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Analysis Of Production Costs In Determining Selling Prices Using The Full Costing Method At The Nuansa Porselen Indonesia Company

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Abstract: In today's world, with increasing competition among MSMEs, it is crucial to focus on competitiveness in product quality and price. This study aims to assess the calculation of the cost of goods manufactured to determine the appropriate selling price for Nuansa Porselen Indonesia Company. The full costing method is a technique for determining the cost of goods manufactured that includes all production costs, including raw material costs, direct labor, and factory overhead costs that include fixed and variable costs. The selling price is obtained from the cost of goods manufactured plus anticipated profits. This study was conducted using primary and secondary data. Primary data was obtained through direct observation and interviews with the company's financial manager, while secondary data was collected from several research journals and books. This study revealed that different calculations of the cost of goods manufactured and selling price have a direct impact on profitability.

Keywords: Calculation; Production Cost; Full Costing Method; Selling Price.

1. Introduction

In an increasingly competitive business climate, organizations have the challenge of identifying optimal product selling pricing. One crucial element in setting selling prices is an accurate and complete evaluation of the cost of goods manufactured (COGS). Mistakes in COGS calculations can effect profit margins, competitiveness, and business viability. COGS plays a key function, as it influences the profit margin a company may obtain. Setting the proper selling price not only effects business continuity but also impacts a company's competitiveness in an increasingly competitive market.

A full understanding of all costing methods for calculating product costs is crucial given the growing trend of organizations adopting these methods for more accurate cost analysis. As noted by Setianingsih et al. [1], analyzing production costs using full costing techniques provides better insight into all costs associated with production, both fixed and variable, and this enhances an organization's ability to formulate optimal pricing policies.

In the public corporate sector, transparency and accuracy in computing COGS are vital. Research by Veli and Bahari [2] reveals that applying the full costing technique in calculating selling prices not only increases accuracy but also boosts the company's ability to meet the needs of investors and other stakeholders. Clear and accurate financial reports boost investor trust in making investment decisions.

One of the obstacles in implementing the complete costing method is how to manage and record all cost factors involved in the production process. According to research by Lestari et al. [3], a lack of awareness of cost components can lead to inaccuracies in calculating

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COGS, which in turn effects the establishment of improper selling prices. Therefore, it is necessary for organizations to teach their finance and accounting departments to be more proficient in using this strategy.

In practice, many companies still prefer to use the variable costing method because it is considered simpler. However, as Darno [4] noted, despite its simplicity, this method does not provide the comprehensive picture necessary for long-term decisions. Companies need to reevaluate their approach and consider the real benefits of full costing, especially when compared to variable costing.

Successful adoption of the whole costing approach relies not only on cost calculations but also on a deep grasp of the company's business context. Similarly, research by Khaerunnisa and Pardede [5] demonstrates that good leadership in cost management is a significant determinant in the successful adoption of this strategy. Therefore, proper synergy between management and the accounting team is essential to maximize the usage of this strategy.

Along with technology improvements, cost data management and accounting processes can also be optimized by adopting accounting information systems. One study revealed that the effective use of information technology can assist efficient and accurate cost data collecting, hence expediting the COGS calculation process [4]. This is more relevant in the digital age, where speed and accuracy of information are crucial.

Another problem organizations encounter when employing the whole costing technique is the often unforeseen swings in input costs, which can directly effect the cost of items created. A study by Indrawati and Miliniawati indicated that fluctuations in raw material costs might induce uncertainty in calculating COGS, adding to the complexity of setting selling prices [6]. Therefore, it is vital for organizations to regularly monitor market trends and make required modifications.

An analysis reveals that companies must be able to explain the rationale behind product selling prices, which are dependent on costs, including the added value offered [6]. Clear explanations to consumers can strengthen loyalty and lessen the risk of demand shifts owing to pricing discontent. The implementation of full costing also has broader implications for public companies. Research by Salehah and Wahyuni [7] explains that the increased financial accountability and transparency resulting from using this method can improve corporate relationships with stakeholders. This is certainly crucial in the context of increasingly intense global competition. While organizations work on enhancing their innovation initiatives, they also need to focus on improving their accounting processes. Khasanah et al. [8] explain that innovation enhances productivity, lowers production costs, and dramatically reduces cost of goods sold (COGS). This further underlines the need for innovation to preserve market competition.

Companies need to be more flexible in today's globalized world when things change outside of their control. Khasanah et al. [8] show that being flexible with cost management can help businesses come up with new ideas and change their pricing strategies rapidly. This means constantly checking the price strategies and cost models that have been put in place. On the other side, the fact that strategic cost analysis is important for setting selling prices can also affect other strategic decisions a company makes internally. Jakaria et al. [9] say that the information from COGS calculations can be utilized to judge how well a product and market segment are doing and to prepare for future products. This shows that estimates of manufacturing costs affect not just prices but also the company's whole strategy.

Finally, for the effective implementation of all costing methods, organizations must consider external factors that influence cost structures, such as government legislation and economic policies. As stated in Panja's [10] research, understanding the changing economic and regulatory environment helps businesses manage and anticipate cost changes, facilitating the development of efficient plans. In this context, developing a pricing strategy based on production cost analysis using the full costing method is crucial for public companies to

maintain business continuity and achieve success amidst complex market competition. Therefore, the researchers decided to conduct a study at Nuansa Porselan Company, located in Boyolali Regency.

2. Literature Review

2.1. Definition and Components of Cost of Goods Sold (COGS)

Cost of Goods Sold (COGS) is associated with all expenses incurred to get a particular good or service ready for selling. In COGS, each company tracks expenditures incurred for a given accounting period as Bigambo and others elaborate, these are materials used, salary expenditure on production employees and a proportional share of production plant overheads for the period under review [11]. Hansen and Mowen [12] explain that the cost of goods manufactured equals the total expense of products finished within a given reporting period. Therefore, each of these elements contributes the total cost of production. Material expenses are all the physical components of the output that the business in question purchases while direct labor costs include the payment made to the employees who did the actual work. Other production indirect costs included in factory overheads are; the cost of electricity, water, rent, and the depreciation cost for the machines in use.

2.2 Production Cost Calculation Method

Several alternative frameworks exist for calculating the cost of goods sold, the most common being Full Costing and Activity-Based Costing, or ABC. Under the Full Costing approach, organizations assign each production-related expense—fixed and variable—on a per-unit basis, thus providing a broad picture of the cost structure. In contrast, ABC allocates overhead more precisely by linking indirect costs to the specific activities that generate them, revealing subtle cost drivers that Full Costing might otherwise hide. Firmandani [13] argues that this granularity provides managers with timely and reliable data, improving the quality of strategic decisions.

2.3 Production Costing Method

Estimating the cost of goods manufactured involves a step-by-step process that pulls together all production-related expenses. Analysts usually rely on one of two recognized methods to sort and record these cost elements [14]; [15]:

a. Full Costing

Full costing estimates the total expense of manufacturing a product by summing the cost of raw materials, direct labor, and all factory overhead, whether that overhead is variable or fixed. Because full costing tallies every cost incurred during production, it is computed by aggregating these elements even if the finished goods have not yet left the warehouse.

b. Variable Costing

Variable costing calculates production expenses by counting only those costs that vary with output, such as direct materials, direct labor, and variable overhead. Under this approach, fixed costs are treated as period expenses; they appear on the income statement in the period they are incurred, regardless of whether the associated goods have been sold.

2.4 Basic Cost Concepts

Costs can be classified in many ways depending on their characteristics, behaviour over time, and purpose within the organisation. Khasanah et al. [8] draws a basic but important distinction between fixed costs and variable costs. Fixed costs remain constant regardless of production levels, examples being rent for premises and salaries of permanent staff. In contrast, variable costs move in tandem with output, including expenses for raw materials and hourly-paid workers. Grasping this split is essential for cost-volume-profit (CVP) analysis, a tool often used in profit planning and strategic decision making [8].

2.5 Cost Analysis in Decision Making

For management purposes, cost analysis is vital for decision-making. Managers can design more efficient sales strategies, production levels, and marketing plans when they grasp the cost structure. For example, CVP (cost-volume-profit) analysis helps managers compute the break-even point, which is the number of units that must be sold to cover all fixed and

variable expenses [8]. Furthermore, recognizing expenses is vital for generating suitable budgets and limiting costs, considerably enhancing a company's profitability [16].

3. Research Methods

The object of this research is the cost of production, selling price and selling price determination strategy that occurs at Nuansa Porselen Indonesia Company located in the Ngadirojo Village Industrial Area, Gladagsasi, Boyolali. The research method used is a case study. A case study is a detailed examination of one setting or one subject or one document storage place or one particular event [17]. The respondents in this research are the managers of Nuansa Porselen Indonesia Company. The selection of respondents for the managers of Nuansa Porselen Indonesia Company was carried out by purposive sampling which is a sampling technique with certain considerations [18], so that the respondents selected were managers and financial staff.

4. Results and Discussion

4.1 Analisis Biaya Produksi

Based on the results of research that has been carried out on the calculation of production costs at the Nuansa Porselen Indonesia Company, the following is an analysis of raw material costs for determining unit costs.

a. Raw Material Costs

1) Elephant
   Elephant is one of the materials used in the ceramic production process, namely the material used to make molds.
2) Ivory Soap
   Ivory soap is a special soap used for cleaning molds.
3) Prestia Case
   Prestia case is a yellow powder that is used as a material for making the master shape of the body item that will be used + as a reference for mold formation.
4) Clay
   The soil used to make the product to be discussed is Sukabumi clay or stoneware soil in grey and red.
5) Rafting Equipment
   Assembling equipment includes brushes used for the assembly and smoothing process, foam assembly knives, assembly needles and so on which are used for the assembly and smoothing process of the product before the coloring process.
6) Dye Medicine
   Coloring is used as a coating for ceramic products that are made, this coloring aims to beautify the product.
7) Gas
   Raw materials used for the firing process of ceramic products.
8) Cardboard Box
   Cardboard used for packaging finished ceramic products or those ready to be sent to customers.

Table1. Raw Materials for Making Ceramic Products

Direct Raw Materials		
Elephant	IDR 3.875.750	
Ivory Soap	IDR 333.750	
Prestia	IDR 342.380	
Clay	IDR 5.079.200	
Dye Medicine	IDR 4.863.780	
Direct Raw Material Amount		IDR14.494.860
Auxiliary Raw Materials		
Assembling Tools	IDR 200,000	

Cardboard Box	IDR 2.946.250	
Gas	IDR 8.900,000	
Other Auxiliary Raw Materials	IDR 2.000.000	
Amount of Auxiliary Raw Materials		IDR 14.046.250
Total Raw Materials		IDR 28.541.110

b. Labor Costs

Table 2. Direct Labor Costs

Direct Labor Costs	IDR 2.500.000

c. Factory Overhead Costs

Table 3. Factory Overhead Costs

Factory Overhead Costs	
Electricity	IDR 1.500.000
Water	IDR 750.000
Factory Equipment	IDR 2.000.000
Shipping Costs	IDR 1.500.000
Total Factory Overhead Costs	IDR 5.750.000

4.2 Cost of Goods Sold Details

The calculation of the cost of production in this discussion is by using a sample of 1.000 product units.

Table 4. Determining the Cost of Goods Sold for 1.000 Units

Calculation of Cost of Goods Sold for 1.000 units	
Raw Material Costs	IDR 50.218.440
Direct Labor Costs	IDR 2.500.000
Factory Overhead Costs	IDR 6.250.000
Cost of goods sold	IDR 58.968.440

In addition to production costs, the determination of the basic price should include commercial costs such as promotional costs through social media and customer visit methods, so that the total costs will be explained in the following table:

Table 5. Total Cost

Total Cost	
Raw Material Costs	IDR 50.218.440
Direct Labor Costs	IDR 2.500.000
Factory Overhead Costs	IDR 6.250.000
Cost of Goods Sold	IDR 58.968.440
Promotion Costs	IDR 2.500.000
Total Cost	IDR 61.468.440

The promotional costs referred to in table 5 are the costs of purchasing data packages or the costs of visiting customers directly.

4.3 Results of Calculation of Cost of Goods Sold

The calculation of the COGS method of PT Nuansa Porselen Indonesia in table 1 to table 4 can be concluded that the cost of production for 1.000 units of ceramics is Rp. 58,968,440.00. In table 5 it is explained that there are additional costs, namely commercial costs of IDR 2.500.000 so that the total cost is IDR 61.468.440. In determining the selling price, PT. Nuansa Porselen Indonesia wants a profit of 60% of the predetermined COGS, so the selling price of 1 unit of product is as follows.

Table 6. Selling Price of 1 Product Unit

Comparison of Selling Price Determination		
Description	**NPI Company**	**Researcher Analysis**
Total Cost	IDR 59.968.440	IDR 61.468.440
60% Profit	IDR 35.981.064	IDR 36.881.064
Total	IDR 95.949.504	IDR 98.349.504
Number of Units Sold	1.000	1.000
Selling Price Per Unit	IDR 95.950	IDR 98.350

Based on Table 6, the selling price difference is IDR 2.400 for each unit of product.. This small quantity will be noticeable if mass production, such as 1,000 units, is attempted, resulting in a difference of IDR 2.400.000.

5. Conclusion

The calculation of the cost of goods manufactured in each company is certainly different from one another. One method that is often used is the full costing method. Calculating the cost of goods manufactured using the full costing method is very detailed and has several advantages, including the addition of all costs in the company, both fixed costs and variable costs. From the discussion above, it can be concluded that determining the cost of goods manufactured for 1 unit of ceramic involves many components in the company, such as raw materials that are not cheap enough, direct labor costs and factory overhead costs that can be said to be quite high because knowing that factory overhead costs in general such as electricity, water, and others in this company require a very large amount. Using the Full Costing method allows businesses to utilize fixed and variable costs as a constructive analytical tool for determining selling prices. In this case, Nuansa Porselen Indonesia performed the calculations correctly, but some information was overlooked. This information appears to impact the selling price determination process. Nuansa Porselen Indonesia recommends re-evaluating and re-analyzing the accumulated cost components each period to ensure that no components are overlooked.

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