



Capacity Building in Financial Management for MSMEs: Optimization of Cost of Goods Manufactured at Roti Kirana Pekanbaru

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Submission: 07-05-2026

Accepted: 07-07-2026

Abstract

Accurate Cost of Goods Manufactured (COGM) determination is crucial for MSMEs to maintain profitability. This study compares COGM and profit per unit between traditional and Activity-Based Costing (ABC) methods at Roti Kirana. A descriptive quantitative approach was used by analyzing production cost data, cost driver rates, and overhead allocation. The traditional method yields a unit COGM of IDR 49,476 and profit of IDR 38,024. The ABC method yields a unit COGM of IDR 49,047 and profit of IDR 38,453. A COGM variance of IDR 429 exists due to overhead allocation distortions. Although ABC is more precise, Roti Kirana is advised to adhere to the traditional method due to its micro-scale operations and simple production process. Transitioning to ABC is recommended as overhead cost complexity grows in the future.

Keywords: COGM, Traditional Method, ABC, MSMEs, Roti Kirana.

Introduction

The Micro, Small, and Medium Enterprises (MSMEs) sector serves as the backbone of the national economy (Afiah, Rachmawati, and Kurniawan 2025; Huda et al. 2025; Jaya, Tan, and Situmeang 2026), which is required to possess high competitiveness, particularly in cost management (Farida, Wulandari, and Kartika 2024; Sunanda et al. 2025; Wulandari, Presetyo, and Purwanti 2022; Yanti et al. 2024). Pekanbaru City, the culinary industry, such as Roti Kirana, holds significant market potential; however, its business scaling is frequently hindered by unprofessional internal governance. A common phenomenon observed among MSMEs, including Roti Kirana, is a low awareness of the importance of structured cost accounting. Failure to accurately determine the Cost of Goods Manufactured (COGM) is not merely a technical calculation error, but rather a direct consequence of poor fundamental financial literacy (Fahriani et al. 2023; Wulandari et al. 2022; Yanti et al. 2024).

Figure 1.
Profile of Roti Kirana MSME



One critical issue identified at Roti Kirana is its informal financial management practices, specifically the commingling of business operational funds with the owner's personal funds. The economic entity assumption is an absolute prerequisite in accounting; without a clear separation of cash, owners face severe difficulties in assessing the true profit and loss performance of their business. The primary impact of blending personal and business cash is cash flow uncertainty, which often leads owners to mistakenly perceive business progress based solely on turnover, while gradually losing capital due to unmeasured personal consumption (Dewi 2019; Nurul Fauziyyah, Irwansyah, and Ilham Ramadhan Ersyafdi, Sepbeariska Manurung, Walmi Sholihat, Fatti Corrina, Suharmiyati, Christine Dewi Nainggolan, Khanti Listya, Lusiana Putri Ahmadi, Ahmad Bairizki, Taufik Hidayadi, Muhammad Aras Prabowo, Marcy Lolita Pattiapon 2021; Wiralestari, Firza, and Mansur 2018).

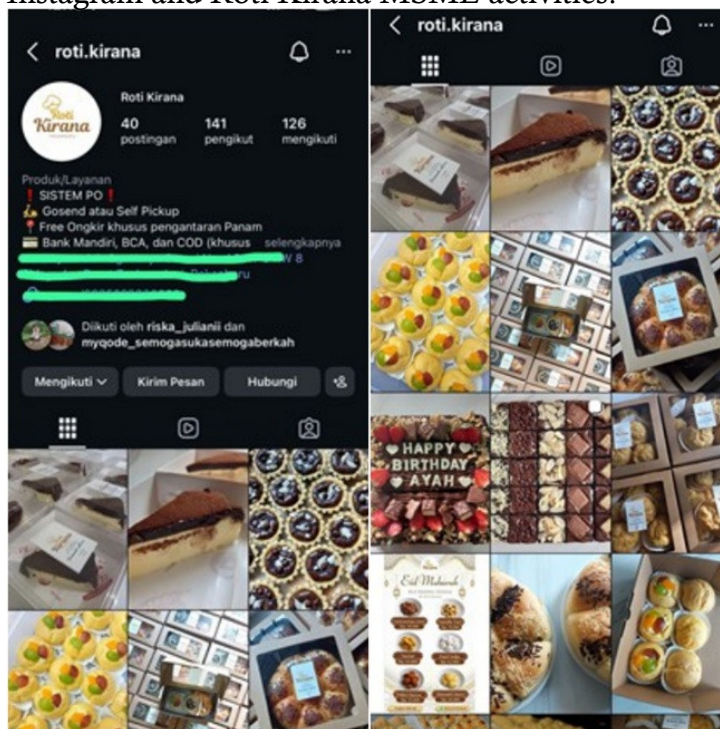
The primary initial vulnerability identified at Roti Kirana lies in its informal financial management practices, specifically the consistent commingling of business operational funds with the owner's personal domestic cash. The economic entity assumption is an absolute, non-negotiable prerequisite in accounting standardizations; without a clear separation of cash flows, owners face severe difficulties in objectively assessing the true profit and loss performance of their business. This blending of personal and business cash triggers acute cash flow uncertainty, which often leads owners to mistakenly perceive business progress based solely on daily gross turnover, while gradually suffering from unrecognized capital erosion due to unmeasured personal consumption.

This issue is further complicated by the partner's inability to properly classify production costs. Roti Kirana has been unable to clearly distinguish among direct material costs, direct labor costs, and factory overhead costs (BOP) (Sofa and Yulia 2024; Wiralestari et al. 2018). Poor cost classification inevitably results in biased overhead cost allocation. Thus far, Roti Kirana has solely utilized the traditional method, which relies on an "averaging" approach where all overhead costs are pooled collectively without a clear allocation base.

According to literature, this triggers cost distortions, making products that require complex processes (such as premium-filled bread variants) appear to share the same profitability as simpler products, even though their actual resource consumption is significantly higher (Fahriani et al. 2023; Nasihin et al. 2024; Wiralestari et al. 2018; Wulandari et al. 2022).

To address these complexities, the Activity-Based Costing (ABC) method serves as a strategic solution to provide cost transparency by identifying specific cost drivers. ABC enables management to allocate overhead costs based on actual operational activities, such as oven operating hours or packaging duration (Fahriani et al. 2023; Farida et al. 2024; Wulandari et al. 2022). Through mentoring provided by university students, Roti Kirana was assisted not only in calculating an accurate COGM but also in receiving education regarding financial discipline and account separation, in accordance with the mandate of (Presiden Republik Indonesia 2023) concerning the strengthening of MSME governance.

Figure 2
Instagram and Roti Kirana MSME activities.



This capacity-building intervention highly aligns with the mandate of the Law of the Republic of Indonesia Number 6 of 2023 concerning Job Creation, which actively promotes the professional standardization of MSME governance to bolster national competitiveness. The ultimate objective of this direct, mentoring-based project is to achieve a profound capacity transformation within the partner. By shifting the entrepreneur's mindset from purely intuition-based management toward rigorous, data-driven financial

decision-making, Roti Kirana can establish realistic, competitive product pricing while maintaining healthy profit margins for long-term business sustainability in the digital era (Farida et al. 2024; Wulandari et al. 2022; Yanti et al. 2024).

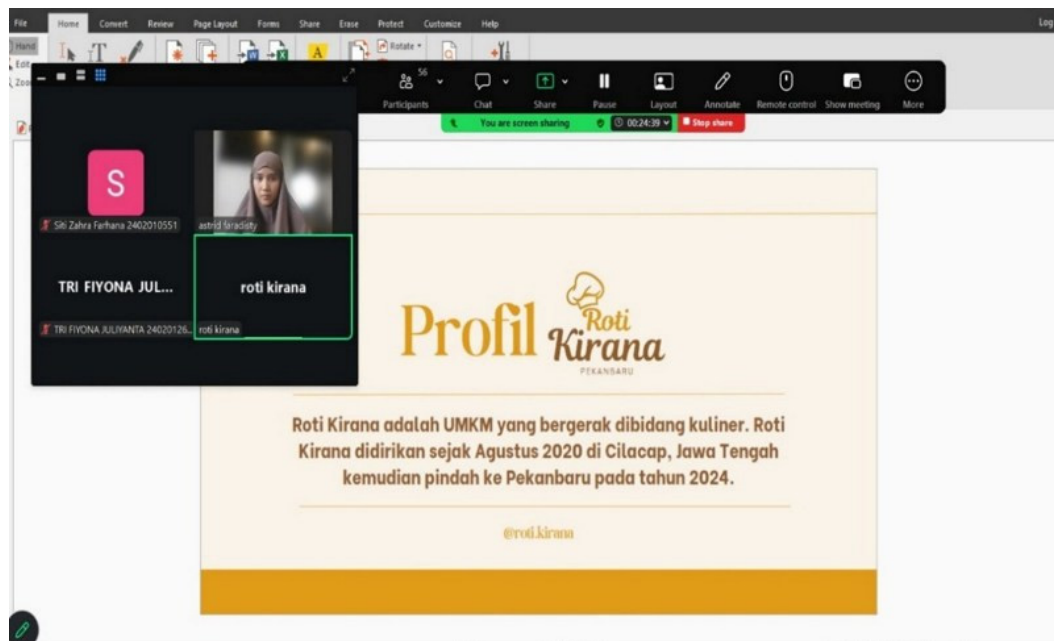
Methods

The implementation of community service activities at MSME Roti Kirana was structured systematically by combining educational sessions, field observations, and financial data analysis. Given the time constraints and the need for efficient coordination, a blended approach was utilized, which encompassed the following developmental stages.

Problem Identification and Observation Stage. The initial stage involved in-depth interviews and direct observations at Roti Kirana's production site in Pekanbaru. University students, alongside the service team, mapped the complete production flow from raw material procurement to final packaging. Interviews were conducted directly with the owner to gather historical data regarding routine expenditures, pricing policies, and challenges related to separating personal and business finances. Furthermore, follow-up coordination sessions were conducted online via the Zoom Meeting platform to verify overhead cost data that remained unspent or unidentified during field observations.

Figure 3.

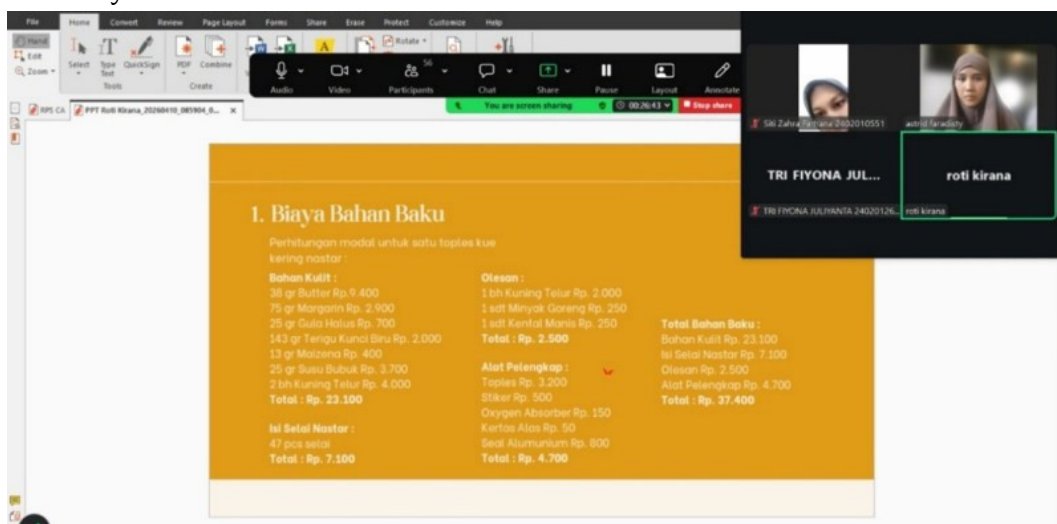
Zoom Meeting with Roti Kirana Owners



Data Collection and Classification Stage: During this stage, students gathered raw cost data and classified them into three standard accounting categories: *Direct Material Costs*: Including flour, butter, sugar, and other core

ingredients; *Direct Labor Costs*: Wages calculated per unit or per hour for production staff; *Factory Overhead Costs (BOP)*: Expenditures for electricity, cooking gas, equipment depreciation, and maintenance. Students educated the owner on how to classify these operational costs systematically to prevent them from blending with household expenses

Figure 4.
Delivery of Costs from Roti Kirana



 **COGM Comparative Analysis Stage:** The compiled data were processed using two distinct calculation methods to evaluate their comparative structural effectiveness: *Traditional Method:* Factory overhead costs (BOP) are allocated uniformly based on production volume (volume-based); *Activity-Based Costing (ABC) Method:* BOP is allocated based on actual activity consumption. Students identified specific cost drivers, such as oven operational hours for baking activities and the number of individual shipments for packaging and finishing activities.

Evaluation and Recommendation Stage: Based on the results of the comparative analysis, students compiled a strategic recommendation report for Roti Kirana, which addressed: The determination of the most accurate COGM value for each product variant. The selection of the optimal cost-calculation method suited for a micro-scale business. Practical tactical steps for the partner, including setting up a simple cash ledger, establishing separate bank accounts for personal and business use, and compiling an asset inventory list for periodic depreciation tracking.

Result And Discussion

This section outlines the empirical comparison of the Cost of Goods Manufactured (COGM) calculations at MSME Roti Kirana using the Traditional Method and the Activity-Based Costing (ABC) method. The

underlying data were collected via direct observations and validated with the owner through online Zoom coordination sessions.

The deployment of the multi-stage mentoring framework yielded a substantial transformation in the financial management capacity of Roti Kirana's owner. Prior to the intervention, the partner operated in a high-vulnerability zone characterized by completely unrecorded overheads and severe personal-business cash commingling. Post-intervention, a major capacity shift was achieved: the owner successfully internalized the economic entity principle, leading to the immediate creation of separate bank accounts for personal use and business operations.

Furthermore, the transformation from theoretical knowledge to practical execution was clearly demonstrated as the owner successfully gained the independent capacity to track 5 critical, previously hidden overhead activities that had historically been completely omitted from product pricing: Machine Setup Activity: Measured precisely by the active operating hours of the industrial dough mixer; Baking Energy Consumption Activity: Traced directly through the actual runtime hours of the commercial ovens; Material Handling Activity: Calculated based on the frequency of raw material sorting and moving; Packaging Activity: Tracked by the specific time allocation per product batch packaging cycle; Logistics and Delivery Activity: Quantified by the frequency and distance of product distribution to local clients.

By mastering the independent tracking of these five hidden overhead *pemicu biaya (cost drivers)*, the owner effectively eliminated arbitrary, intuition-based pricing. This newfound capability provides Roti Kirana with a highly realistic, data-backed foundation to mitigate cost distortions, optimize profit margins, and maintain a competitive edge in the local market.

Breakdown of Total Production Costs (100 jars) Prior to calculating the per-unit metrics, the total accumulated cost structure for a single production cycle of 100 jar established as follows: Total Direct Material Cost (DMC) IDR 37,400 x 100jar = IDR 3,750,000; Direct Labor Cost (DLC): Currently, all production is fully handled by the owner without a formal salary. However, for healthy accounting practices, we must integrate an implicit labor cost (opportunity cost). If an assistant baker in Pekanbaru earns IDR 1,500,000/month with an assumed production capacity of 1,000 jar /month, the labor cost allocation equates to IDR 1,500/jar. $DLC = 100 \text{ jar} \times \text{IDR } 1,500 = \text{IDR } 1,500,000$. Factory Overhead Cost (BOP): Cooking gas: IDR 2,500 / 10 jars = Rp 250/jar; Electricity (Mixer/Oven) Rp 3.000 / 10 jars = Rp 300/jars; Delivery Fuel & Internet: Estimated at IDR 1,450/jar to absorb uncalculated local delivery and online marketing overheads in Pekanbaru; Total Overhead per Unit: $\text{IDR } 250 + \text{IDR } 300 + \text{Rp } 1.450 = \text{IDR } 2.000/\text{jar}$.

Calculation Formulations Breakdown: Traditional Method Calculations: COGM per units: DMC + DLC + Traditional BOP; HPP = 37,400 + 1,500 + 2,000; HPP = 40,900 per jars. Profit per units (explained by the owner of the MSME Roti Kirana, that he sells one jar of cookies for an average of IDR 87.500); Profit = selling price – COGM; Profit = IDR 87,500 – IDR 40,900 = IDR 46,600. Detailed Breakdown of the Activity-Based Costing (ABC) Method: In the ABC framework, the IDR 200,000 overhead budget is distributed across localized activity resource hubs that consume those costs.

We introduce logical *cost driver* assumptions for each activity. First is step A: Identify Activities, Costs, and Core Cost Drivers.

Table 1.

Activity Identification (Assumptions):

Overhead Activity	Assumed Cost Driver	Total Driver Consumption	Activity Cost Pool
Baking & Mixing (Gas & Electricity)	Machine/Oven Operating Hours	50 Oven Hours	IDR 55,000
Marketing & Delivery (Fuel & Internet)	Number of Delivery Shipments	20 Shipments	IDR 145, 000
Total Overhead Budget			IDR 200.000

Step B: Compute Individual Cost Driver Rates Tarif Cost Driver. Baking Activity Rate: Tarif = 55.000/50 = Rp 1.100 / Hour. Marketing & Delivery Activity Rate: 145.000/20 = Rp 7.250/sent. Step C: Trace and Allocate Overhead to One Unit of Product. To compute the activity-based overhead per single jar of Nastar, we evaluate its specific driver consumption: Assume 1 jar of Nastar requires 0.4 hours of cumulative oven time: $0,4 \times 1.100 = \text{Rp } 440$; Assume a single local delivery courier trip drops off a combined bundle of 5 jars simultaneously: $7.250/5 = \text{Rp. } 1.450$ Total ABC Overhead per Jar = IDR 440 + IDR 1450 = IDR 1,890. Step D: ABC COGM Components Per Unit. Direct Material Cost: IDR 37,400. Direct Labor: IDR 1,500. Overhead Cost Allocation (ABC): IDR 1,890. ABC COGM Per Jar: IDR 37,400 + 1,500 + 1,890 = IDR 40,790

Variance Analysis Insight. The ABC method returns a unit cost of IDR 40,790, marginally lower and more accurate than the traditional model (IDR 40,900). This highlights a classic cost distortion; traditional frameworks frequently overcost simpler batches because they fail to capture cost efficiencies tied to bulk delivery runs.

Comparative Cost and Profit per Unit Matrix. The table below provides a detailed side-by-side comparison of the per-unit cost segments, COGM, and

net profitability metrics between both accounting methods at the premium price point of IDR 87,500

Table 2.

Traditional Method vs ABC Method

Calculation Element (Per Unit)	Traditional Method	Activity-Based Costing (ABC) Method
Direct Material Cost (DMC) per Jar	IDR 37,500	IDR 37,500
Direct Labor Cost (DLC) per Jar	IDR 1,500	IDR 1,500
Factory Overhead Cost (BOP) per Jar	IDR 2,000	IDR 1,890
Cost of Goods Manufactured (COGM) per Unit	IDR 40,900	IDR 40, 790
Assigned Selling Price per Unit	IDR 87,500	IDR 87,500
Profit per Unit (Jar)	IDR 46,600	IDR 46,710

As shown in Table 2, conventional volume-based accounting generates a higher COGM value by IDR 100 per unit (*overcosted*). This occurs because the traditional method spreads all overhead costs uniformly without verifying whether packaging and machine setup resources are actually consumed in a linear fashion across all products. Consequently, this volume-based allocation causes individual product profitability to appear lower (*understated*) in traditional internal reports than its true economic potential.

Governance Recommendations. Based on the comparative analysis results and an evaluation of Roti Kirana's current internal management capacities, the student service team has formulated the following operational and strategic recommendations: Selection of the Appropriate COGM Accounting Method, Although the ABC method provides significantly higher cost precision, the student team strongly recommends that Roti Kirana continue utilizing the Traditional Method for its immediate, short-term accounting entries. This pragmatic recommendation is based on the following empirical characteristics of Roti Kirana: *Business Scale and Structure*: The partner operates strictly at a micro-business level with a highly simplified organizational layout. *Technical Competency Constraints*: The lack of dedicated internal accounting personnel means that the immediate implementation of an ABC system risks creating administrative burdens that are far too complex for the owner to manage independently. *Product Homogeneity*: The current production process is straightforward and the existing product lines are relatively uniform. Therefore, the traditional method remains highly practical, time-efficient, and easy for the owner to apply standalone.

Future Outlook. The owner is advised to systematically migrate to the Activity-Based Costing (ABC) method if the business undergoes future expansions characterized by: (a) massive increases in total production volume, (b) the introduction of highly diverse product variants with distinct ingredient profiles and manufacturing complexities, and (c) an expanding proportion of complex, non-volume-driven overhead costs (Abizar, Rafli, and Istiaji 2025; Sari et al. 2025)

Strategic Steps and Preparatory Measure. To reinforce its financial governance foundation prior to full cost standardization, Roti Kirana should adopt several basic, essential operational measures: *Separation of Cash and Accounts:* The owner must immediately cease blending personal funds with business operational funds. Opening a dedicated bank account for all Roti Kirana transactions is essential to preserve cash flow validity. *Disciplined Upkeep of a Simple Cash Book:* Maintaining a daily ledger to record every expenditure, regardless of its size (including fuel expenses for deliveries and cooking gas purchases). *Standardization of Operational Documents:* Neatly archiving all raw material purchase receipts and recording actual employee working hours alongside machine (oven) operational runtimes. This historical dataset will serve as the necessary foundation for determining cost drivers once the business is prepared to adopt the ABC method. *Periodic Selling Price Reviews:* Evaluating product selling prices periodically to actively respond to raw material price fluctuations within the local Pekanbaru market. These price adjustments must be carefully balanced against consumer purchasing power and local competitor dynamics to ensure products remain highly competitive without compromising ingredient quality (Abizar et al. 2025; Nasihin et al. 2024; Sihotang and Fathonah 2025).

Conclusion

This community service project, centered on mentoring and evaluating COGM calculations at MSME Roti Kirana, has yielded several key academic and practical conclusions. First, the student-led intervention successfully isolated the root financial vulnerabilities of the partner, namely cost misclassification and a weak adherence to the economic entity assumption caused by commingling personal and business cash. Second, cost analysis revealed noticeable cost distortions between the two methodologies. Traditional accounting calculated a unit COGM of IDR 49,476, while the ABC method resulted in a more efficient value of IDR 49,047 per unit. The IDR 429 variance demonstrates an *overcosted* bias in the conventional method, which artificially suppresses reported internal profit margins (*understated*) relative to actual economic performance.

Even though the ABC method offers far superior precision regarding overhead cost tracing, the student team presents a strategic recommendation for Roti Kirana to optimize its use of the Traditional Method for its short-term needs. This realistic approach takes into account the partner's micro-scale operations, highly homogeneous product outputs, and limited human resource capacity to manage complex, activity-based administrative workflows.

Based on these outcomes, the following tactical recommendations are proposed to ensure sustainable governance for MSME Roti Kirana. For the Partner (Roti Kirana): The owner should immediately establish strict financial discipline by separating personal and business banking profiles. Furthermore, consistent archiving of expense invoices and recording of production metrics should begin immediately to build data readiness for an eventual transition to the ABC method as volume and product complexities grow. For Academics and Future Service Teams: Subsequent community service initiatives should expand beyond manual cost accounting formulas and introduce elements of digital nudging, or provide direct training on adopting free, user-friendly mobile financial logging software (Android/iOS) tailored specifically for micro-entrepreneurs. This pedagogical progression is vital to sustainably bridging the technical cost-accounting competency gap.

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