.43/bottle, so the cost to produce oil in one bottle on UD. Hero Rub Oil is Rp 2,891.43/bottle.

Based on every problem that the author mentioned above, then about this discussion the author will provide a description of the discussion about each cost calculation using the Activity Based Costing (ABC) method. Here's a description of each calculation for each process:

Oil processing and packing

In the process of processing and packing this oil is known the production costs incurred each bottle is:

Cost of materials	= Rp	1.082,14
Labor costs	= Rp	1.451,98
Factory overhead costs	= Rp	357,31+
Sum	Rp	2.891,43

It turns out that any cost count using the Activity Based Costing (ABC) method can be applied to the production of rubbing oil on UD. Hero Rub Oil, with the cost of each bottle from the processing and packing of oil is Rp 2,891.43/bottle. Marketing for Tarakan UD region. Hero Rub oil is sold at a price of Rp 5,000. Marketing for Tawau UD region. Hero Rub Oil is sold at a price of Rp 7,500. -

IV. Conclusion

Based on each cost calculation using the Activity Based Costing (ABC) method in the discussion chapter, the author draws conclusions from the results of the discussion, and provides suggestions related to the discussion. The conclusions that the author can give are as follows:

1. Based on the method of calculating the cost of Activity Based Costing *(ABC)*, it can be known that the cost of each bottle of each process is Rp 2,891.43/bottle
2. Based on each calculation using the Activity Based Costing *(ABC)* method can be applied by charging drivers of activities that affect the ups and downs of costs incurred.

3. Based on each calculation using the Activity Based Costing *(ABC)* method can be done by charging fees on sources of fees that are objects of activity-based costs.

Suggestion

During the author's research on UD. The oil rubs the hero then the author gives suggestions that hopefully there are benefits for Samarinda state polytechnic and UD. Hero rub oil. The suggestions that the author can give in this section are as follows:

1. For each activity carried out, a more detailed recording should be done, regarding the number of bottles that are objects in each activity carried out.
2. The existence of relevant recording data about the oil ml in production which includes the time of the material entering the process and exiting the process.
3. Every planed supervision that every need is improved in the management so that there are no deviations.

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