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Supply chain performance analysis using the SCOR method

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ABSTRACT

The current era of globalization requires companies to meet market demands in order to get the right tactics or strategy. This research was conducted at PT. Budi Starch & Sweetener has several obstacles in carrying out its supply chain activities such as delivery delays, supply uncertainty and problems in the production process. So, measuring Supply Chain performance is very important so that companies can know the extent of Supply Chain performance achieved by the company. Supply chain performance measurement is carried out using the Supply Chain Operations Reference (SCOR) method with the Key Performance Indicator (KPI) validation phase, calculation of actual KPI values, and weighting of metrics for each level using the Analytical Hierarchy Process (AHP) method. After processing the data, the result was that 16 performance indicators were selected from a total of 36 performance indicators. To determine the main criteria and priorities, performance indicators are weighted using the AHP method. The calculation result of the total performance value is 76,41, so the performance measurement at PT. Budi Starch & Sweetener Tbk is included in the good scale. However, the results of data processing of actual values which were then normalized to Snorm De Boer still contained 5 indicators which showed a value of less than 90 and required improvement, namely accuracy of estimates, raw material planning, on-time delivery performance by suppliers, compliance with production schedules, and number of problems. machine. It is hoped that companies can issue appropriate policies regarding of these five performance indicators, so that the level of achievement of Supply Chain Management (SCM) targets in companies can be further increased.

KEYWORDS

Performance Measurement; Supply Chain; SCOR; Normalization; AHP

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Introduction

The era of globalization demands that every company must possess competitive advantages to capture market share and achieve profits. To attain this, companies need to consider production quality and efficiency while prioritizing customer satisfaction. The importance of collaboration among various stakeholders in meeting market demands becomes the key to a company's success (Erlina, 2020). Each company in the production sector aims to achieve profitability and enhance efficiency and performance to compete with similar counterparts. Collaboration among suppliers, manufacturers, distributors, retailers, and customers is crucial in creating quality, affordable, and timely products. The concept of supply chain management emerges as a solution to manage the flow of products from raw materials to finished goods and deliver them to consumers through an efficient distribution system.

Supply chain management plays a role in flowing goods or services from suppliers to customers. Implementing a well-functioning supply chain will create structured, coordinated, scheduled, and integrated processes, thereby enhancing the overall effectiveness and efficiency of the company. Companies should also focus efforts on improving products offered to consumers by leveraging assets and expertise. The concept of the supply chain was first introduced in the 1980s by logistics consultants and further analyzed by academics in the 1990s, resulting in the concept of supply chain management (Indrajit & Djokopranoto, 2005). Supply chain management expands the concept and role of logistics management by considering customer needs and the inter-company flow of goods. The Supply Chain Operations Reference (SCOR) model was created by the Supply Chain Council (SCC) to divide supply chain processes into five core processes: plan, source, make, deliver, and return (Bolstroff, 2006). SCOR enables companies to evaluate supply chain performance holistically based on processes, facilitate organizational goal communication across various functions, and identify the company's relative position in the industry to enhance competitive advantage.

The SCOR model's ability to describe performance measurements in detail from upstream to downstream makes it superior to other measurement models (Chotimah et al., 2017). This model has been used by researchers to measure supply chain performance in various types of companies (Chotimah et al., 2017), showing success in determining the highest performance indicators and providing improvement proposals. The Lampung province has many companies in the tapioca industry, including PT. Budi Starch & Sweetener, which needs to pay attention to strategies to improve productivity and compete in the market. PT. Budi Starch & Sweetener Tbk Lampung Timur has

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not fully optimized its supply chain management. Delivery delays and other issues such as raw material procurement indicate the need for supply chain performance assessment to determine necessary improvements (Erlina, 2020).

This research aims to evaluate the tapioca flour supply chain performance at PT Budi Starch & Sweetner by reviewing whether the processes have been running smoothly. With a focus on this goal, the study will provide significant benefits, including identifying weaknesses in the company's operations for future improvements, enhancing researchers' understanding of supply chain performance, and providing performance improvement recommendations to PT Budi Starch & Sweetener Tbk in Lampung Timur. Furthermore, the research results can also contribute to the development of knowledge in the industrial field, especially in tapioca flour production, and serve as a reference for future researchers in this field.

Literature review

Operation management

Operation Management, as outlined by Heizer and Render (2011), is a series of activities that transform inputs into outputs to create value in the form of goods and services. It is crucial for companies as it enhances production value and profitability. This field encompasses ten strategic decisions, including product design, quality management, supply chain management, and maintenance (Heizer and Render, 2015).

Performance measurement

Performance measurement involves assessing various activities within a company's supply chain. The measurement results then provide feedback by informing the performance of a plan and identifying points where the company needs adjustments to its planning and control activities. Performance measurement systems are also needed as an approach to optimize supply chain networks and enhance the competitiveness of supply chain players. Performance measurement aims to support planning, performance evaluation, and identifying future steps at the strategic, tactical, and operational levels (Putri & Surjasa, 2018).

Supply chain performance

Supply Chain Management (SCM) involves the management of information, services, and goods from initial suppliers to end consumers with the goal of integrating an interconnected system. This concept is defined by Anindita et al. (2020) as a network of organizations collaborating to oversee, manage, and improve the flow of commodities and information. According to Li Ling (2007), SCM involves activities and decisions related to integrating various elements, including suppliers, manufacturers, warehouses, transportation, retailers, and consumers. The supply chain model depicts relationships among players in the chain and requires smooth information flow and efficiency in goods movement to meet customer satisfaction. SCM also assists companies in facing environmental uncertainties by reducing operational costs and enhancing customer service. This field involves the critical roles of various parties, such as suppliers, manufacturers, distributors, retailers, and customers, who share similar goals in creating value for consumers (Ariani, 2013). In the corporate context, SCM encompasses various areas such as product development, procurement, planning and control, operations/production, delivery/distribution, and returns (Pujawan and Mahendrawathi, 2017).

Supply chain operation reference

The Supply Chain Operations Reference (SCOR) model, endorsed by the Supply Chain Council (SCC) in 1996, is a framework used to measure and improve a company's total supply chain performance. The SCC, an international independent non-profit association, aims to advance the sophistication of supply chain management systems and practices. This model consists of five core processes: Plan, Source, Make, Deliver, and Return, forming the supply chain language used to design, describe, and configure business activities. These processes encompass all aspects, from balancing demand and supply to cost management and asset management (Paul, 2014).

In SCOR, these five core processes are clearly outlined. The Plan process focuses on balancing demand and available resources, while the Source process deals with procuring goods and services as planned. The Make process involves transforming raw materials into desired customer products, while the Deliver process is responsible for delivering products to customers. Finally, the Return process handles product returns from customers to the company. Additionally, SCOR also recognizes five key performance attributes: Reliability, Responsiveness, Agility, Cost, and Asset Management. These attributes, along with their metrics, help measure a company's supply chain performance from various aspects, from order fulfillment to cost efficiency and asset management.

By using SCOR, companies can identify strengths and weaknesses in their supply chains and take necessary improvement steps. This model also facilitates holistic supply chain performance measurement and provides a basis for continuous improvement. Thus, SCOR not only provides guidance for designing and managing effective supply chains but also helps improve overall company competitiveness and operational efficiency.

Analytical hierarchy process

The Analytical Hierarchy Process (AHP), developed by Thomas L. Saaty, is a decision support model that breaks down multi-factor or multi-criteria problems into a hierarchy (Saaty, 2012). With AHP, complex unstructured problems are broken down into components in a hierarchical arrangement, which are then subjectively assessed

regarding the relative importance of each variable to one another (Saaty, 2012). AHP's main tool is a functional hierarchy that combines human perceptions with key inputs, enabling the resolution of complex problems.

In AHP, decision-makers provide assessments of alternatives and sub-criteria in the form of pairwise comparison matrices, which are then arranged based on the hierarchy of the supplier selection problem (Saaty, 2008). These pairwise comparison matrices allow decision-makers to structure their preferences in detail and identify the most critical elements in a specific context. This process helps establish clear priorities in decision-making and minimize inconsistencies in assessments (Saaty, 2003). With AHP, decision-makers can structure their preferences in detail and identify the most critical elements in a specific context. This process helps establish clear priorities in decision-making and minimize inconsistencies in assessments (Saaty, 2003). AHP is a useful tool for handling complex decision-making problems, especially in the context of supplier selection or evaluation of alternatives based on multiple criteria.

Normalization

According to Sumiati (2006), the level of performance fulfillment is determined by the normalization of performance indicators, which have different weights and scales. Normalization is important to standardize the parameters of these indicators to achieve the final performance measurement value. In this measurement, the weight of each indicator is converted into an interval value between 0 and 100, where 0 indicates the worst performance and 100 indicates the best performance. This ensures that parameters from each indicator have the same scale for more consistent analysis. The supply chain performance monitoring system is then classified based on this normalization result, where performance less than 40% is considered poor, 40-50% as marginal, 50-70% as average, 70-90% as good, and over 90% as excellent (Sumiati, 2009).

Research framework

The research process conducted in this thesis consists of several stages. The first is to identify KPIs, followed by validating KPIs using a questionnaire filled out by several experts in the company. After the KPI indicators are validated, the actual values of these indicators are calculated. Then, the calculated actual values will be normalized using the Snorm de Boer method.

To calculate the overall performance of the company's supply chain, it is necessary to perform AHP calculations, with the initial step being to fill out a pairwise weight comparison questionnaire conducted by several company experts. Then, after the metrics of each level are calculated, the final performance value can be obtained by multiplying the final performance indicator values (Snorm de Boer) by the final Analytical Hierarchy Process (AHP) weights of each performance indicator resulting from the final weight multiplication of level 1, level 2, and level 3.

Methods

Object and time of observation

The object of this research is PT Budi Starch & Sweetener Tbk, located in Gunung Terang III village, Labuhan Ratu sub-district, East Lampung regency, with its headquarters at Jalan Ikan Kakap No. 9 Bandar Lampung. This company is part of the Sungai Budi Group (SBD), established in 1947, and has grown into one of the largest agribusiness groups in Indonesia. PT Budi Starch & Sweetener is one of the 17 subsidiary companies in the tapioca division in Lampung province. As of August 2023, the company employs 420 workers. The observation was conducted for 5 months after the proposal seminar with a duration of 1 week.

Research type and data

The research uses a quantitative and qualitative descriptive method with an SCOR approach. Primary data sources are from interviews with key and main informants. Secondary data is obtained from literature and company documentation. Data collection techniques include observation, interviews, and questionnaires.

Data analysis

This research method uses the Supply Chain Operation Reference (SCOR) approach involving primary data collected through questionnaires. The main stages of the research include the validation of Key Performance Indicators (KPIs), calculation of the actual value of each KPI, data normalization, and weighting using the Analytical Hierarchy Process (AHP). The weighting process is conducted by collecting data through questionnaires, with the condition of Consistency Ratio (CR) less than 0.1 to ensure consistent and reliable results. The AHP method is used to determine criteria weights and measure consistency in evaluations. These stages enable researchers to identify and evaluate critical aspects in the supply chain that influence company performance.

Results

General overview

PT. Budi Starch & Sweetener Tbk, originally known as CV Bumi Waras, was established on March 3, 1982, under the name PT. Budi Acid Jaya Tapioca Division Way Jepara, then becoming PT. Budi Starch & Sweetener Tbk in 1992. The company has expanded its production of tapioca flour and sweetener, making it a market leader in the

sector. The company's vision is to become an integrated cassava raw material producer with green environmental principles. The company's mission includes environmental preservation, product research, and sustainable growth.

The main production location of the company is in Gunung Terang III Village, East Lampung, chosen due to the availability of raw materials and labor. The company's land includes factory buildings, offices, warehouses, and open areas such as waste processing installations and sports fields. The company's organizational structure includes various departments such as personnel, finance, production, and security, with company leaders and staff responsible for their respective functions.

The company's workforce consists of 420 employees with an 8-hour shift system. The job description for each position includes responsibilities and authorities assigned to employees. Overall, PT. Budi Starch & Sweetener Tbk aims to achieve cost efficiency, product innovation, and sustainable growth within the framework of environmental sustainability.

Calculation of actual performance indicators

Plan

The planning process at PT. Budi Starch & Sweetener Tbk includes Forecast Accuracy, Raw Material Planning, and Planning Cycle Time. Forecast Accuracy indicates the difference between demand forecasts and actual demand, which is influenced by the difficulty of forecasting demand during long dry seasons and fluctuations in raw material prices. Raw Material Planning describes the accuracy of forecasting raw material needs with actual needs, influenced by the lack of pattern analysis of needs and price fluctuations. Planning Cycle Time evaluates the time required for production planning, with an excellent value because the company can plan within less than 2 days. Despite differences and challenges, PT. Budi Starch & Sweetener Tbk remains able to maintain efficiency and planning performance in its supply chain.

Source

The procurement process at PT. Budi Starch & Sweetener Tbk, which includes Percentage Supplier With, Timely Delivery Performance by Supplier, Delivery Item Accuracy by Supplier, Delivery Quantity Accuracy by Supplier, and Inventory Accuracy of Raw Material, shows solid performance despite facing some challenges. Although there were delays in delivery in some months and unexpected fluctuations in raw material prices, the company managed to maintain a high percentage in supplier selection, timely delivery, accuracy of delivered items, accuracy of order quantities, and accuracy of raw material inventory in the warehouse. This reflects the company's commitment to ensuring smooth and efficient supply chain operations, as well as its ability to overcome challenges in a dynamic business environment.

Deliver

The delivery process by PT. Budi Starch & Sweetener Tbk in East Lampung, including delivery item accuracy and delivery quantity accuracy, shows excellent performance. During the period from May to October 2023, the company successfully delivered products according to customer requests with 100% accuracy for both metrics. Additionally, the defect rate in product delivery is very low, with a percentage of less than 0.5% for each month in the same period. This demonstrates the company's commitment to maintaining delivery quality and customer satisfaction, as well as its ability to maintain minimal delivery error rates.

Return

The return rate from customers at PT. Budi Starch & Sweetener Tbk in East Lampung during the period from May to October 2023 was 0%, indicating that no products were returned by customers due to defects. This illustrates that the products sent to customers meet specifications and fulfill their expectations. Additionally, in terms of defective product replacement time, the company also shows excellent performance by requiring less than 2 days to replace defective products. Despite challenges such as adverse weather affecting the delivery process, PT. Budi Starch & Sweetener Tbk in East Lampung still manages to maintain efficient product replacement times and minimize inconvenience for customers.

Calculation

Table 1. Calculation Results of Actual Values of Performance Indicators

Process	Performance Indicators	Actual Value					
		May 2023	May 2023	May 2023	May 2023	May 2023	May 2023
Planning	Forecast accuracy	85,26%	80,42%	86,13%	76,58%	79,39%	83,9%
	Raw Material Planning	87,5%	86,76%	88,7%	86,8%	90,59%	91,73%
	Planning cycle time	4	4	4	4	4	4
Source	Percentage supplier	100%	100%	100%	100%	100%	100%
	Timely delivery performance by supplier	75%	50%	100%	25%	75%	75%

Make	Delivery Accuracy by Supplier	75%	100%	75%	100%	100%	100%
	Delivery quantity accuracy by supplier	96,4%	98%	97,7%	98,6%	95,3%	97,2%
	Inventory accuracy of rawmaterial	100 %	100 %	100 %	100 %	100 %	100 %
	Adherence to production schedule	72,2 %	87 %	76,1%	73%	76%	79%
	Product defect from production	0,45%	0,26%	0,34%	0,17%	0,27%	0,19%
	Number of trouble machines	3	4	3	4	3	4
Deliver	Delivery item accuracy by the company	100 %	100 %	100 %	100 %	100 %	100 %
	Delivery quantity accuracy by the company	100 %	100 %	100 %	100 %	100 %	100 %
	Order delivered faultless by the company	0,18%	0,26%	0,08%	0,17%	0,36%	0,09%
Return	Return rate from customer	0,18%	0,26%	0,08%	0,17%	0,36%	0,09%
	Product replacement time	4	4	4	4	4	4

Return rate from customers at PT. Budi Starch & Sweetener Tbk East Lampung for the period May to October 2023 is 0%, indicating that no products were returned by customers due to defects.

Snorm de boer normalitation

Knowing the results of calculating the actual values of performance indicators in table 4.21, the next step is to calculate the values of performance indicators using de Boer norm normalization. The normalization function of the de Boer norm is to standardize the measurement scale, because each actual value of the performance indicator has a different measurement scale. In this calculation, the actual value for each indicator in May-October is averaged to obtain the value.

Table 2. Boer snorm value

Process	Performance Indicators	Actual Value						Smin	Smax	Final score
		May 2023	May 2023	May 2023	May 2023	May 2023	May 2023			
Plan	Forecast accuracy	85,26%	80,42%	86,13%	76,58%	79,39%	83,9%	0	100	81,94
	Raw Material Planning	87,5%	86,76%	88,7%	86,8%	90,59%	91,73%	0	100	86,44
	Planning cycle time	4	4	4	4	4	4	1	4	100
Source	Percentage supplier	100%	100%	100%	100%	100%	100%	0	100	100
	Timely delivery performance by supplier	75%	50%	100%	25%	75%	75%	0	100	66,66
	Delivery Item Accuracy by Supplier	75%	100%	75%	100%	100%	100%	0	100	91,6
	Delivery quantity accuracy by supplier	96,4%	98%	97,7%	98,6%	95,3%	97,2%	0	100	97,2
	Inventory accuracy of rawmaterial	100 %	100 %	100 %	100 %	100 %	100 %	0	100	100
Make	Adherence to production schedule	72,2 %	87 %	76,1%	73%	76%	79%	0	100	77,2
	Product defect from production	0,45%	0,26%	0,34%	0,17%	0,27%	0,19%	100	0	99,72
	Number of trouble machines	3	4	3	4	3	4	25	0	86
Deliver	Delivery item accuracy by the company	100 %	100 %	100 %	100 %	100 %	100 %	0	100	100
	Delivery quantity accuracy by the company	100 %	100 %	100 %	100 %	100 %	100 %	0	100	100

Return	Order delivered faultless by the company	0,18%	0,26%	0,08%	0,17%	0,36%	0,09%	100	0	98,86
	Return rate from customer	0,18%	0,26%	0,08%	0,17%	0,36%	0,09%	100	0	98,86
	Product replacement time	4	4	4	4	4	4	1	4	100

Weighting between the process

In the weighting between processes using the Analytical Hierarchy Process (AHP) method, the calculation results show that each performance process in the Supply Chain Operations Reference (SCOR) has different weights. The procurement process has the highest weight with a fairly good consistency value, followed by the delivery process and the planning process. This indicates that the company assigns a greater level of importance to the procurement process in their supply chain. Additionally, the consistency ratio calculation results show values that meet consistency criteria, with a Consistency Ratio (CR) smaller than 0.1, indicating that the weighting of processes is consistent and reliable for further analysis in optimizing the company's supply chain performance.

Weighting the performance indicator

The process of weighting performance indicators aims to determine the level of importance of each performance indicator, as each performance indicator has different levels of importance. The weight of performance indicators is the result of calculations at level 1, level 2, and level 3, where the results are obtained from the calculation of Eigen Vector (Partial Weight).

Table 3. Performance Indicator Weighting Results

Process	Weight Level 1	Attribute	Weight Level 2	Indikator Kinerja	Bobot Level 3
PLAN	0,47	*Reliability*	0,87	*Forecast accuracy*	0,12
				Raw Material Planning	0,87
		Responsiveness	0,12	*Planning cycle time*	1
SOURCE	0,24	*Reliability*	0,85	*Percentage supplier with*	0,14
				Delivery Accuracy by Supplier	0,47
				Delivery quantity accuracy by supplier	0,17
				Inventory accuracy of rawmaterial	0,19
		Responsiveness	0,13	*Timely delivery performance by supplier*	1
MAKE	0,14	*Reliability*	0,8	*Adherence to production schedule*	0,8
				Product defect from production	0,2
		Responsiveness	0,2	*Number of trouble machines*	1
DELIVER	0,06	*Reliability*	1	*Delivery item accuracy by the company*	0,34
				Delivery quantity accuracy by the company	0,28
				Order delivered faultless by the company	0,35
RETURN	0,04	*Reliability*	0,8	*Return rate from customer*	1
		Responsiveness	0,2	*Product replacement time*	1

Assess supply chain management performance

Calculation of the final value of PT's supply chain management performance. Budi Starch & Sweetener Tbk East Lampung can be obtained by multiplying the final value of the performance indicator (snorm de boer) with the final weight of the Analytical Hierarchy Process (AHP) of each performance indicator resulting from the final weight, namely by multiplying the level 1 weight, level 2 weight and level 3.

Table 4. Nilai Kinerja Supply Chain Management

No	Performance Indicators	Snorm De Boer	Final score	SCM Final Value
1	Forecast accuracy	81,94	0,04	3,27
2	Raw Material Planning	86,44	0,35	30,25
3	Planning cycle time	100	0,05	5
4	Percentage supplier	100	0,02	2
5	Timely delivery performance by supplier	66,66	0,09	5,9
6	Delivery Accuracy by Supplier	91,6	0,034	3,11
7	Delivery quantity accuracy by supplier	97,2	0,038	3,69
8	Inventory accuracy of raw material	100	0,03	3
9	Adherence to production schedule	77,2	0,08	6,17
10	Product defect from production	99,72	0,02	1,99
11	Number of trouble machines	86	0,028	2,4
12	Delivery item accuracy by the company	100	0,02	2
13	Delivery quantity accuracy by the company	100	0,016	1,6
14	Order delivered faultless by the company	98,86	0,021	2,07

15	Return rate from customer	98,86	0,032	3,16
16	Product replacement time	100	0,008	0,8
	Total			**76,41**

Discussion

Performance measurement conducted using the SCOR method in this research goes through several stages. The first stage is the selection of performance indicators. The process of selecting performance indicators is based on the Supply Chain Operation Reference (SCOR) performance indicators, which have five main processes: plan, source, make, deliver, and return. Within the SCOR performance indicators, there are 36 indicators, of which 16 have been validated and are suitable for the company's conditions. After selecting the performance indicators, the actual values of each indicator are calculated, and then these actual values are standardized using snorm de Boer normalization. The second stage is the weighting process using the Analytic Hierarchy Process (AHP) method. The data processing is structured into three levels: process level, attribute level, and performance indicator level. The process level consists of five processes: plan, source, make, deliver, and return, while the attribute level consists of reliability and responsiveness. The performance indicator level consists of the 16 selected indicators determined through a questionnaire.

The weighting results at level 1 show that the highest weight is assigned to the deliver process, with a weight value of 1, indicating that PT. Budi Starch & Sweetener considers the deliver process to be the most important among the processes and fundamental for ensuring that other processes run as planned. The source process has a weight of 0.24, the make process has a weight of 0.14, the deliver process has a weight of 0.06, and the return process has a weight of 0.04. At level 2, which is the attribute weighting, the results show that the reliability attribute has a higher weight compared to the responsiveness attribute in each process. The high weight of the reliability attribute indicates that the company prioritizes the achievement of quality products. The reliability attribute has high weights in the plan process (0.87), while the responsiveness attribute has high weights in the make and return processes (0.2).

In the weighting of performance indicators, for the plan process, there are three performance indicators: forecast accuracy, raw material planning, and planning cycle time. Among these, planning cycle time has the highest weight of 1, indicating its greater importance compared to the other two indicators. For the source process, there are five performance indicators: percentage of suppliers, delivery item accuracy by supplier, delivery quantity accuracy by supplier, inventory accuracy of raw material, and timely delivery performance by supplier. Among these, timely delivery performance by supplier has the highest weight of 1. For the make process, there are three performance indicators: adherence to production schedule, product defects from production, and number of trouble machines. Among these, the number of trouble machines has the highest weight of 1. For the deliver process, there are three performance indicators: delivery item accuracy by the company, delivery quantity accuracy by the company, and order delivered faultless by the company. Among these, order delivered faultless by the company has the highest weight of 0.35. For the return process, there are two performance indicators: return rate from customer and product replacement time, both with a weight of 1.

The calculation result of the supply chain management performance is 76.41, indicating that the performance of PT. Budi Starch & Sweetener in East Lampung falls within the "Good" scale. However, the normalization result shows that there are five performance indicators with values <90 (Excellent), namely Forecast accuracy, Raw Material Planning, Timely delivery performance by supplier, Adherence to production schedule, and Number of trouble machines. This indicates that these indicators still require improvement, especially Timely delivery performance by supplier, which does not fall into the "Good" category. These results suggest that the company still needs to improve its performance to enhance Supply Chain Management (SCM) and optimize the tapioca flour supply chain from start to finish until the product is received by customers.

Conclusion

From the data collection and processing results, it is concluded that out of the 36 supply chain performance indicators considered, only 16 are suitable for the company's conditions. The next process involves normalization using the snorm de Boer method, which results in weighting between processes and attributes to evaluate the supply chain performance. The final result indicates that the supply chain performance of PT. Budi Starch & Sweetener Tbk in East Lampung reached a score of 76.41, indicating good overall performance. However, there are several performance indicators that require improvement, such as demand forecast accuracy, raw material availability, timely delivery performance by suppliers, adherence to production schedules, and the number of machines experiencing issues.

Based on these findings, it is recommended that PT. Budi Starch & Sweetener Tbk in East Lampung make improvements and optimizations to indicators that are below standard. This includes improving demand forecast accuracy using more precise forecasting methods, enhancing communication and coordination with suppliers to ensure timely raw material availability, and improving production schedules and machine maintenance to avoid schedule clashes. Additionally, the company is advised to continue providing guidance and training to employees regarding supply chain management, so that operational activities can be more efficient and well-coordinated. By taking these steps, it is hoped that PT. Budi Starch & Sweetener Tbk in East Lampung can improve its overall supply chain performance. Furthermore, the performance measurement conducted in this research is also expected to serve as a guide for other companies in improving and optimizing their supply chain management. Through continuous evaluation and implementation of appropriate improvements, companies can achieve better and sustainable supply chain performance, which in turn will have a positive impact on customer satisfaction and overall business sustainability.

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