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Enhancing Operational Performance Index Using the Theory of Constraints: A Case Study at PT XYZ

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ABSTRACT

Since the onset of the COVID-19 pandemic, car sales in Indonesia have declined, affecting PT XYZ, a subsidiary of a major automotive company specializing in pre-owned vehicle sales. This study aims to develop a strategy for identifying profitable and fast-selling car types using the Theory of Constraints approach. This applied research employs a mixed-method, including both qualitative and quantitative methods. The qualitative approach involves interviews with three key informants, while the quantitative method uses the Theory of Constraints to assess operational performance through inventory turnover and productivity. A Chi-Square test is also conducted to examine the relationship between these two factors. The study's findings indicate a relationship between inventory turnover and productivity. This suggests that changes in one factor can impact the other, influencing PT XYZ's operational strategies to enhance efficiency and profitability in used car sales. Therefore, the company should consider this relationship when making decisions, including vehicle purchasing and refurbishment planning, to optimize sales performance.

Keywords:
Inventory turnover, operational performance index, productivity, theory of constraints, throughput

INTRODUCTION

Indonesia has a diverse range of industries that can contribute to strengthening the national economy. The persistent growth of these industries has led to the country to being recognized as an industrial economy based on its structural composition. This classification is supported by the fact that the industrial sector contributes the largest share to the national economy for more than 20 percent of the total (Bisnis.com, 2017). One of the industries showing positive development is the automotive industry. Minister of Industry Agus Gumiwang reported that the automotive industry has attracted investments amounting to IDR 99.16 trillion, with a total production capacity of 2.35 million units per year and direct employment for approximately 38,390 individuals (Gaikindo, 2021).

The advancement of the automotive industry is also driven by the substantial size of Indonesia's middle class. This demographic, characterized by individuals with moderate income levels, increasingly views vehicles—such as cars and motorcycles—as essential tools for daily life. The middle class is

defined as a segment of the population capable of meeting their basic needs independently and occasionally affording non-essential expenditures, such as vacations or car ownership.

PT XYZ is one of the subsidiaries of the well-known companies in Indonesia's automotive sector. This company focuses on selling pre-owned vehicles. As a market leader, PT XYZ consistently aims to reach its goals by breaking the profit records. However, since the COVID 19 pandemic hit, there has been decreasing in car sales. The Central Bureau of Statistics (2025) indicates a steady drop in car sales from 2022 to 2024, with figures of 1,048,040 units, 1,005,802 units, and 865,723 units, respectively. This decline occurs due to the fact that most people have not prioritized purchasing vehicles even after pandemic. Additionally, the trend of decreasing car sales is also due to the shrinking middle class, which serves as the backbone of the automotive industry (Viva.co.id, 2024).

As a result, PT XYZ's revenue has been affected. The financial report shows a significant drop in used car sales, with a decrease of IDR 142,659 billion in 2021 and IDR 141,197 billion in 2023. One reason for the suboptimal sales performance, according to the financial report, is that the company did not account for inventory in the showroom. Whereas, high inventory levels reduce profit margins (Chopra, 2018). PT XYZ needs to ensure the showroom's capacity before purchasing pre-owned vehicles. This is necessary to determine how many vehicles can be stored in the showroom. Up to this time, PT XYZ has relied only on basic planning methods to determine the quantity of units to acquire for each item, but in practice, the quantity procured depends solely on the supplier's available stock.

PT XYZ doesn't have a specific timetable for the repair of pre-owned cars at the service facility. Instead, the repair stages adhere to a first-come, first-served system, whereby vehicles purchased earlier are prioritized for repair. In fact, the company has not yet developed a strategy for prioritizing the types of cars to be promoted in the market. Marketing team has the data to help identifying customers' demand, however, the data does not yet incorporate an analysis of operational costs and inventory turnover rates.

Russel and Taylor (2023) explained that operating costs refer to how the equipment will be operated, started, stopped, loaded, unloaded, changed over, upgraded, networked, maintained, repaired, cleaned up, sped up, and slowed down. Operational costs are costs incurred to manage raw materials into finished product materials that are ready for sale (Setyowati, 2025). Operational costs and inventory rates are crucial factors for achieving high profits. Eliyahu Goldratt's "The Goal" (2014) explained that generating revenue in operations requires three key points: throughput, inventory, and operating expense. This concept is known as the Theory of Constraints (TOC). According to Hirsch (1994), the Theory of Constraints (TOC) is a method for managing limitations in a dynamic environment. The theory focuses on two main objectives: maximizing throughput and minimizing operating cost and inventory (Hirsch, 1994). The adoption of efficient workflows and the strategic use of resources contributes to lowering operational costs (Dutta, 2023).

Additionally, according to Sunday & Josh (2017), inventory management has a great role to play in corporate financial performance of firms hence firms' inventory systems must maintain an

appropriate inventory levels to enhance profitability and reduce the inventory costs associated with holding excessive stock in the warehouses. The company also needs to focus on inventory turnover. Kwak (2019) explained that inventory turnover (IT) one of the most important factors in the manufacturing industry. This is consistent with the research conducted by Alnaim & Kouaib (2023) on manufacturing in Saudi Arabia, which found that the higher the inventory turnover ratio, the higher the costs that could be suppressed, and the greater the profitability of a company. According to Oktapiadi et al. (2020), a higher inventory turnover indicates that the capital invested in inventory is converted into revenue more rapidly, ultimately enhancing both profitability and productivity. Meanwhile, a low inventory turnover indicates a big number of unused inventories, while high inventory turnover indicates that inventory is rapidly sold and that the firm handles its inventories efficiently. High inventory turnover ratio represents good inventory management since it implies rapid movement of merchandise to lower inventory investment (Shardeo, 2015). When inventory is rapidly sold, corporate profit earned is higher. (Alnaim & Kouaib, 2023).

The profit itself can be computed as productivity of company (Chambers, 1996). To analyze productivity, output and input are necessary (Diewert & Fox, 2023). Productivity is also defined as the relationship between the outputs generated from a system and the inputs that are used to create those outputs (Buheji & Ahmed, 2017). Input includes all the resources used in production process, such as labor, raw materials, time, technology, and capital. Whereas, output is what produced from the production process and refers to quantity and quality. So that, inventory turnover and productivity are good indicators of company performance.

However, PT XYZ has yet to develop a strategy to identify the types of cars that could yield high profits and sold rapidly to customers. This is necessary so that the company can provide the prioritized type cars in the market and facilitate the repairs scheduling based on these prioritized categories. Meanwhile, in Indonesia itself, application TOC in Indonesia's pre-owned car market is still limited. From this perspective, the study addresses two primary research question: (1) How can TOC improve inventory turnover and productivity at PT XYZ?; and (2) What strategies derived from TOC are most effective for PT XYZ's business model. Additionally, this study contributes to TOC theory by examining case studies and empirical data in enhancing operational efficiency, profitability, and overall system performance in emerging economies.

RESEARCH METHOD

This study is applied research that aims to develop a strategy to categorize car types using theory of constraints approach at PT XYZ. Mix method is employed in this study, including qualitative and quantitative. In qualitative method, this study conducted interviews to three informants that provide valuable insight: Branch Manager, Sales Manager, and Stock Control. The interviewees were selected based on their comprehensive understanding of inventory management, sales trends, and the entire

lifecycle of acquiring used cars and reselling them after repairs. The interview questions were designed as open-ended questions to encourage the interviewees to discuss and explain their insights regarding inventory management and business processes at PT XYZ. Besides, in quantitative method, this study used Theory of Constraints approach to obtain the right strategy for optimizing throughput and decreasing inventory and operating expenses.

To ensure a systematic approach, an analysis framework is employed. This analysis framework was used to guide the research process step by step. Also, the analysis framework serves as a tool to connect the various concepts utilized in the study. Figure 2 illustrates the analysis framework in this study.
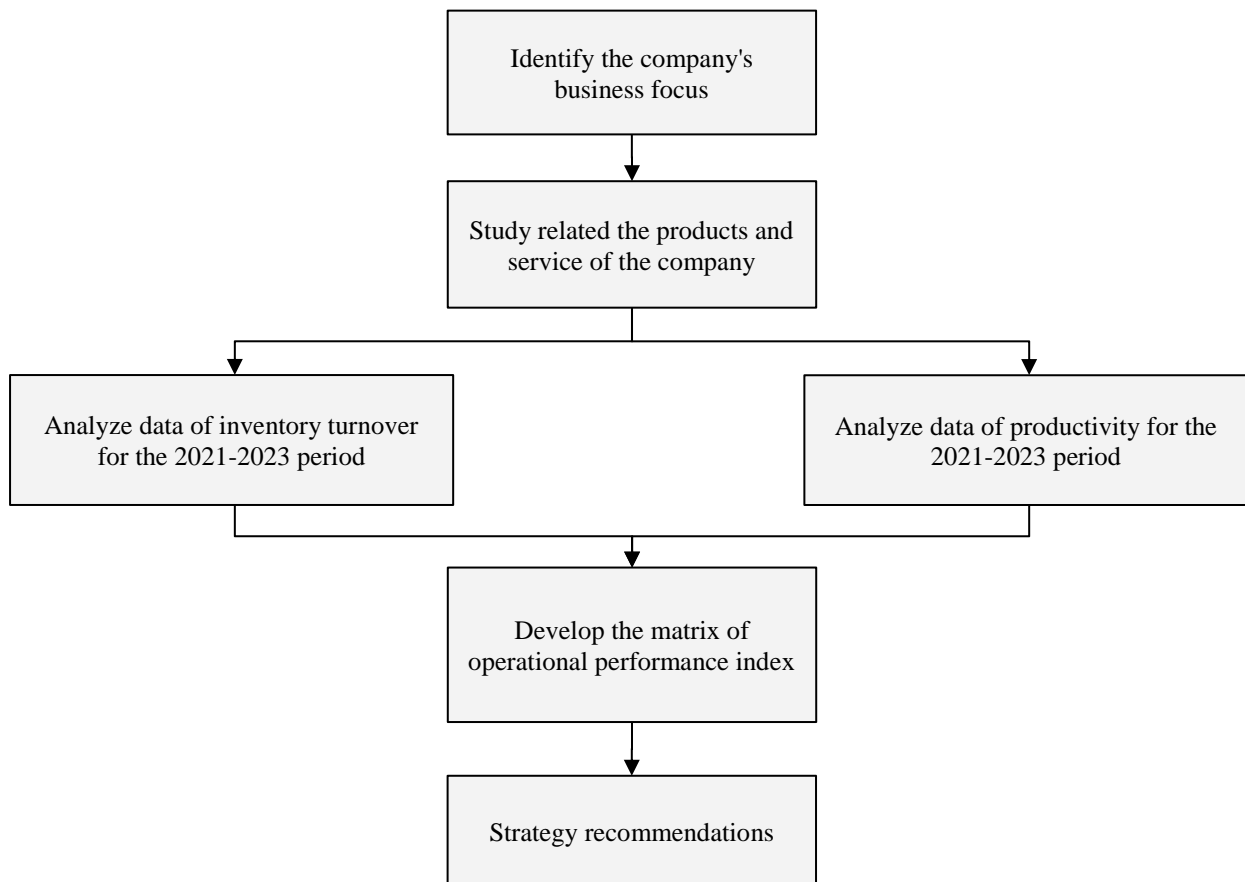
Figure 2. Analysis Framework

To identify the optimal index of operational performance, this study utilizes inventory turnover and productivity as key indicators. The data obtained from financial report's PT XYZ and relevant literature that supports the theoretical framework. Descriptive statistical methods, including the calculation of mean, standard deviation, and variance, were applied to analyze the data. Furthermore, a Chi-Square test was conducted to examine the relationship between inventory turnover and productivity. Table 1 shows the detail of types and source of data, data collection method, and data analysis technique.

Table 1. Data Collection Method

| Research Steps	Data Obtained	Sources	Method
Identify the company's business focus	Target and business focus	Interview Interpretation Data	Interview
Study related the products and service offered by company	Product and services of company	Company's document, website, and interview	Literature study, interview
Analyze data of inventory turnover for the 2021-2023 period	Inventory turnover data for the 2021-2023 period	Report's company	Data analysis and data processing
Analyze data of productivity for the 2021-2023 period	Productivity data for the 2021-2023 period	Report's company	Data analysis and data processing
Develop the matrix of operational performance index	Productivity and inventory turnover of company	Data of sales, purchases, and operating expenses' analysis	Data analysis and data processing
Strategy recommendations	Gap between target and analysis results	Operating performance index results	Data analysis and data processing

RESULTS AND DISCUSSION

Results

The business process for used cars begins with purchasing vehicles from supplier, including individuals and other PT XYZ showroom. A purchaser then conducts an inspection of the vehicles, assessing any damages. Following the inspection, the purchaser negotiates the price based on the damage assessment. When both parties settle the price, the purchaser submits a proposal to the finance team to proceed with the vehicle purchase. Then, the finance team will evaluate the proposal to determine its feasibility within the company's financial constraints. There are two possible outcomes. If the purchase request is approved, the finance team will proceed the payment for the vehicle. However, if the request is denied, the finance team will ask the purchaser to renegotiate with the supplier to adjust the price to fit the company's budget. After renegotiation, the purchaser can resubmit the purchase request to the finance team until it is approved and the vehicle payment is completed.

Once the payment is completed and the vehicle has been acquired by the company, the next step involves handing the vehicle over to quality control for a thorough inspection of any exterior and interior damages. This inspection is crucial to estimate the repair costs. Apart of inspecting, quality control is responsible for identifying available repair shops. Next, quality control will negotiate the repair costs with the repair shops. If the both parties, the quality control and the repair shop, agree one the price, the company will send the vehicle to the repair shop to proceed. If an agreement cannot be reached, quality control will continue to search for another repair shop that meets the requirements.

Once the vehicle is delivered to the repair shop, it undergoes a refurbishment process, which involves renewing or replacing damaged parts. The lead time for this process varies depending on the type of damage and the repair shop's availability. Upon completion of the repairs, the repair shop informs the quality control. At this stage, quality control inspects the vehicle to ensure all damages have been fully repaired. If the refurbishment passes the quality control inspection, the finance team proceeds

with the payment. Conversely, if the refurbishment does not pass the inspection, the vehicle is returned to the repair shop for further repairs according to quality control standards. The final step involves sending the repaired vehicle to the showroom for sale to customers. Figure 3 shows the business process for the refurbishment process of PT XYZ.
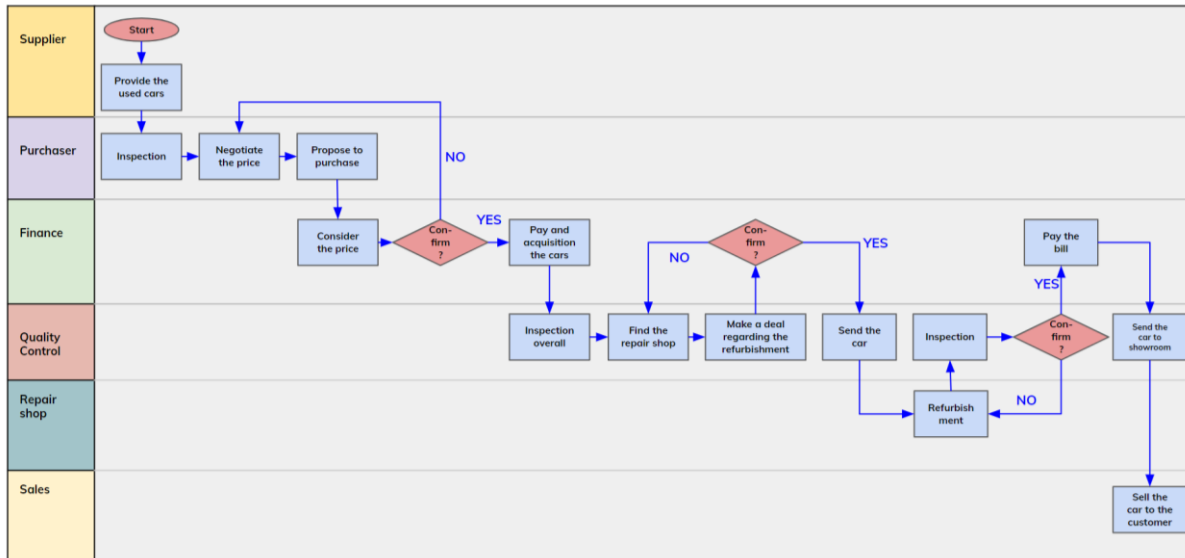
Figure 3. The Business Process for The Refurbishment Process of PT XYZ

PT XYZ offers 27 types of pre-owned vehicles, each assigned a unique Code A followed by its sequence number. Each vehicle type is purchased in varying quantities and sold at different prices. The initial step in developing an operational index for PT XYZ involves analyzing purchases and sales to determine inventory values. Sales data is essential for determining throughput values. Subsequently, an analysis of the company's operating costs is conducted. According to interviews with the Branch Manager, these costs encompass showroom rental, repair or maintenance expenses, labor costs, vehicle shipping costs, and other expenses. These operational costs are analyzed by vehicle type. Once all necessary data is obtained, productivity and inventory turnover calculations can be performed. The formula used to calculate inventory turnover is as follows:

Inventory turnover = <u>Cost of good sold</u>

        Average inventory value, or   (Eq. 1)

Inventory turnover = <u>Throughput</u>

        Average inventory value.   (Eq. 2)

Prior to calculating inventory turnover, it is essential to determine the throughput and average inventory. Throughput can be defined as the total value of goods sold. Meanwhile, average inventory represents the total value of unsold vehicles. In this context, inventory refers to unsold units, therefore average inventory can be calculated by multiplying the number of unsold units by the purchase price. Subsequently, after obtaining the throughput and average inventory values for each type of vehicle, inventory turnover can be calculated. This is done by dividing the throughput value by the average

inventory value. This productivity metric serves as an indicator of the sales performance for each vehicle type within the company. The formula for calculating productivity is as follows.

Productivity = $\underline{\text{Output}}$

$$\text{Input, or} \tag{Eq. 3}$$

Productivity = $\underline{\text{Throughput}}$

$$\text{Operating Expenses.} \tag{Eq. 4}$$

The output in this formula represents the total value derived from sales over a specific period. In this study, the output refers to the throughput or COGS of PT XYZ vehicles during the 2021-2023 period. The input, on the other hand represents the total costs incurred by the company during these sales, specifically the operating expenses. Table 2 presents the calculated values of inventory turnover and productivity.

Table 2. Values of inventory Turnover and Productivity of PT XYZ

No.	Type Code	Inventory Turnover	Productivity	No.	Type Code	Inventory Turnover	Productivity
1.	A1	25.00	20.00	15.	A15	3.33	20.00
2.	A2	12.50	16.67	16.	A16	12.50	20.00
3.	A3	1.56	16.67	17.	A17	8.36	20.00
4.	A4	12.50	16.67	18.	A18	15.00	16.67
5.	A5	18.98	20.00	19.	A19	5.00	16.67
6.	A6	8.13	20.00	20.	A20	7.50	20.00
7.	A7	8.75	20.00	21.	A21	1.67	16.67
8.	A8	5.00	16.67	22.	A22	1.25	16.67
9.	A9	12.86	20.00	23.	A23	3.21	20.00
10.	A10	18.75	16.67	24.	A24	2.08	16.67
11.	A11	7.86	20.00	25.	A25	1.25	16.67
12.	A12	1.25	16.67	26.	A26	1.88	16.67
13.	A13	1.67	16.67	27.	A27	1.25	16.67
14.	A14	1.88	16.67				

Furthermore, in order to determine the high or low levels of inventory turnover and productivity, industry benchmarking was conducted. According to Maverick (2024), the average inventory turnover ratio was 7.87% in the automotive vehicle industry. Meanwhile, the average productivity at PT XYZ, calculated based on historical performance, is 18.02. All previously calculated results, including inventory turnover and productivity values, will be incorporated into a matrix or tool to facilitate the categorization of vehicle types. The use of this quadrant matrix can facilitate mapping the position of each car unit based on its productivity and inventory turnover. The faster the inventory turnover, the better, and selling cars at higher prices also boosts the company's finances to achieve higher profits.

Prior to analyzing the relationship between inventory turnover and productivity, it is essential to consider the mean, standard deviation, and variance. Moreover, since the data used are categorical, a Chi-Square test was conducted to examine the relationship between inventory turnover and

productivity. The results are presented in Table 3. From Table 3, it shows that p-value is 0.023, which is less than 0.05. This shows that there is a significant relationship between inventory turnover and productivity.

Table 3. Mean, Standard Deviation, Variance, and Chi Square Test between Inventory Turnover and Productivity

Item	Mean	Standard Deviation	Variance	p-value
Inventory Turnover	7,44	6,59	41,76	
Productivity	17,90	1,64	2,59	
Inventory Turnover x Productivity				0.023

Next, in this matrix, the X-axis represents inventory turnover, while the Y-axis represents productivity. Once the matrix is constructed, the results of each inventory turnover and productivity value can be grouped into four quadrants. This matrix helps to map vehicle types that potentially have the highest sales and profits, and vice versa. Figure 4 Indicates matrix of Operating Performance Index at PT XYZ. According to the matrix of theory of constraints, it can be concluded as follow:
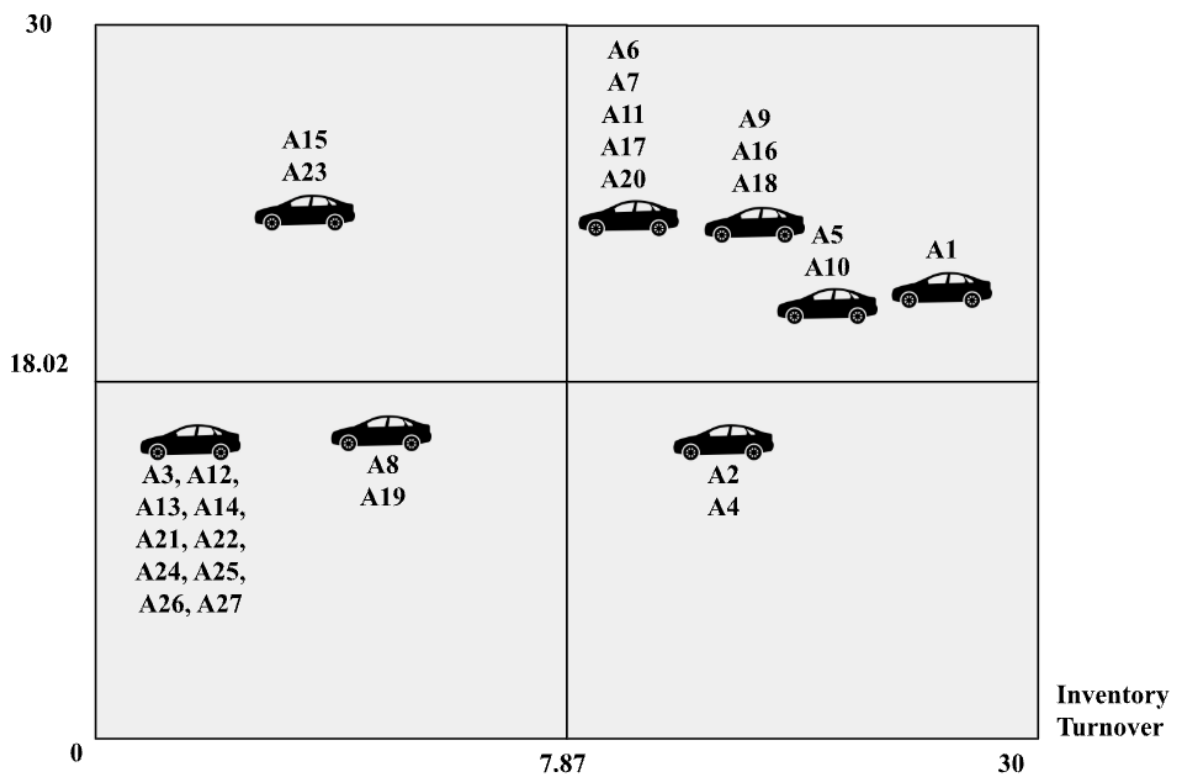
Figure 4. Matrix of Operating Performance Index at PT XYZ

Quadrant 1

Quadrant I, the top left, exhibits high productivity values and low inventory turnover. This indicates that vehicle types within this quadrant can generate high profits for the company, although they do not sell quickly to customers due to their below-average inventory turnover. The vehicle types in Quadrant I include the A15 and A23. In practical terms, vehicles in this quadrant, such as the A15 and A23, are profitable but may remain in inventory for longer periods before being sold. This could

be due to various factors such as higher prices, niche market appeal, or other characteristics that make them less attractive for quick sales compared to other vehicle types.

A15 is categorized as a high-end luxury sedan, known for its premium pricing and advanced features such as a hybrid engine, luxurious seating, a refined gearbox system, etc. Despite these advantages, the second-hand market for this model in Indonesia remains limited. This is largely attributed to its impracticality for daily commuting, particularly in densely populated urban areas with heavy traffic congestion. Similar to the A15, the A23 is positioned within a relatively high price range. This vehicle is equipped with a high-performance twin-turbo engine; however, its fuel efficiency is comparatively low. This characteristic constitutes a critical consideration for consumers, particularly those who prioritize daily operational cost efficiency.

Quadrant II

Quadrant II, the top right, exhibits both high productivity and high inventory turnover values. This indicates that these vehicles are not only generating significant profit for the company, but they also sell rapidly, as indicated by their high inventory turnover rates. In practical terms, vehicles in this quadrant are in an ideal condition for the company. They are profitable and have a high demand, leading to quick sales. Several vehicle types are in an ideal condition within Quadrant II, including the A1, A5, A6, A7, A9, 10, A11, A16, A17, A18, and A29. This finding is supported by the Branch Manager's statement that the A7, A9, and A17 series are fast-moving vehicles.

The vehicle A7 has demonstrated a strong sales performance due to high demand over the period from 2021 to 2023. During the reporting period, PT XYZ maintained an inventory of 32 units of the A7 model and successfully sold 28 units. This high sales rate indicates that the A7 is a popular choice among customers, likely due to its appealing features, competitive pricing, or market positioning. Similarly, vehicle A9 experienced high demand, with only 7 out of 79 units remaining unsold over the last two years, suggesting it effectively meets customer preferences. Vehicle A17, with the highest inventory of 123 units, sold 107 vehicles, demonstrating strong market reception and significant contribution to the company's revenue. According to McKinsey (2024), productivity average at vehicle dealership between 14 and 16 per year. So that, the vehicle types in quadrant II have a good level of inventory turnover. It is advisable to maintain the vehicle types in this quadrant to ensure better profitability for the company.

The A7 and A9 are classified as sedans, whereas the A17 falls under the compact SUV category. These models are highly favored in the pre-owned vehicle market due to their combination of premium brand prestige, comprehensive features, and more accessible pricing compared to new units. They are particularly attractive to young professional families and mid-to-upper income executives who seek vehicles that reflect social status and professional identity by acquiring premium vehicles at a reduced cost through the second-hand market.

Quadrant III

Quadrant III, the bottom left, exhibits both low productivity and low inventory turnover values. This means that each vehicle sold generates below-average profit, and the inventory turnover is also relatively low. The vehicle types in Quadrant III include the A3, A8, A12, A13, A14, A19, A21, A22, A24, A25, A26, and A27. These vehicle models target a highly specific market segment, primarily upper-level executives. However, this consumer group typically prefers to purchase new vehicles in order to maintain a sense of exclusivity and ensure optimal comfort. As a result, demand for these models in the pre-owned market remains relatively low.

Quadrant IV

Quadrant IV, the bottom right, exhibits low productivity values but high inventory turnover. This indicates that while each vehicle sold does not generate high profit for the company, these vehicles do not remain in the showroom for long. In other words, the vehicle types in this quadrant sell quickly to customers. The vehicle types included in Quadrant IV are the A2 and A4.

These two vehicle models possess a distinct appeal due to their highly futuristic and visually striking design. Despite being produced in limited quantities—only 12 units are available in Indonesia—they tend to sell quickly. Their iconic styling and status as advanced hybrid sports cars contribute to their desirability. As a result, many owners choose to retain them as part of private collections rather than resell them, leading to a notably limited presence in the secondary market.
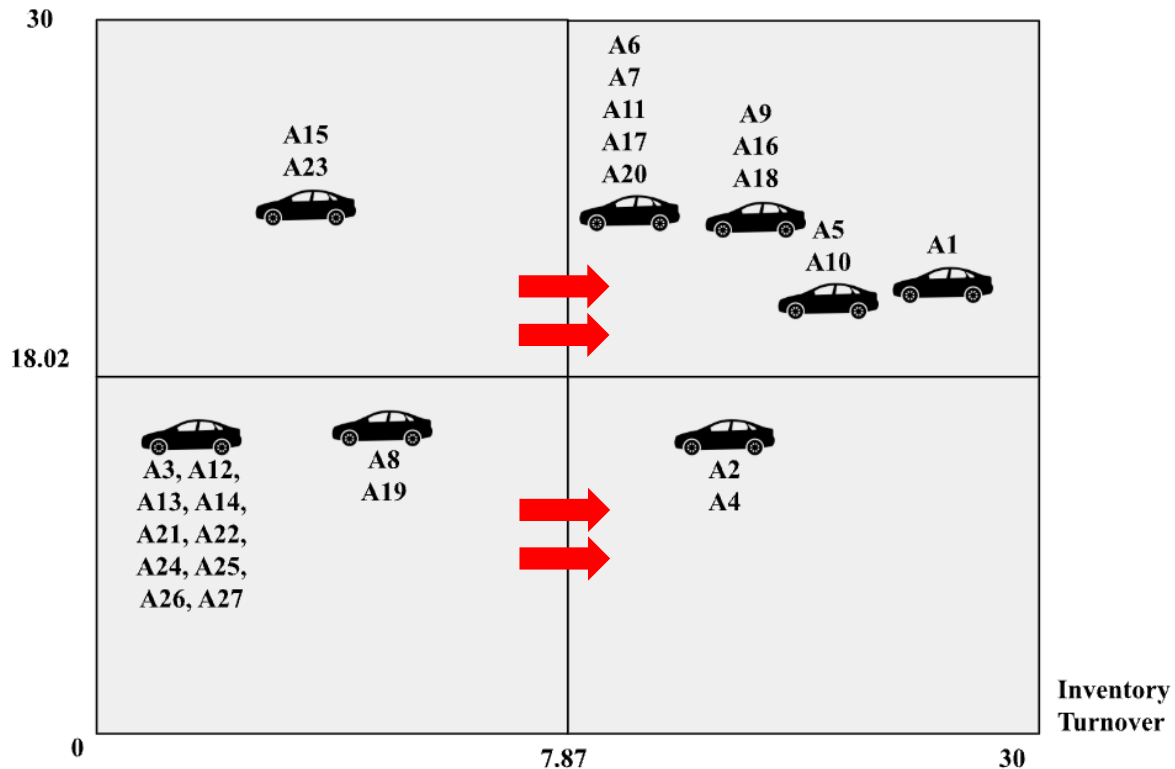
Discussion

The final stage of this discussion involves designing the company's focus strategy based on the operational performance index categorized in the previous points. Managing operating costs and inventory are essential for the company to get higher profitability. Feinberg & Zanardi (2022) explained that the company has to continue maintain operating costs so that the financial performance's company is still stable. This operational performance index will assist the company in determining the optimal number of vehicles to purchase, while also considering operating expenses and inventory turnover. Figure 5 illustrate strategy recommendations for PT XYZ. Furthermore, several improvement recommendations for the company based on this operational performance index are as follows:

a. Shifting Vehicle Types from Quadrant I to Quadrant II

Among the four quadrants, Quadrant II is the most ideal. This is because Quadrant II exhibits both high productivity and high inventory turnover values. This means that vehicle types in this quadrant sell quickly to customers and generate high profits from sales. Vehicle types previously in Quadrant I, such as the A15 and A23, can be targeted to move into Quadrant II. The sales of these two vehicle types have the potential to generate high profits for the company. However, the company should plan the number of vehicles purchased to avoid high operating expenses, thereby increasing inventory turnover. It means PT XYZ should consider the capacity of the showroom to store the vehicles. Capacity itself have highly significant effect on revenues (Nasir et al, 2017). If the company plans the number of

A15 and A23 vehicles according to showroom capacity, these vehicle types will shift to Quadrant II, providing high profits and selling quickly to customers. Additionally, to move the A15 and A23 into Quadrant II, marketing activities should be enhanced. This is necessary to inform consumers that these vehicle types are highly regarded and desired by many customers. Marketing activities could include creating ads on various social media platforms, collaborating with YouTubers for car reviews, or offering promotions to increase sales volume (Bondarenko & Vyshnivska, 2023).

Figure 5. Strategy Recommendation for PT XYZ

b. Shifting Vehicle Types from Quadrant I to Quadrant II

Among the four quadrants, Quadrant II is the most ideal. This is because Quadrant II exhibits both high productivity and high inventory turnover values. This means that vehicle types in this quadrant sell quickly to customers and generate high profits from sales. Vehicle types previously in Quadrant I, such as the A15 and A23, can be targeted to move into Quadrant II. The sales of these two vehicle types have the potential to generate high profits for the company. However, the company should plan the number of vehicles purchased to avoid high operating expenses, thereby increasing inventory turnover. It means PT XYZ should consider the capacity of the showroom to store the vehicles. Capacity itself have highly significant effect on revenues (Nasir et al, 2017). If the company plans the number of A15 and A23 vehicles according to showroom capacity, these vehicle types will shift to Quadrant II, providing high profits and selling quickly to customers. Additionally, to move the A15 and A23 into

Quadrant II, marketing activities should be enhanced. This is necessary to inform consumers that these vehicle types are highly regarded and desired by many customers. Marketing activities could include creating ads on various social media platforms, collaborating with YouTubers for car reviews, or offering promotions to increase sales volume (Bondarenko & Vyshnivska, 2023).

c. Shifting Certain Vehicle Types from Quadrant III

Quadrant III is the least ideal, characterized by both below-average productivity and inventory turnover values. Vehicle types in this quadrant include the A3, A8, A12, A13, A14, A19, A21, A22, A24, A25, A26, and A27. These vehicle types can be moved to Quadrant IV. Although the profit from each sale may not be high, placing them in Quadrant IV will result in higher inventory turnover and lower operating expenses for the company. According to Wang et al (2021) stated that managers are suggested not to ignore the lost productivity caused by the overuse of sticky inventory management. This strategy can be initiated by planning the number of vehicles purchased for these types, based on the potential number of units that can be sold to customers. Furthermore, to enhance the productivity values of vehicle types in Quadrant III, operating costs need to be reduced. According to company data on operating expenses for each vehicle type, the largest expense is often refurbishment or repair costs. These repair costs can be reduced by partnering with credible repair shops to obtain more affordable prices, ultimately reducing the company's operating expenses.

d. Implementing Priority Rules for Refurbishment Scheduling

Previously, refurbishment scheduling was based solely on a first-come, first-served scheme. After identifying several vehicle types and having a large number of units, it is advisable for the company to prioritize scheduling for these vehicle types. According to Schroeder (2021), one type of dispatch rule is the Priority Rule, which prioritizes scheduling based on certain factors. For example, an interview with the Branch Manager revealed that the A1, A7, A9, and A17 are currently favored in the market. When performing refurbishment at the repair shop and these types are present, the company should prioritize their refurbishment over other vehicle types. This is because these vehicle types are more likely to generate high profits for the company and sell quickly to customers.

Those recommendations can be applied by the company to increase revenue and improve inventory efficiency. However, several situations and conditions need to be considered when implementing these recommendations, including: stable demand and consistent refurbishment duration. The vehicle purchase planning is based on the purchase history from the 2021-2023 period. These planning recommendations can be applied if customer demand remains stable, which means that it does not undergo significant changes from previous years and can still be predicted. In addition to referring to vehicle sales history, the company can also conduct direct customer analysis to understand current market needs and conditions. This is very helpful in determining which vehicle types to prioritize in the market, thereby positively impacting the company's sales levels. Lastly, according to an interview with the company's Stock Control, the average refurbishment process takes 3-4 weeks. If the refurbishment

process duration is generally consistent, priority scheduling can be applied. However, if certain vehicle types require a longer refurbishment process than the average time, those vehicles should be prioritized.

CONCLUSION AND SUGGESTIONS

Based on the operational performance index created, there are four quadrants. PT XYZ should initiative strategics, including: (1) moving vehicle types from Quadrant I to Quadrant II by enhancing marketing activities, such as creating ads on various social media platforms, collaborating with YouTubers for car reviews, or offering promotions; (2) relocating certain vehicle types from Quadrant III by planning the number of vehicles purchased for these types, estimating the potential number of units that can be sold to customers, and reducing operating costs; and (3) applying the priority rule for refurbishment scheduling by prioritizing based on the potential for quick sales.

The managerial implication that can be concluded from this study is that management that management must adopt a broader and more adaptive approach to identifying and addressing constraints, particularly in emerging markets where external factors—such as regulatory policies, consumer behavior, and market volatility—play a significant role in limiting operational performance. Furthermore, this study contributes to TOC literature by identifying context-specific constraints in the vehicle dealer industry within emerging markets. These include regulatory, behavioral, and market-driven limitations that challenge the traditional TOC focus on internal process bottlenecks. The findings suggest a need for a more dynamic and holistic TOC framework that accounts for external volatility and strategic decision-making in resource-constrained environments.

While this study provides valuable insights into the application of the Theory of Constraints (TOC) within the vehicle dealership industry in emerging markets, several limitations should be acknowledged. First, the research is context-specific, focusing primarily on the Indonesian market, which may limit the generalizability of the findings to other emerging economies with different regulatory, cultural, or economic conditions. Second, the study relies on qualitative data and secondary sources, which may be subject to interpretation bias or limited availability of up-to-date information. Lastly, the dynamic nature of market constraints—particularly in volatile environments—means that the identified constraints may shift over time, requiring ongoing validation.

Future research could expand upon the findings of this study by exploring the application of the Theory of Constraints (TOC) by comparative studies between different countries or regions could reveal how varying institutional, cultural, and economic factors influence the nature and impact of constraints in the vehicle dealership industry. Additionally, incorporating quantitative methods—such as surveys or performance data analysis—could provide more robust empirical validation of the identified constraints.

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