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Does Activity Based Budgeting Matters?

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ABSTRACT

This study aimed to assist AF company in reducing production costs from a financial perspective by employing Activity Based Budgeting (ABB), and to measure its performance by using non-financial perspectives namely operational efficiency, quality and time. The ABB is a tool for determining costs related to activities more accurately, as well as making the planning process more precise and corrections more effective so as to increase the company's competitive advantage. This research is a case study that AF company in Malang as the object. Data was collected by doing observation about the operational and manufacturing process, and analysing financial report year 2022. The results suggested that the company can reduce the selling price due to its lower production costs, thereby making its products more competitive in the market. This should resolve the company's main problem of declining sales. ABB can also improve teamwork among employees, budget design and the elimination of non-value-added activities. One potential benefit of an activity-based budget is that it can provide company with more accurate information regarding costs and resources needed in the work process. This result can be employed as a guideline for carrying out company activities.

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1. INTRODUCTION

The Covid-19 outbreak has been declared a pandemic by WHO since March 2020 because it has hit the whole world including Indonesia. The effects of the outbreak are not only in the health sector, but also in the economic sectors, especially on company performance. Economic disruption that demands more attention is a significant decrease in purchasing power therefore companies, both micro and large scale, have gone out of business as a result of the Covid pandemic [1]. This is certainly a common concern and thought, so that companies that currently still exist will survive and be able to develop their business in the future.

It is evident that micro, small and medium-sized enterprises (MSMEs) that have survived to the present day have had to adopt innovative strategies to ensure their continued existence. Consequently, businesses must consider alternative methods of enhancing efficiency while maintaining the quality of their products at competitive prices. According to Elmacı & Tutkavul [2], one way to maintain the company is to make a budgeting in order to carry out activity management more efficient. The Activity-Based Budgeting (ABB) method is a

budgeting system that focuses on activity management in order to reduce costs hence the selling price becomes cheap and increase profits.

From previous research with the title The Integration of Lean Accounting and Activities-Based Public Budgeting for Improving the Firm's Performance [3], supports that ABB can be an effective strategy to improve performance because it allows companies to better understand and manage activity processes and cost efficiency. Also explained in the research Proposed Application of Activity Based Budgeting (ABB) Method in Natural Gas Usage Cost Management on Frits Production (Case Study PT XYZ) [4] that ABB can help PT XYZ identify and reduce resource usage costs. Research Application of ABB in environmental management accounting: Incorporating MFCA into the budget process [5], states that the MFCA (Material Flow Cost Accounting) -ABB model can help companies improve the efficiency of resource use and even reduce environmental impacts. Then the research Analysis Implementation of Activity-Based Budget for Planning and Control of Direct Labour Costs on the Inpatient Department [6] found that ABB can also help to identify and reduce labour costs.

This means that the ABB method can be a better planning and control tool for companies when compared to not implementing ABB. In addition, ABB can also be used to reduce costs through the elimination of non-value-added activities thereby increasing the company's profitability and competitiveness [5]. However, previous studies emphasise more on reducing costs or only looking at financial performance. Some argue that ABB does not combine financial measures with non-financial measures. In fact, it is possible that the source of conflict in the company is because it does not pay attention to non-financial issues and considers financial factors more important [7]. Non-financial indicators have proven to be very important in measuring the performance of small and medium enterprises [8]. Based on this, the author wants to link ABB benefits with the company's non-financial performance, as well as a novelty in this research.

Usaha Dagang (UD) AF is one of the many MSMEs affected by the Covid 19 pandemic. In 2020, UD. FA's sales decreased dramatically, then there was a slight increase until 2022 (Figure 1). In order for UD. FA is able to maintain its business, it needs to make its financial management strategy more efficient so that the selling price of its products is cheaper and will ultimately increase the number of sales.

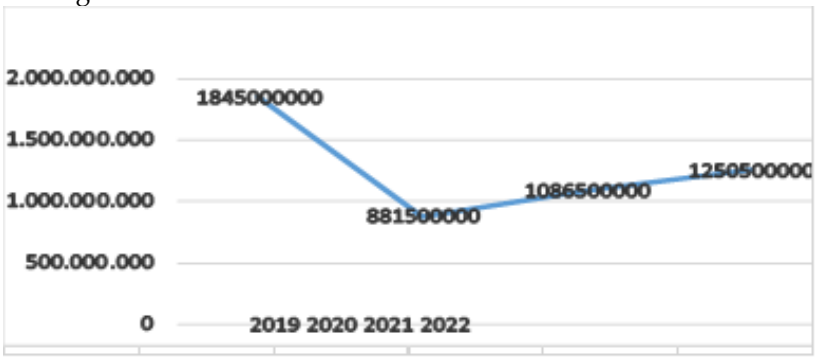

Figure 1. Sales chart 2019-2022

Currently UD. AF has not recognised the calculation of activity costs using ABB. For this reason, the purpose of this study is to calculate its activities using ABB, so that the company can calculate the actual costs so that it can determine the right selling price. It will also help in measuring non-financial performance.

2. METHODS

This research is a case study at UD. AF which is located at Jalan Raya Bokor

Malang. Data was collected through observation, interviews and documentation of financial statements in 2022. The data needed are 1) production costs, which consist of: material costs, labour wages, electricity costs, maintenance, spare parts, water, machine depreciation, building rent and packaging. 2) production activities, which start from the purchase of raw materials to the storage of finished goods and then classified into four types of activities, namely batch-level activities, units, facilities and product support. 3) cost triggers, which are costs used by cost objects (in this case activities) to charge costs to these objects [9]. And 4) products, namely aluminium long and short chairs and aluminium tables. Costs in production activities and product types; amount of production, purchase and use of raw materials and auxiliary materials, packaging of finished products, labour for the implementation of production process activities, production machinery, building area and financial system production costs.

Financial performance measurement is calculated from the nominal and percentage of production costs that can be saved with ABB using value-added and non-value-added activity cost reports created based on ideal value-added standards to directly address activities and activity costs that cause waste. Non-financial measures use operational efficiency, quality and time. In general, efficiency is calculated by dividing outputs by inputs multiplied by 100% [10]. So that operational efficiency is measured by comparing the number of outputs (products) with the number of materials, quality is measured by comparing the number of damaged products compared to the number of outputs, and time is measured by comparing the unit of time required to produce a product with working time.

3. RESULTS AND DISCUSSION

UD AF is an aluminium furniture factory located in Tumpang, Malang, Indonesia which started operating in 2014. This company produces aluminium furnitures for household needs. UD AF has 21 units of machinery, and 25 employees who are grouped into 3 production sections, namely 1) The processing department is in charge of purchasing raw materials and auxiliary materials from suppliers; receiving them from suppliers, weighing raw materials and auxiliary materials and then heating (melting) raw materials at a temperature of 800 ° C until melted. 2) The Printing Department is in charge of moulding the melted raw materials, cooling the moulds, smoothing and painting them into finished products. 3) The Finishing Department is in charge of inspecting and repairing imperfect or damaged finished products, and packaging them.

In carrying out the production process, injection moulding is used as the main machine and several supporting machines, namely spray guns, scales, and workshop machines. Injection moulding functions to heat the molten aluminium to be inserted into the mould cavity and then cooled so that it becomes a finished product. Spray gun functions to mix aluminium with paint colour. Scales function to weigh raw and auxiliary materials according to a certain composition. Machine shop for machine repairs. The raw material used is aluminium and the auxiliary material is sparkle green dye paint. The production costs of companies that still use conventional systems for three types of products (long chairs, short chairs and tables) are as shown in Table 1.

Table 1. Production Cost Data in 2022

Type/Product Data	Long Chair	Short seat	Table	Total
Production unit/year	480 units	960 units	480 units	1,920 units
Raw material cost (Rupiah=Rp.)	102.000.000	120.000.000	60.000.000	282.000.000
Cost of labour	180.000.000	150.000.000	30.000.000	360.000.000
Data per Section	Processing	Printing	Settlement	Total

hours TKL (JTKL):				
Armchair	2.954,678	1.591,722	399,627	4.946,027
Short seat	1.969,785	1.061,148	266,418	3.297,351
Table	1.641,488	884,291	222,014	2.747,793
Total	6.565,951	3.537,161	888,059	10.991,171
Machine Hours (JM):				
Armchair	2.866,788	1.543,655	-	4.410,443
Short seat	1.911,192	1.029,104	-	2.940,296
Table	1.592,661	857,586	-	2.450,247
Total	6.370,641	3.430,345		9.800,986
Overhead costs:				
Cost of auxiliary materials	-	211.376.250	-	211.376.250
Indirect wages	108.000.000	36.000.000	72.000.000	216.000.000
Electricity costs	91.992.056	49.471,369	5.503.798	147.030.035
Maintenance costs	41.396.400	36.796.820	-	78.193.220
Spare parts cost	69.980.392	104.970.588	-	174.950.980
Water costs	-	5.971.356	-	5.971.356
Refurbishment cost. Machinery	30.000.000	4.200.000	-	34.200.000
Building rental fee	12.500.000	7.500.000	5.000.000	25,000,000
Packaging cost	-	-	39.528.000	39.528.000
TOTAL	353.868.848	456.286.383	122.031.798	932.187.029

On Table 1, it can be seen that the overhead cost rate for each part is as follows:

Processing Section = Rp. 353,868,848: 6,370,641 JM = Rp. 55,546.8
Printing Section = Rp. 456,286,383: 3,537,161 JTKL = Rp. 128,997.9/JTKL
Settlement part = Rp. 122,031,798: 888,059 JTKL = Rp. 137,414.1/JTKL

Production costs for each type of product are as shown in Table 2.

Table 2. Production Cost per Product Type

Products	Processing (Rp)	Printing (Rp)	Settlement (Rp)	FOH (Rp)
Long Chair	2,866,788 JM x Rp. 55,546.8 /JM = Rp. 159,240,900	1,591.722 JTKL x Rp. 128,997.9/JTKL= Rp. 205,328,795	399,627 JTKL x Rp. 137,414.1/JTKL= Rp.54,914,385	419.484.218
Short Chair	1,911,192 JM x Rp. 55,546.8 /JM= Rp. 106,160,600	1,061,148 JTKL x Rp. 128,997.9/JTKL = Rp. 136,885,864	266,418 JTKL x Rp. 137,414.1/JTKL = Rp. 36,609,590	279,656,053
Table	1,592.661 JM x Rp. 55,546.8 /JM= Rp. 88,467,222	884,291JTKL x Rp. 128,997.9/JTKL= Rp. 114,071,682	222,014 JTKL x Rp. 137,414.1/JTKL= Rp. 30,507,854	233.046.758

Overhead cost assignment to each type of product and calculation of total production cost as shown in Table 3.

Table 3. Total Production Cost and Cost Per Unit in 2022 (Rp.)

Description	Long Chair	Short Chair	Table	Total

Raw material unit	102.000.000	120.000.000	60.000.000	280.000.000
Cost of labour	180.000.000	150.000.000	30.000.000	360.000.000
Overhead Costs	419.484.218	279.656.053	233.046.758	932.187.029
Total Production Cost	701.484.218	549.656.053	323.046.758	1.574.187.029
Production unit	480 units	960 units	480 units	1,920 units
Production cost/unit	1.461.425	572.558	673.014	-

3.1. Identification of Production process activities

Table 4 presents production activities based on add value and non-value added

Table 4. Grouping of Activities Based on Value-Added and Non-Value-Added

No.	Activities	Added Value	No Added Value
1	Purchase & receive raw & auxiliary materials	X	
2	Store raw and auxiliary materials in the warehouse		x
3	Send materials to the scales		x
4	Weighing raw and auxiliary materials	x	
5	Transferring materials to injection moulding		x
6	Adjusting the production machine	x	
7	Carry out the smelting process	x	
8	Carry out the printing process	x	
9	Carry out the cooling process	x	
10	Carry out cleaning and smoothing	x	
11	Carry out the painting process	x	
12	Repairing the machine		x
13	Inspection and repair of finished products	x	x
14	Packaging the finished product		
15	Deliver to finished goods warehouse		x
16	Receive & store finished goods in the warehouse		x

Table 4 illustrates that there are 7 non-value-added activities. This means that the activity is not needed, and does not give value but will actually increase costs. It is not just the nominal rupiah figure that is considered, but activities that are not nominal need to be considered. Therefore, they should be eliminated. For activities that do not add value, the basis for elimination is as follows:

1) The activity of storing raw and auxiliary materials in the warehouse. This activity occurs because the raw materials that have been made available are not immediately used due to the buyer's order for materials not in accordance with the production process schedule, so the materials must be stored first, This activity does not produce changes to the material, but incurs storage and maintenance costs for the material.

The activities of sending raw and auxiliary materials to the scales and moving raw materials to injection moulding. These activities are limited to moving materials from the warehouse to the scales and then to the injection moulding. There is no change to the material being moved, but it takes time and resources to move, thus slowing down the production process. 2) Machine repair activities. Many still think that this activity adds value, because a broken machine means that the production process is hampered, even though if the maintenance process is carried out properly, the machine will still be able to function normally, have good results, be useful and damage can be avoided (zero

breakdown) [11]. In addition, production employees must also use the machine with a high sense of belonging so that the machine does not become damaged. 3) The activity of carrying out inspection and repair of finished products. This activity occurs due to errors in the product. Inspection is carried out on each newly painted finished product, so that the damage is known and repairs or sorting of imperfect products can be carried out immediately. In the ABB concept, inspection activities do not need to be carried out if the production process has been carried out properly without any errors. 4) The activity of sending finished products to the finished goods warehouse. This activity only moves the packaged products to the finished goods warehouse and does not cause any changes to the packaged products. The activity of receiving and storing finished goods in the warehouse. The activity of receiving finished goods is a continuation of the activity of receiving finished products in the warehouse because they are not sent directly to consumers. As a result, goods accumulate in the warehouse, taking up space and wasting storage costs. Goods become a burden on the company until the delivery time arrives, therefore the company must carry out various security procedures, both physically and administratively [12]. This does not give benefit to company at all.

3.2. Determining Activity Costs to eliminate/reduce non-value-added activities

Based on company data, the activity costs are obtained as in Table 5. The following steps are taken to eliminate/reduce non-value-added activities [13]. First, waste mapping for each activity. Based on the identification of cost triggers above, a list of cost triggers for each activity performed on seven non-value-added activities & grouped into four basic types of non-value-added activities can be presented, namely: 1) Storage: the cost drivers analysed are the drivers for the activity of storing raw and auxiliary materials and the activity of receiving and storing finished goods in the warehouse. Elimination of storage costs can be done by blending in the procurement of materials by endeavouring to supply materials in the right quantity, time and quality. For this reason, companies must have reliable suppliers so that production activities are carried out only by producing goods according to the type, quantity and time required [14]. so that the distribution system is more efficient. Second, Moving: the cost triggers analysed are the triggers for the activity of sending raw and auxiliary materials to the scales and then injection moulding and the activity of sending to the finished goods warehouse.

3) Machine repair: to eliminate this activity, machine maintenance must be carried out properly and routinely by determining critical machines and critical components; recapitulating the time between breakdowns for repairable components, time between breakdowns for non-repairable components (there must be a component replacement when a breakdown occurs), the time required for repairs to determine the maintenance time interval [15].

4) Inspection: this activity can be eliminated by integrating all functions and processes in order to achieve continuous improvement in the quality of goods and services, by involving all parties in the organisation or company [16].

Table 5: Cost Traceability to Each Activity

	Activity	Overhead	Basis	Total	Unit	Total	Activity Cost
1	Buying & receiving direct & indirect materials	Indirect Labor	Wages	360	Hour	36,000,000	36,000,000
2	Storing direct & indirect materials to warehouse	Building Rental	Area	400	m^2	5,000,000	5,000,000

3	Send direct & indirect materials to the scale	Indirect Labor	Wages	240	Hour	24,000,000	24,000,000
4	Weighing direct & indirect materials	Building Rental	Area	200	m^2	2,500,000	2,500,000
5	Transferring materials to injection molding	Indirect Labor	Wages	240	Hour	24,000,000	24,000,000
6	Setting up production machines	Electricity	Kwh Total	4,674	Kwh	6,881,317	118,258,107
		Spare Part	Spare Cost	100	%	69,980,390	
		Maintenance	Machine Hours	6,371	Hour	41,396,400	
7	Melting process	Indirect Labor	Wages	240	Hour	24,000,000	144,110,739
		Electricity	Kwh Total	57,810	Kwh	85,110,739	
		Building Rental	Area	400	m^2	5,000,000	
		Depreciation	Machine Hours	6,371	Hour	30,000,000	
8	Moulding process	Building Rental	Area	300	m^2	3,750,000	3,750,000
9	Cooling process	Water	m^3	100	m^3	4,007,621	4,007,621
10	Cleaning and refinement	Water	m^3	49	m^3	1,963,735	1,963,735
11	Painting process	Electricity	Kwh Total	29,981	Kwh	47,535,073	300,505,493
		Building Rental	Area	200	m^2	2,500,000	
		Maintenance	Machine Hours	3,259	Hour	34,956,982	
		Depreciation	Machine Hours	3,430	Hour	4,200,000	
		Indirect Material	Product Total	1,920	Unit	211,313,438	
12	Repairing machines	Indirect Labor	Wages	360	Hour	36,000,000	146,059,535
		Electricity	Kwh Total	1,245	Kwh	1,999,109	
		Building Rental	Area	100	m^2	1,250,000	
		Maintenance	Machine Hours	172	Hour	1,839,838	
		Spare Part	Spare Cost	100	%	104,970,588	
13	Inspection and repair of finish goods	Indirect Labor	Wages	360	Hour	36,000,000	40,127,849
		Electricity	Kwh Total	7,810	Kwh	4,127,849	
14	Packing the finish goods	Electricity	Kwh Total	2,603	Kwh	1,375,950	43,403,950
		Building Rental	Area	200	m^2	2,500,000	
		Packaging Cost	Product Total	1,920	Unit	39,528,000	
15	Sending finish goods to warehouse	Indirect Labor	Wages	360	Hour	36,000,000	36,000,000
16	Receive & store finish goods in the warehouse	Building Rental	Area	200	m^2	2,500,000	2,500,000
TOTAL						932,187,029	932,187,029

3.3 Evaluation of the Results of Elimination/Reduction of Non-Value-Added Activities

Based on the same cost driver, each activity cost is grouped according to its cost driver. This is a way to determine a homegeneous cost pool, which is a set of overhead costs that are linked to the cause of their occurrence and how these costs can be determined by a single cost trigger. Thus, the many activity cost items that have been calculated can be grouped again, so that the

cost items that must be charged to the product can be reduced. However, this grouping must pay attention to the consumption ratio or consumption proportion, because to group costs into one homogeneous cost group, the same consumption ratio is required. Table 6 explains the consumption proportion of each product. After determining the homogeneous cost group, the group tariff can be determined. The group rate is calculated using the formula total overhead costs for an activity group divided by the activity's measuring base. This overhead cost rate determination is based on the projected activity cost budget after elimination of non-value-added activities.

Table 6. List of Cost Trigger Consumption Proportion of Each Product

No	Activity Costs	Long Chair	Short Chair	Table	Cost Trigger
1	Purchase & receive raw & auxiliary materials	9/25= 0,36	11/25 = 0,44	5/25 = 0,20	Quantity of material purchase order
2	Storing raw & auxiliary materials in the warehouse	9/25= 0,36	11/25 = 0,44	5/25 = 0,20	Quantity of material purchase order
3	Deliver raw & auxiliary materials to the scales	8.142,5/22.570 = 0,36	10.035/22.570 = 0,44	4.392,5/77.570 = 0,20	Average material consumption
4	Weighing raw and auxiliary materials	8.142,5/22.570 = 0,36	10.035/22.570 = 0,44	4.392,5/77.570 = 0,20	Average material consumption
5	Moving raw materials to injection moulding	8.142,5/22.570 = 0,36	10.035/22.570 =0,44	4.392,5/77.570 = 0,20	Average usage b. raw
6	Adjusting the production machine	6/22 = 0,27	10/22= 0,46	6/22 = 0,27	Number of production runs
7	Carry out the smelting process	2.866,788/6.370,641= 0,95	1.911,192/6.370,641= 0,30	1.592,661/6.370,641= 0,25	Engine hours
8	Carry out the printing process	1.591,722/3.537,161= 0,45	1.061,148/3.537,161= 0,30	884,291/3.537,161= 0,25	TKL Hours
9	Carry out the cooling process.	1.591,722/3.537,161= 0,45	1.061,148/3.537,161= 0,30	884,291/3.537,161= 0,25	TKL Hours
10	Cleaning & smoothing process	1.591,722/3.537,161= 0,45	1.061,148/3.537,161= 0,30	884,291/3.537,161= 0,25	TKL Hours

11	Carry out the painting process	1.591,722/3.537,161= 0,45	1.079,104/3.430,345= 0,40	884,291/3.537,161= 0,25	Engine hours
12	Carry out machine repairs.	3/10 = 0,30	4/10 = 0,40	3/10 = 0,30	Number of Engineering work orders
13	Finished product inspection & repair	60/240 = 0,25	120/40 = 0,50	60/240 = 0,25	Inspection & repair hours
14	Packaging the finished product	480/1920 = 0,25	960/1920 = 0,50	480/1920 = 0,25	Number of packaging units
15	Deliver to the finished goods warehouse.	480/1920 = 0,25	960/1920 = 0,50	480/1920 = 0,25	Number of packaging units
16	Receive & store finished goods in the warehouse.	480/1920 = 0,25	960/1920 = 0,50	480/1920 = 0,25	Number of packaging units

Based on Table 5, activity costs that have the same consumption ratio are combined into one homogeneous cost group and represented by one cost trigger and the rates are determined as follows:

Group 1

- Purchasing and receiving raw and auxiliary materials Rp. 36,000,000
- Storing raw and auxiliary materials in the warehouse 0 +

Total cost Rp. 36,000,000

Number of purchase orders for raw and auxiliary materials 25

Group 1 rate = Rp. 36,000,000/25 = Rp. 1,440,000

Group 2

- Delivering raw and auxiliary materials to the scales Rp. 0
- Weighing raw and auxiliary materials Rp. 2,500,000
- Transferring raw materials to injection molding Rp. 0 +

Total cost Rp. 2,500,000

Average amount of raw material usage 22,570

Group 2 rate = Rp.2,500,000/22,570 = Rp. 110,7

Group 3: Adjusting production machines Rp. 118,258,107

- Number of productions runs 22

Group 3 rate = Rp. 118,258,107/22 = Rp. 5,375,368.5

Group 4

- Carry out the smelting process		Rp. 144,110,739
- Carry out the painting process		Rp. 300,505,493 +
	Total cost	Rp. 444,616,232
Total machine hours		6,.370.641

Group 4 rate = Rp. 444,616,232/6,370.641 = Rp. 69,791.4

Group 5		
- Carry out the printing process		Rp. 3,750,000
- Carry out the cooling process		Rp. 4,007,621
- Carry out the cleaning and smoothing process		Rp. 1,963,735 +
	Total cost	Rp. 9,721,356
Total labour hours		3,537.161

Group 5 rate = Rp. 9,721,356/3,537.161 = Rp. 2,748.35

Group 6 and 7 activities, namely machine repair and inspection/repair of finished products, are non-value-added activities, so there is no tariff.

Group 8		
- Packing to finished goods warehouse		Rp. 43,403,950
- Deliver to finished goods warehouse		0
- Receive and store finished goods in the warehouse		0 +
	Total cost	Rp. 43,403,950
Number of production units		1,920

Group 8 rate = Rp. 43,403,950/1,920 = Rp. 22,606.22

To determine the overhead charged to each product, a calculation is made using this formula

Overhead charged = Group rate x cost driver units consumed by the product the following calculation is obtained

Table 7. Calculation of Production Cost After Elimination of Non-Value-Added Activities

Cost Type	Long Chair	Short Chair	Table	Amount (Rp)
Raw Material Cost	102,000,000	120,000,000	60,000,000	282,000,000
Cost of labour	180,000,000	150,000,000	30,000,000	360,000,000
Overhead Costs:				
Group 1	12,960,000	15,840,000	7,200,000	36,000,000
Group 2	901,945	1,111,500	486,555	2,500,000
Group 3	32,252,211	53,753,685	32,252,211	118,258,107
Group 4	200,077,148	133,384,765	111,154,319	444,616,232
Group 5	4,374,609	2,916,406	2,430,341	9,721,356
Group 6	0	0	0	0
Group 7	0	0	0	0
Group 8	10,850,987	21,701,975	10,850,987	43,403,950
Total Overhead Costs	261,416,900	228,708,331	164,374,413	654,499,644
Total Production Cost	543,416,900	498,708,331	254,374,413	1,296,499,644
Production Unit	480	960	480	1,920
Production Cost/Unit	1,132,119	519,488	529,947	

When compared to the conventional method, the following results were obtained:

Table 8. Conventional Production Cost and After Elimination of Non-Value-Added Activities

Cost Type	Long Chair		Short Chair		Table	
	Conventional	After Elimination	Conventional	After Elimination	Conventional	After Elimination
Raw Materials Cost of labour Overhead	102.000.000 180.000.000 419.484.218	102.000.000 180.000.000 261.416.900	120.000.000 150.000.000 279.656.053	120.000.000 150.000.000 228.708.331	60.000.000 30.000.000 233.046.758	60.000.000 30.000.000 164.374.413
Total Cost	701.484.218	543.416.900	549.656.053	498.708.331	323.046.758	254.374.413
Production Unit	480	480	960	960	480	480
Cost/Unit	1.461.425	1.132.119	572.558	519.488	673.014	529.947

The comparison in table 7 between the conventional method and ABB shows that all of the company's products are over costed with the following details:

a. The long chair product overcharged the cost per unit by Rp. 329,306 or 22.53%per unit ((Rp. 1,461,425 - Rp. 1,132,119)/ Rp. 1,461,425).

b. The short chair product was overcharged per unit by Rp. 53,070 or 9.27% per unit ((Rp. 572,558 - Rp. 519,488)/ Rp. 572,558).

c. Table products are overcharged by Rp. 143,067 or 21.26% per unit ((Rp. 673,014 - Rp. 529,947) / Rp. 673,014).

In total, if ABB is implemented, the company can make cost savings of Rp. 277,812,385 (Rp. 1,574,312,029 - Rp. 1,296,499,644).

This measurement is done using cost reporting of value-added and non-value-added activities. Before the reporting is made, a list of activities along with quantities and prices, both standard and actual, required in making the reporting is presented in table 8. The standard price is determined by the author together with the company's leadership, then based on table 8, value-added and non-value-added activity cost reporting is made in table 9.

Based on the reporting, it is known that of the overhead costs actually incurred by the company amounting to Rp. 932,187,029, it turns out that the value added is Rp. 629,138,162 and the remaining Rp. 303,048,867 is a non-value-added cost. This means that about 32.5% of costs do not add value and are a huge waste for the company.

3.4 Measuring financial performance

Table 9. List of Activities, Quantity and Price

Activities	Cost drivers	Ideal Quantity Standard (IAS)	Actual Quantity (KS)	True Price (HS) Rp
1. Purchase & receive raw & auxiliary materials	PO quantity of raw & auxiliary materials	20x	25x	1,440,000
2. Storing raw & auxiliary materials in warehouse	PO quantity of raw & auxiliary materials	0	25x	0
3. Send raw & auxiliary materials to the scales	Average usage of raw & auxiliary materials	0	22,560 kg	0

4. Weighing raw and auxiliary materials.	Average usage of raw & auxiliary materials	21,600 kg	22,560 kg	110,77
5. Transferring raw materials to injection moulding	Average usage of raw & auxiliary materials	0	22,560 kg	0
6. Adjusting the production machine	Number of production runs	22x	22x	5.375.368,5
7. Carry out the smelting process	Engine hours	6,120 JM	6,370,641	22.621
	Building rent	1 year	JM	3.750.000
8. Carry out the printing process.	Total water usage	90 m3	1 year	40.076,21
	Total water usage	45 m3	100 m3	40.076,21
9. Carry out the cooling process.	Number of engineering work orders	6,120 JM	49m3	47.170,37
		0	6,370,641	0
10.Perform cleaning & smoothing	Number of engineering work orders	0	JM	0
			10x	
11.Carry out the painting process	Finished product check & repair hours	21.600	240 JTKL	22.606,22
		0		0
12.Repairing the machine	Number of packaging units		21.600	
13.Inspection/repair of finished products		0	21.600	0
	Number of packaging units			
14.Packaging finished products			21.600	
	Number of packaging units			
15.Deliver to the finished goods warehouse.				
16.Receive & store finished goods in warehouse				

Table 10. Cost Reporting of Value-Added and Non-Value-Added Activities

Activities	True Cost (BS = KS x HS)	Value-Added Costs (BNT = SKI x HS)	Non-Value-Added Costs (BNT = SKI x HS)
1. Purchase and receive raw and auxiliary materials.	36.000.000	28,800.000	7.200.000
2. Store raw and auxiliary materials in the warehouse.	5.000.000	0	5.000.000
3. Deliver raw and auxiliary materials to the weigher.	24.000.000	0	24.000.000
4. Weighing raw and auxiliary materials.	2.500.000	2.392.632	107.368
5. Transferring raw materials to injection moulding	24.000.000	0	24.000.000
6. Set up the production machine.	118.258.107	118.258.107	0
7. Carry out the smelting process	144.110.739	138.440.520	5.670.219
8. Carry out the printing process.	3.750.000	3.750.000	0
9. Carry out the cooling process.	4.007.621	3.606.858,9	400.762,1
10.Carry out cleaning & smoothing process	1.963.735	1.803.429,45	160.305,55
11.Carry out the painting process	300.505.493	288.682.664,4	11.822.828,6
12.Repairs the machine.	146.059.535	0	146.059.535
	40.127.849	0	40.127.849

13.Perform finished product inspection & repair 14.Packaging the finished product. 15.Deliver to the finished goods warehouse. 16.Receive and store finished goods in the warehouse.	43.403.950 36.000.000 2.500.000	43.403.950 0 0	0 36.000.000 2.500.000
TOTAL	932.187.029	629.138.162	303.048.867

3.5 Measuring non-financial performance

Non-financial performance is measured as the following:

(1) Operational Efficiency

Measurement of operational performance produces a measure of the company's productivity with non-financial by using efficiency calculating the amount of expenditure divided by the amount of materials (raw materials + dye auxiliaries).

Product productivity of loungers = 480 units : 8,160 kg = 0.0593 units/kg. Company data shows the weight of 1 unit of lounger is 16 kg. The raw materials used should be 16 kg x 480 = 7,680 kg. However, in reality the material used is 8,160 kg, which should be able to produce 8,160 kg: 16 kg = 510 units. This means there is material inefficiency compared to the output of (510-480) x 16 kg/unit = 480 kg. The optimal productivity should be 510 units/7,920 kg = 0.0644 units/kg.

With the same measurement, it is found that for short chair products there is an inefficiency of (984-960 units) x 9.75kg = 240 kg. The optimal productivity should be 984 units/9,600 kg = 0.1025 units/kg and the table product has an inefficiency of (505-480) x 9.5 kg/unit = 240 kg. The optimal productivity should be 505 units/4,800 kg = 0.1052 units/kg.

(2) Quality

Quality measurement by comparing the number of defective products to the total output.

(a) Longchair, With 8,160 kg of materials used and 1 unit of longchair weighing 16 kg, 8,160 kg/16 kg = 510 units of longchair should have been produced. However, in reality there are only 480 units of loungers. Thus, there are 505-480 = 30 units of damaged products or (30 units/510 units) x 100% = 5.88%.

(b) With the same calculation, it is obtained that for short chair products there are damaged products 984-960 = 24 units or equal to (24 units/984 units) x 100% = 2.44% and table products there are damaged products 505-480 = 25 units or equal to (25 units/505 units) x 100% = 4.95%.

(3) Time

The time measurement in this study compares the time required to produce the number of activity output units in 1 year.

Company data shows that it takes 240 minutes to make 1 unit of long chair. This means that to produce 480 units of long chairs it takes 115,200 minutes or 1,920 machine hours, while for short chairs it takes 172,800 minutes or 2,880 machine hours and for tables it takes 79,200 minutes or 1,320 machine hours.

So that the total machine hours needed to produce these 3 products are 1,920 + 2,880 + 1,320 = 6,120 machine hours. However, in reality the machine hours used are 6,370.641 machine hours, so there is a waste of time of 6,370.641 - 6,120 = 250.641 hours or equal to (250.641: 6120) X 100% = 4.1%.

ABB to get cost reduction in producing a product is basically a continuous improvement. Continuous improvement is commonly used in manufacturing and other industries to improve processes, products and services. This is in line with the research Evaluation of Budgeting System Using Activity-Based Budgeting: A Case Study at PT X [17], Planning and Budgeting for Quality: an Activity-Based Approach (Roberts et al., 2019), An Activity Based Budgeting Model Integrated With Balanced Scorecard As A

Cycle Of Increasing Corporate Performance [2] All of which state that ABB can improve the accuracy of cost allocation and improve the quality of information for management for more effective decision making to advance planning and budgeting, helping organisations to identify and understand costs and allocate resources more effectively to improve quality**.**

4. CONCLUSION

With an activity-based budget, the company has guidelines in carrying out company activities because ABB is able to present more accurate information about activities and their costs including the resources needed in the work process. ABB also identifies company activities in the design stage. ABB also identifies the company's activities in its design stage so that it becomes a quantitative guideline of the activities carried out by the company in identifying the products, services, activities and resources needed to provide estimates of business direction and other financial requirements to achieve strategic goals or even to change strategies to improve company performance.

When implementing ABB, companies can reduce selling prices due to lower production costs, so that the selling price of the product is more competitive in the market. With this, it is expected that the company's main problem of declining sales can be resolved. ABB also enhances teamwork among employees, in budget design and elimination of non-value-added activities. The implementation of ABB allows the finance department to have more control as the finance team has guidelines to analyse the level of profitability and cost savings as well as the ability to link the budget to each activity.

Based on this, companies must still pay attention to their non-financial performance (in this study operational efficiency, quality and time) in order to maintain customer satisfaction, even though they are in an effort to reduce costs. The quality of the products must be maintained, because if the company improves the quality of its products and services on an ongoing basis, it will simultaneously reduce other costs, namely the cost of quality.

ASPECT			PRODUCTS		
			Long Chair	Short Chair	Table
FINANCE		Overloading	IDR 329,306	IDR 53,070	IDR 143,067
		%	22,53	9,27	21,26
		% Cost wastage	32,5		
NON FINANCE	Efficiency	Wasted Material (kg)	480	240	240
		%	6,25	2,56	5,26
	Quality	Defective Products (unit)	30	24	25
		%	5,88	2,44	4,95
	Time	% Time wastage	4,10		

1. The company is expected to review the use of the departmental tariff method which causes excess product costs to be charged to production costs.
2. Companies are expected to concentrate more on eliminating non-value-added activities.
3. The company needs to increase material productivity by improving the quality of moulds as well as improving the skills and awareness of employees to use the right material composition when operating the machine.
4. Supervision of production quality must be further improved, so that in

the future the company can minimise the number of damaged products so as to achieve zero damage, zero defects [18], zero error and zero failure.

5. Supervision of production time should be further improved, so that employees work optimally and do not use working hours for non-value-added things.
6. The company is expected to concentrate on improving the quality of human resources on an ongoing basis so that it can implement ABB properly and correctly.
7. The author still realises that the above suggestions have several limitations, namely in measuring financial performance, this study only uses primary data in the form of company production cost reports and in measuring non-financial performance is only limited to reference the amount of output produced and does not explore production practices that occur in the field.

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