

Time-driven activity-based costing and room selling prices: A case study at The Sentra Hotel Manado

Kezia Brielni Wiltin Mewengkang

Corresponding author:

keziamewengkang17@gmail.com

Sam Ratulangi University
Indonesia

Agus Tony Poputra

Sam Ratulangi University
Indonesia

Natalia Y. Telly Gerungai

Sam Ratulangi University
Indonesia

Received 1 August 2026

Revised 2 September 2026

Accepted 3 September 2026

Published online 5 September 2026

DOI: 10.58784/cfabr.491

ABSTRACT

Time-Driven Activity-Based Costing (TDABC) is a refinement of Activity-Based Costing that uses time as the primary cost driver, allocating resource costs to activities in proportion to the estimated minutes each activity actually consumes. This study aims to (1) determine room selling prices at The Sentra Hotel Manado, a four-star hotel in North Sulawesi, using the TDABC method, and (2) compare the resulting prices with those currently set by hotel management under a cost-plus/dynamic-pricing approach, for all six room types over the full 2025 operating year. The Sentra Hotel Manado was selected as the case on the basis of data accessibility, management's willingness to disclose detailed cost records, and its representativeness of North Sulawesi's growing four-star hotel segment; as a single-case design, the findings describe this property's cost structure and are not intended to generalize numerically to other hotels. A case-study approach was used, drawing on observation, semi-structured interviews, and documentation, with room-service activity times measured through direct stopwatch timing cross-checked against staff interviews and standard operating procedures. The results show that TDABC-based room prices are as follows: Superior at Rp625,667; Deluxe at Rp753,386; Premier at Rp929,546; Suite at Rp1,167,762; Premier Suite at Rp2,518,164; and President Suite at Rp5,572,733. Management's cost-plus/dynamic-pricing prices for the same room types are Rp650,300; Rp785,100; Rp987,870; Rp1,215,500; Rp2,560,000; and Rp5,685,000, respectively. TDABC-based prices are consistently lower than management's prices, by 1.6% to 5.9% depending on room type, because time-proportional allocation captures differences in service intensity across room types more precisely than management's single, uniform 70% margin. The findings support a resource-consumption rationale for time-based costing in hospitality: allocating shared service resources by actual activity time, rather than by an aggregate markup, more closely reflects each room type's true resource consumption.

Keywords: time-driven activity-based costing; room pricing; cost-plus pricing; hotel costing.

JEL Classification: M41; L83

©2026 Kezia Brielni Wiltin Mewengkang, Agus Tony Poputra, Natalia Y. Telly Gerungai



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

1. Introduction

Tourism is one of the leading sectors contributing to Indonesia's economic growth. The country's abundant natural resources, cultural diversity, and extensive regional potential have made it one of the more successful tourist destinations in the region, and the government and the community continue to encourage tourism growth through infrastructure development, digital promotion, and service-quality improvements across the hospitality sector. Advances in information technology, particularly social media, official tourism websites, and travel applications, have made it easier for tourists to obtain information and book accommodation online, which in turn has increased demand for comfortable and affordable accommodation across Indonesia's regions.

The hotel industry plays an important supporting role in tourism, offering not only lodging but also meeting and event space, food and beverage outlets, fitness facilities, and other guest amenities. As demand for accommodation increases, the number of star-rated hotels in North Sulawesi Province continues to grow each year (Badan Pusat Statistik Provinsi Sulawesi Utara, 2025), intensifying competition in the regional hotel business. Hotel management must therefore plan appropriate strategies for managing the business, particularly in setting room rates: prices set too high risk losing customers, while prices set too low risk failing to cover the total cost of operations.

Accurate cost calculation is therefore a prerequisite for a defensible room-pricing basis, and Time-Driven Activity-Based Costing (TDABC) is one relevant approach for this purpose. TDABC is a refinement of Activity-Based Costing (ABC) that allocates operational costs to activities based on the time consumed and resources used, and was developed specifically to overcome ABC's practical limitations — namely, the costly and time-

consuming employee interviews and surveys ABC requires to estimate activity-cost-driver percentages (Kaplan & Anderson, 2007). Because hotel service delivery is heavily influenced by time, facility-utilization levels, and staff involvement, TDABC is well suited to hospitality settings: it lets management see how operational cost is allocated based on the actual duration of each room-service activity, from reservation and room cleaning to facility use and guest service.

Beyond pricing, TDABC is often credited in the literature with supporting cost control, operational-efficiency improvement, and the identification of non-value-adding or underutilized activities — benefits whose realization in any given case depends on how finely the underlying activity-time data can be reconciled with practical capacity, a question this study tests directly rather than assumes (Section 4.4.2). This information underpins strategic decisions such as capacity planning, human-resource management, operational-performance evaluation, and, in particular, room-rate determination: prices need to be competitive, affordable for the target market, and capable of sustaining a profit margin. Because TDABC bases room cost on time- and resource-proportional allocation rather than an aggregate markup, it offers a more objective foundation for pricing than conventional cost-plus approaches — provided management understands how to collect the time-based activity data the method requires.

This expectation is grounded in a resource-consumption view of cost allocation, consistent with the contingency perspective on management-accounting-system design: the sophistication of a costing system should match the complexity of the operations it is meant to represent (Kaplan & Anderson, 2007; Anita, 2021). A hotel's room division serves several room types through a

common pool of front-office, housekeeping, and laundry resources, each consumed for a different length of time depending on room type and guest activity. A conventional cost-plus system that spreads shared costs and a single uniform margin across room types implicitly assumes each room type consumes these shared resources equally. Where that assumption does not hold — for instance, where larger or higher-tier rooms require systematically more room make-up, check-in, or check-out time — cost-plus pricing will misstate the relative cost of serving different room types, over-costing low-time-intensity rooms and under-costing high-time-intensity ones. TDABC addresses this by tracing shared-resource cost to each room type through a capacity cost rate (cost per minute of practical capacity) multiplied by the actual time each room type's service activities consume, so that the resulting room cost is proportional to actual time-based resource consumption rather than to an assumed even split. This mechanism, not merely a definitional claim that TDABC is "more accurate" is the theoretical basis for expecting TDABC prices to diverge from, and better reflect relative service intensity than, cost-plus prices in a multi-room-type hotel.

Prior research conducted by Hartono (2021), analyzing Cost to Serve and Customer Profitability using TDABC, found that the approach gives management more precise operational-cost data and helps identify non-value-adding activities; total Cost to Serve is obtained by multiplying the cost driver rate by each customer's actual activity-usage volume, producing a more accurate profitability analysis. Amani et al. (2021), studying room-rate determination at Hotel Tampiarto Probolinggo, found that TDABC produces a more systematic cost calculation than the hotel's existing method because cost allocation follows the actual duration of each hotel activity.

Ahmad et al. (2021), examining unit-cost calculation for dental-clinic procedures at Pratama X Clinic, found that TDABC implementation incorporated indirect cost components into the unit-cost calculation. Nugroho and Wijayati (2023), studying a creative digital-marketing agency, found TDABC feasible to implement and able to adapt to the agency's dynamic service mix. Setyawati (2020), studying TDABC implementation at Hotel Kita Surabaya, reported low profit margins and operational inefficiency during 2018, with unused capacity exceeding actual activity utilization. Zahara and Indayani (2022), studying Grand Nanggroe Hotel Banda Aceh, found that TDABC produced higher room-service costs than the hotel's conventional method for three of its room types, because the hotel's internal method relied on a single cost driver that understated costs (undercosting).

Although these studies collectively show that TDABC-hotel outcomes are mixed, some report lower TDABC costs than the conventional method (Amani et al., 2021), others higher (Zahara & Indayani, 2022), this observation alone does not sharply differentiate the present study from the closest prior work. The present study departs from Amani et al. (2021) and Zahara and Indayani (2022) in three respects. First, both prior studies compare TDABC against a single conventional method (cost-plus, or a single-cost-driver traditional method); this study compares TDABC against a two-stage pricing system that layers dynamic pricing on top of cost-plus pricing, which is the pricing architecture more commonly used by star-rated hotels responding to seasonal demand. Second, this is, to the authors' knowledge, the first TDABC application to a four-star hotel in North Sulawesi with six distinct room types spanning a wide price range (from Superior to President Suite), providing a within-hotel comparison of how cost distortion under cost-plus pricing varies

with room tier and sales volume, rather than the two- or three-room-type comparisons in Amani et al. (2021) and Zahara and Indayani (2022). Third, unlike Setyawati (2020), which reports unused capacity as a general finding without a bottom-up reconciliation against measured activity volumes, this study makes that reconciliation explicit and reports where the available cost and activity-time data do, and do not, support a quantified unused-capacity estimate (see Sections 4.4 and 5.3).

The Sentra Hotel Manado applies its own cost calculation system in the form of traditional cost-plus pricing, which management then uses as the basis for dynamic pricing by adjusting room rates according to high-season conditions (such as holidays) and low-season conditions (such as weekdays). This flexible pricing strategy is intended to maximize revenue and occupancy (The Sentra, 2025). In determining room selling prices, management identifies all cost components related to room operations, cleaning supplies, electricity, laundry linen, direct labor, amenities, and other supporting costs, sums them to obtain total cost per room, and applies a uniform 70% profit margin to that cost base. A 21% tax and service charge is then added to obtain the initial room selling price, which becomes the minimum threshold the hotel aims to achieve for each room sold. Beyond cost, management also weighs occupancy levels, market demand, seasonality, city- or province-level events, and competitors' prices, adjusting rates flexibly, offering promotions when occupancy is low and raising rates when occupancy is high. This combination of cost-plus and dynamic pricing lets the hotel cover its operational costs and sustain a profit while remaining responsive to market conditions; however, because the underlying cost-plus base applies a single uniform margin across all six room types without regard to how much service time each room type actually

consumes, it does not by itself verify whether the base cost allocated to each room type reflects that room type's actual resource consumption.

Building on the theoretical rationale above and the identified gap in the literature, this study aims to (1) determine room selling prices at The Sentra Hotel Manado using the Time-Driven Activity-Based Costing method, and (2) compare the resulting TDABC prices with those currently set by hotel management under its cost-plus/dynamic-pricing approach, across all six room types for the 2025 operating year.

2. Literature review

Accounting

Mulyadi (2021) defines accounting as the systematic process of recording, classifying, summarizing, and reporting an organization's financial transactions over a given period, expressed in monetary units, and interpreting the results. Suhendar (2021) similarly defines accounting as the process of recording, classifying, summarizing, reporting, and analyzing an entity's financial data as a basis for economic decision-making. Taken together, accounting is the systematic recording, classifying, and summarizing of financial transactions that measure business activity, process the data into reports, and communicate the results to decision-makers.

Management accounting

Dunia et al. (2021) define management accounting as a system that produces financial and non-financial information for a company's internal parties in planning, control, and decision-making. Mulyadi (2021) similarly describes management accounting as the process of preparing financial data for management to support decision-making and internal business judgment.

Cost accounting

Mulyadi (2021) defines cost accounting as the process of recording, classifying, summarizing, and presenting the costs of manufacturing and selling products or services using specific methods, and interpreting the results. Mahardika (2021) describes cost accounting as a financial-recording process in which production or service costs are classified and summarized using particular methods, while Dunia et al. (2021) characterize cost accounting as a specialized subset of management accounting that emphasizes cost determination and control.

Time-Driven Activity-Based Costing

Hansen and Mowen (2022) describe TDABC as a cost-calculation approach that removes the need for costly, periodic interviews or surveys by first computing a capacity cost rate, then allocating overhead cost based on the estimated actual time each transaction or sub-activity consumes. Anita (2021) defines TDABC as an innovative costing system built on two main variables — time equations and activity cost-driver rates — designed to represent the production or service flow in depth without the subjective allocation bias that can arise from employee-reported cost-driver percentages under conventional ABC. Kaplan and Anderson (2007), who originated the method, motivate it on resource-consumption grounds: because most operating resources (staff time, equipment, space) have a practical capacity, and each transaction consumes a measurable share of that capacity, unit time is a more direct and less subjective cost driver than the survey-based activity percentages ABC relies on. This resource-consumption rationale is the theoretical anchor used in this study to motivate why time-proportional allocation is expected to better represent each room type's true cost than an aggregate cost-plus margin.

Price

Kotler and Armstrong (2021) define price as the amount of money exchanged for a product or service, or the total value consumers give up to obtain the benefits of owning or using it. Dunia et al. (2021) describe price as one element of the marketing mix that generates revenue for the company, while Mardia et al. (2021) similarly define price as the amount of money, or value, exchanged by consumers for the benefit or use of a product or service.

Hotel

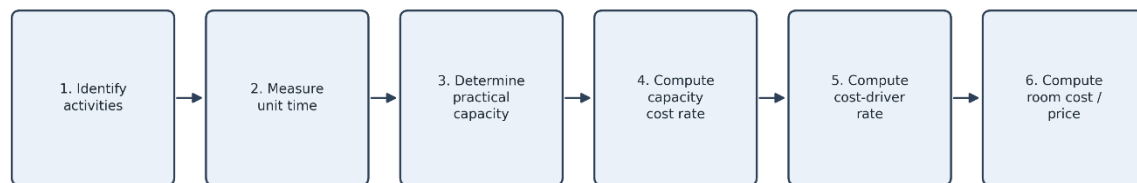
Regulation of the Minister of Tourism and Creative Economy of the Republic of Indonesia Number 4 of 2020 defines a hotel as a business that provides accommodation, food and beverages, and other services to the public on a commercial basis. In this study, a hotel is understood accordingly as a commercially managed lodging business that additionally offers food and beverage and other guest-support services.

TDABC procedure: A conceptual overview

The literature reviewed above traces a logical progression from cost accounting, to Activity-Based Costing, to Time-Driven Activity-Based Costing, to its application in hotel room pricing. TDABC operationalizes this progression through six sequential steps, summarized in Figure 1 and described in full in the Research Method: (1) identify the activities that consume shared resources; (2) estimate the unit time each activity requires; (3) determine the practical capacity of the resource pool; (4) compute the capacity cost rate (total capacity cost divided by practical capacity, in cost per minute); (5) compute each activity's cost-driver rate (capacity cost rate multiplied by unit time); and (6) compute the resulting activity or room cost by summing the cost-

driver rates for all activities a room type consumes.

Figure 1. TDABC Calculation Procedure



Source: Adapted from Kaplan and Anderson (2007) and the TDABC procedure applied in this study.

3. Research method

Research design and case selection

This study uses a case-study design, following Yin (2018), who defines case-study research as an empirical inquiry that investigates a contemporary phenomenon in depth within its real-world context, particularly when the boundaries between phenomenon and context are not clearly evident. A single-case design was chosen because it allows an intensive, in-depth, and comprehensive examination of one organization's room-pricing process, letting the researchers reconstruct how room rates are determined contextually through activity identification, time estimation, and cost analysis rather than through cross-sectional comparison. The Sentra Hotel Manado was selected purposively based on three criteria: (1) its four-star classification and six-room-type portfolio, which provide sufficient cost and pricing variation to compare TDABC against cost-plus pricing meaningfully; (2) data accessibility, in that management was willing to disclose detailed 2025 cost, sales, and pricing records; and (3) its representativeness of the star-rated hotel segment driving hotel-sector growth in North Sulawesi Province (Badan Pusat Statistik Provinsi Sulawesi Utara, 2025). As a single-case design, the results

describe this hotel's own cost structure and pricing gap and are not intended to generalize numerically to other properties (see the Limitations and Future Research discussion).

Types, sources, and data collection

This study uses both quantitative and qualitative data. Quantitative data include the number of rooms, room sales, and expense records (employee salaries, electricity, promotion, and other operating costs) for The Sentra Hotel Manado. Qualitative data were obtained through direct field observation, interviews with informants, and documents such as the organizational structure, vision and mission, and division of duties within hotel management. Both primary data (direct observation and interviews) and secondary data (management records and published statistics) were used. Three data-collection methods were combined, observation, interview, and documentation, and were triangulated by cross-checking interview-reported cost and activity figures against the hotel's documentary records (invoices, payroll, and operational reports) before they were used in the TDABC calculation.

Activity-time measurement protocol

Unit activity times for each room-service task (e.g., room make-up, check-in verification, guest service, check-out) were measured through direct stopwatch observation of front-office, housekeeping, and laundry staff performing their standard duties during the 2025 observation period, cross-checked against the hotel's documented standard operating procedures (SOPs) and confirmed with staff through follow-up interviews where an observed duration appeared to deviate from the SOP-specified time. This triangulation, stopwatch timing checked against SOP and staff interview, was used to reduce the risk that a single observation reflects an atypical trial rather than the activity's normal duration. The number of discrete timing trials per activity, and whether multiple staff members or shifts were sampled, were not systematically logged in the underlying research records; this is acknowledged as a limitation of the time-measurement protocol discussed later, and the unit times reported below should be read as SOP-consistent point estimates for 2025 rather than as means of a documented multi-trial sample. Because activity times were measured within a single year, potential seasonal variation in service duration (e.g., during high-occupancy periods) is not captured and is likewise addressed as a limitation.

Data analysis: The TDABC procedure

The data-analysis technique is the case-study method: a systematic process of processing, organizing, and interpreting data obtained from observation, interviews, documentation, and related reports to develop an in-depth understanding of the phenomenon in its real-world context. Room-division cost was calculated using TDABC through the six steps introduced in Figure 1:

1. Identifying activities. Room-service activities were identified across four stages of the guest cycle: room make-

up, pre-arrival preparation, check-in and verification, and check-out.

2. Identifying the unit time for each activity, following the measurement protocol described above.
3. Determining practical capacity. Practical capacity is the total productive time available from the room division's direct-labor resource pool: gross working minutes for the year, less scheduled break time, based on a 6-day work week.
4. Calculating the capacity cost rate: total capacity cost (the annual cost of the resources supplying practical capacity) divided by practical capacity in minutes.
5. Calculating the TDABC cost-driver rate for each activity: the capacity cost rate multiplied by that activity's unit time.
6. Calculating the TDABC cost of performing an activity, and hence each room type's total activity-based labor cost, by summing the cost-driver rates for every activity a guest's stay in that room type consumes. This step also indicates the proportion of practical capacity each room type is estimated to consume, which is used later to assess capacity utilization.

Non-labor cost pools that management already records at the per-room level, depreciation, cleaning supplies, electricity, water, telephone, Wi-Fi, laundry linen, and other management-allocated overhead, are not separately re-derived through their own TDABC time equations in this study; consistent with the data available in the hotel's cost records, they are traced directly to each room type from actual 2025 expense records, in the same categories management itself uses for its cost-plus calculation, and are then added to the TDABC-derived, time-based labor cost to obtain each room type's full room cost before margin. Only the direct-labor component of room cost is therefore fully time-driven in this study's TDABC model;

the treatment of non-labor cost pools is explicitly flagged as a scope condition in the Limitations and Future Research discussion, since a fully time-driven TDABC model would, in principle, also derive separate capacity cost rates and time equations for utilities, laundry, and housekeeping-supply resource pools rather than tracing them directly.

Finally, room-division cost obtained using TDABC was compared with the cost calculation currently applied by The Sentra Hotel Manado's management.

Practical capacity and the capacity cost rate

Direct-labor capacity is computed from the room division's 26 direct-labor staff (Front Office, Housekeeping, and Laundry) across 2025. Based on a 52-week, 6-day working week, gross working time totals 3,893,760 minutes; after deducting 486,720 minutes of scheduled break time, practical capacity is 3,407,040 productive minutes for the year.

Table 1. Direct-labor practical capacity, 2025

Component	Gross working time (min.)	Break time (min.)	Practical capacity (min.)
26 direct-labor staff (Front Office, Housekeeping, Laundry)	3,893,760	486,720	3,407,040

Source: Data processed from case-study research records, 2026

Total capacity cost (the annual cost of the resources that supply this practical capacity, i.e., direct-labor cost apportioned across the room division per the hotel's cost records) is Rp3,511,300,000 for 2025. The capacity cost rate is therefore:

$$\begin{aligned} \text{Capacity Cost Rate} &= \text{Total Capacity Cost} / \text{Practical Capacity} \\ &= \text{Rp3,511,300,000} / 3,407,040 \text{ minutes} \\ &= \text{Rp1,031 per minute.} \end{aligned}$$

This rate is uniform across all six room types because it reflects the per-minute

cost of the shared direct-labor resource pool; what varies by room type is the amount of time each room type's activities consume, computed next.

4. Result and discussion

Room selling prices determined by The Sentra Hotel Manado Management

Management determines room selling price by identifying total operating cost per room, applying a uniform 70% profit margin, and then adding a 21% tax and service charge, as summarized in Table 2.

Table 2. Room selling price by room type, management's cost-plus/dynamic-pricing method (2025)

Cost component (Rp)	Superior	Deluxe	Premier	Suite	Premier Suite	President Suite
Cleaning supplies	12,000	14,000	18,000	25,000	45,000	90,000
Electricity, water, telephone, Wi-Fi	25,000	28,512	35,000	55,000	120,000	350,000
Linen laundry	12,000	14,000	18,000	25,000	45,000	90,000
Management	112,231	138,000	173,926	196,281	386,893	663,120
Tax and service charge (21%)	33,859	40,888	51,435	63,369	125,347	250,554
Total room cost	195,090	235,400	296,361	364,650	722,240	1,443,675
Profit (70% of room price)	455,210	549,570	691,509	850,850	1,837,760	4,241,325
Total selling price	650,300	785,100	987,870	1,215,500	2,560,000	5,685,000

Source: Data processed from case-study research records, 2026

Room sales, 2025

Table 3 reports the number of rooms sold by room type in 2025, which is used both to weight the capacity cost rate

calculation and to estimate the business materiality of the TDABC-versus-management pricing gap.

Table 3. Rooms sold by room type, 2025

Room type	Number of rooms	Rooms sold, 2025	Share of rooms sold
Superior	16	4,912	13%
Deluxe	81	16,482	45%
Premier	73	11,647	31%
Suite	24	3,223	9%
Premier Suite	1	260	1%
President Suite	1	220	1%
Total	196	36,744	100%

Source: Data processed from case-study research records, 2026

Room selling prices determined using TDABC

Activities, Unit Times, and the Cost-Driver Rate

Guest-facing room-service activities were grouped into four stages of the guest cycle. Room make-up is the only stage whose unit time varies by room type, reflecting the larger floor area and

additional amenities of higher-tier rooms; pre-arrival preparation, check-in and verification, and check-out consist of activities performed to a common standard regardless of room type. Table 4 discloses the unit time (in minutes) and resulting activity cost (unit time x Rp1,031/minute) for each activity group.

Table 4. Room-service activities and time equations

Activity group	Representative tasks	Unit time (min.)	Activity cost (Rp, @1,031/min)
Pre-arrival preparation	Bellman greets guest, assists with luggage to lobby/front desk	3	3,093
Check-in and verification	ID verification, PMS matching, registration card, billing, key card, escort to room	14	14,434
Check-out	FO coordinates with Housekeeping, F&B and Laundry checks, key return and billing, farewell	20	20,620
Room make-up — Superior	Housekeeping sweeping, dusting, mopping, and room set-up (Superior)	25	25,775
Room make-up — Deluxe	As above, Deluxe	30	30,930
Room make-up — Premier	As above, Premier	30	30,930
Room make-up — Suite	As above, Suite	40	41,240
Room make-up — Premier Suite	As above, Premier Suite	50	51,550
Room make-up — President Suite	As above, President Suite	60	61,860

Source: Data processed from case-study research records, 2026

Summing the common-stage times (pre-arrival, check-in, and check-out: 37 minutes) with each room type's room make-up time gives each room type's directly-measured guest-cycle time; however, the room-cost buildup in Table 5 also reflects additional, room-type-specific housekeeping, laundry, and support-activity time not itemized individually in Table 4. Table 5 therefore reports each

room type's total activity-based labor cost as recorded in the underlying case-study cost calculation, together with the implied total activity time obtained by dividing that cost by the Rp1,031-per-minute capacity cost rate — the most transparent reconciliation the available case-study records support (see the Limitations and Future Research discussion on the granularity of the underlying time data).

Table 5. TDABC activity-based labor cost and implied total activity time by room type

	Superior	Deluxe	Premier	Suite	Premier Suite	President Suite
Activity-based labor cost (Rp)	112,297	153,336	151,218	165,565	208,394	240,285
Implied total activity time (min.)	109	149	147	161	202	233

Source: Data processed, 2026; activity-based labor cost per room type from the underlying case-study TDABC cost calculation. Implied total activity time = activity-based labor cost / Rp1,031 per minute.

Full room cost buildup and TDABC selling prices

Each room type's activity-based labor cost (Table 5) is combined with the same non-labor cost categories management already records per room (depreciation, cleaning supplies, electricity, water,

telephone, Wi-Fi, laundry linen, and management overhead; see the Research Method for how these are traced), a 21% tax and service charge, and the same 70% profit margin management applies, to obtain the TDABC-based selling price in Table 6.

Table 6. Room Selling Price by Room Type, TDABC Method (2025)

Cost component (Rp)	Superior	Deluxe	Premier	Suite	Premier Suite	President Suite
Room service activity cost (TDABC)	112,297	153,336	151,218	165,565	208,394	240,285
Depreciation	17,924	27,043	34,489	40,976	41,123	48,600
Cleaning supplies	12,000	14,000	18,000	25,000	45,000	90,000
Electricity	15,000	18,000	22,000	35,000	80,000	220,000
Water	3,000	3,500	4,000	8,442	20,000	272,836
Telephone	2,000	2,012	2,500	4,000	13,203	100,000
Wi-Fi	5,000	5,000	6,500	12,000	30,000	200,000
Laundry linen	12,000	14,000	18,000	25,000	45,000	90,000
Management	5,000	7,500	10,000	15,000	25,000	45,000
Tax and service charge (21%)	38,686	51,742	56,008	69,506	106,621	274,415
Total room cost	222,907	298,133	322,715	400,489	614,341	1,581,136
Profit (70% of room price)	402,760	455,253	606,831	767,273	1,903,823	3,991,597
Total TDABC selling price	625,667	753,386	929,546	1,167,762	2,518,164	5,572,733

Source: Data processed from case-study research records, 2026

Comparison and Discussion

Table 7 compares management's cost-plus/dynamic-pricing prices (Table 2) with

TDABC-based prices (Table 6) for all six room types.

Table 7. Comparison of management and TDABC room selling prices, 2025

Room type	Management price (Rp)	TDABC price (Rp)	Difference (Rp)	Difference (%)
Superior	650,300	625,667	24,633	3.79%
Deluxe	785,100	753,386	31,714	4.04%
Premier	987,870	929,546	58,324	5.90%
Suite	1,215,500	1,167,762	47,738	3.93%
Premier Suite	2,560,000	2,518,164	41,836	1.63%
President Suite	5,685,000	5,572,733	112,267	1.97%

Data processed from case-study research records, 2026

Across all six room types, the TDABC-based price is consistently lower

than management's cost-plus/dynamic-pricing price, by amounts ranging from

Rp24,633 (Superior) to Rp112,267 (President Suite), or 1.6% to 5.9% of management's price depending on room type. This directional consistency indicates that management's uniform 70% margin, applied to a cost base that itself does not separate time-based labor cost from other cost components, tends to build in a slightly larger cushion than a time-proportional allocation would produce for every room type in this hotel's portfolio — the reverse of the under-costing pattern Zahara and Indayani (2022) report for three room types at Grand Nanggroe Hotel Banda Aceh, and consistent with Amani et al.'s (2021) finding that TDABC systematically re-based room cost below the conventional method at Hotel Tampiarto Probolinggo.

The percentage gap is not uniform across room types: it is largest for Premier (5.90%) and Deluxe (4.04%), and smallest for Premier Suite (1.63%) and President Suite (1.97%). Premier and Deluxe are also the hotel's two highest-volume room types, accounting for 31% and 45% of rooms sold in 2025 respectively (Table 3), and their implied total activity time (147 and 149 minutes; Table 5) is close to, and for Deluxe exceeds, that of the higher-tier

Suite room (161 minutes) despite Suite's substantially higher unit cost and selling price. This pattern is consistent with the two mid-tier room types placing a disproportionately large share of guest-cycle time on the shared direct-labor resource pool relative to their room cost, a distinction the aggregate cost-plus method, which allocates margin as a flat percentage of cost rather than in proportion to time, is structurally unable to capture. This explanation should, however, be read as consistent with the direction of the data rather than as a fully decomposed causal test, since the case-study records do not itemize which specific activities (beyond room make-up) drive the difference in implied activity time across room types (see the Limitations and Future Research discussion).

Business materiality of the pricing gap

Multiplying each room type's per-unit price difference (Table 7) by its 2025 rooms-sold figure (Table 3) gives an estimate of the aggregate annual revenue implication of the gap between TDABC and management pricing, summarized in Table 8.

Table 8. Estimated annual revenue implication of the TDABC-management pricing gap, 2025

Room type	Rooms sold, 2025	Price difference (Rp)	Estimated annual revenue impact (Rp)
Superior	4,912	24,633	120,997,296
Deluxe	16,482	31,714	522,710,148
Premier	11,647	58,324	679,299,628
Suite	3,223	47,738	153,859,574
Premier Suite	260	41,836	10,877,360
President Suite	220	112,267	24,698,740
Total	36,744	—	1,512,442,746

Source: Authors' calculation, price difference (Table 7) x rooms sold, 2025 (Table 3).

At 2025 sales volumes, the gap between management's and TDABC's prices represents approximately Rp1.51 billion across the year's room sales — a

materiality estimate that gives hotel management a concrete basis for weighing whether, and by how much, to recalibrate its cost-plus margin toward a more time-

proportional structure, rather than treating the percentage differences in Table 7 as an abstract costing exercise.

Capacity utilization

The Introduction noted, consistent with the broader TDABC literature, that the method is often credited with surfacing unused capacity, resource capacity paid for but not consumed by measured activity, which a cost-plus method does not reveal (Setyawati, 2020); that framing was presented there as a general claim from the literature rather than as a result of this study, precisely because, as shown below, the available data in this case do not allow the claim to be verified numerically here. To test this claim against the data available in this case, the implied total activity time per room type (Table 5) was multiplied by 2025 rooms sold (Table 3) and summed across all room types, and compared against the 3,407,040-minute practical capacity computed earlier. This reconciliation could not produce a credible positive unused-capacity figure: aggregate implied activity-time demand across the year's actual room sales exceeds practical capacity several-fold. This is not read as evidence that the room division is literally over capacity, occupancy and staffing patterns make that implausible, but as evidence that the capacity cost rate reported earlier, which allocates 100% of practical capacity to room types in proportion to each room type's share of rooms sold rather than from a bottom-up sum of measured activity time across the year's actual sales volumes, is not by itself a basis from which unused capacity can be quantified. Reconciling the two would require either a bottom-up recomputation of the capacity cost rate from aggregated activity-time demand, or a fuller activity-time log than the case-study records disclose. Rather than assert an unsubstantiated unused-capacity finding, this study reports the claim as unverifiable from the available data and treats it as a

specific, well-defined avenue for future research, consistent with Setyawati's (2020) qualitative observation that capacity underutilization is a plausible feature of TDABC-costed hotel operations even where a precise figure cannot yet be reported here.

5. Conclusion

Room selling prices at The Sentra Hotel Manado calculated using TDABC (Rp625,667 to Rp5,572,733 across six room types) are consistently 1.6% to 5.9% lower than management's cost-plus/dynamic-pricing prices, with the largest gaps at Premier and Deluxe, the hotel's two highest-volume room types. This supports the resource-consumption rationale for time-driven costing: allocating shared resources by actual service time better represents room costs whenever room types differ in service-time intensity. The consistent gap direction extends prior mixed TDABC-hotel findings, showing this depends less on the method than on the comparator's cost base and margin. An unresolved unused-capacity estimate further indicates that this benefit is realized only when the capacity cost rate is computed bottom-up from measured activity-time demand.

Practically, adopting TDABC, or using it as a periodic cross-check alongside cost-plus/dynamic pricing, could refine room pricing to better track resource consumption; the estimated Rp1.51 billion revenue implication at 2025 sales volumes indicates this refinement is financially material. Management can also use TDABC to strengthen cost control by identifying which activities consume the most shared resources when reviewing its margin structure. These conclusions carry limitations: a single-case, single-city design that limits generalization; unlogged timing trials within a single year; a capacity cost rate allocated by sales mix rather than bottom-up; and non-labor costs traced directly rather than through their

own time equations. Future research could address these by replicating the protocol across multiple hotels, applying multi-season time-and-motion sampling, recomputing the capacity cost rate bottom-up, and extending TDABC equations to non-labor resource pools.

References

- Ahmad, E., Puspendari, D. A., & Ambarriani, A.S. (2021). Analisis penghitungan biaya satuan (unit cost) tindakan poli gigi Klinik Pratama X menggunakan metode time driven activity based costing. *Jurnal Manajemen Pelayanan Kesehatan*, 23(1), 9-15. <https://doi.org/10.22146/jmpk.v24i01.4060>
- Amalia, V., Sadiyah, F. N., & Munambar, S. (2026). Implementasi time driven activity based costing (tdabc) dalam penetapan harga pokok produksi: Studi kasus PT ABCD. (2026). *Jurnal Ilmiah Mahasiswa Agrokomplek*, 5(2), 320-329. <https://doi.org/10.29303/6g58k585>
- Amani, T., Hudzafidah, K., dan Wulandari, H. I. (2021). Utilization of the time driven activity based costing method in determining the cost of room rent at Hotel Tampiarto Probolinggo. *International Journal of Social Science and Business*, 5(4), 543-550. <https://doi.org/10.23887/ijssb.v5i4.40070>
- Anita, N. (2021). Perkembangan ilmu akuntansi manajemen: Sebuah tinjauan literatur. *Jurnal Paradigma: Jurnal Multidisipliner Mahasiswa Pascasarjana Indonesia*, 2(2), 80-88. <https://journal.ugm.ac.id/paradigma/article/view/70334>
- Badan Pusat Statistik Provinsi Sulawesi Utara. (2025). *Jumlah Akomodasi, Kamar, dan Tempat Tidur yang Tersedia pada Hotel Bintang. Indonesia*. <https://sulut.bps.go.id/id/statisticstable/3/TjBWSldsWklZVnBXU1RKcVlsVTNSRXhpU2tzclFUMDkjMw==/jumlah-akomodasi--kamar--dan-tempat-tidur-yang-tersedia-pada-hotel-bintang-menurut-kabupaten-kota-di-provinsi-sulawesi-utara--2024.html?year=2023>
- Dunia, F. A., Abdullah, W., & Sasongko, C. (2021). *Akuntansi biaya*. Edisi 5. Salemba Empat
- Hartono, E. (2021). Analisis cost to serve dan customer profitability dengan time-driven-activity based costing. *JAK (Jurnal Akuntansi) Kajian Ilmiah Akuntansi*, 8(1), 21-33. <http://dx.doi.org/10.30656/jak.v8i1.2368>
- Kotler, P, Amstrong, G. (2021). *Principles of Marketing*. Penerbit. Pearson education.
- Mowen, M. M., Hansen, D. R., & Heitger, D. L. (2022). *Managerial accounting: The cornerstone of business decision-making*. Cengage Learning
- Mulyadi. (2021). *Akuntansi biaya*. Edisi 5. UPP STIM YKPN.
- Nugroho, B., & Wijayati, N. (2023). Implementasi time driven activity-based costing dan strategi harga pada agensi pemasaran digital kreatif. *Jurnal Proaksi*, 10(2), 125-142. <https://doi.org/10.32534/jpk.v10i2.3979>
- Putra, I. M. (2021). *Akuntansi biaya pedoman terlengkap analisis dan pengendalian biaya produksi*. Anak Hebat Indonesia
- Suhendar. (2021). *Pengantar akuntansi*. Penerbit Adab.
- Tjiptono, F. (2020). *Strategi pemasaran, prinsip dan penerapan*. Andi Offset.

Zahara, L., & Indayani. (2022). The time driven activity-based costing than hotel management methods for determining the cost of hotel room service (Case in The Grand

Nanggroe Hotel Banda Aceh). *Jurnal Akuntansi*, 9(2), 250-266.
<http://doi.org/10.30656/Jak.V9i2.3105>