

SUPPLY CHAIN MANAGEMENT PERFORMANCE ANALYSIS PT. MUSHIRO JAYA GROUP

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Abstract

Oyster mushrooms (*Pleurotus ostreatus*) are a widely consumed food commodity in Indonesia but have a short shelf life, making them susceptible to damage and spoilage. This study aims to analyze the supply chain of PT. Mushiro Jaya Group using a mixed-method approach that combines qualitative and quantitative methods. Qualitative analysis was conducted using the Food Supply Chain Network (FSCN) method, while quantitative analysis employed the Supply Chain Operations Reference (SCOR) model to evaluate supply chain performance. Respondents were selected through purposive sampling and snowball sampling. The results indicate that PT. Mushiro Jaya Group acts as a baglog producer that distributes baglogs to cultivation partners, whose harvested oyster mushrooms are then returned to the company for distribution to business consumers. Overall, the supply chain performance is categorized as excellent; however, weaknesses remain in order fulfillment within the producer–business consumer channel. Improvements can be achieved by strengthening distribution planning, inventory control, and expanding partnership networks to increase oyster mushroom production.

INTRODUCTION

Currently, mushroom consumption has shifted from the upper class to the lower class, as mushrooms are now easily found in traditional markets. However, mushroom cultivation in Indonesia is still not optimal, and several large businesses have closed despite promising export opportunities. National oyster mushroom consumption is 0.18 kg per capita, indicating a large market potential (Susilowati, 2020). In North Sumatra, oyster mushroom production is very promising and has high economic value because it can be processed into various products such as snacks, mushroom meatballs, and crispy snacks, which are durable and popular among various groups (Jamili & Hadi Saputra, 2019).

Table 1. Oyster Mushroom Production Data in North Sumatra Province from 2018 to 2020

City/District	Production/Kg		
	2018	2019	2020
Tebing Tinggi	17.050	30.620	4.113
Asahan	5.385	2.475	2.275
Medan	450	3.909	6.685
Tapanuli Selatan	275	60	-
Binjai	118	55	93
Deli Serdang	215	-	-
Total	23.493	37.119	13.116

Source: Central Statistics Agency (2021)

Oyster mushroom production in North Sumatra increased from 23,493 kg in 2018 to 37,119 kg in 2019, but fell sharply to 13,116 kg in 2020 due to the pandemic. Some areas such as

South Tapanuli and Deli Serdang did not produce any mushrooms at all. Meanwhile, the city of Medan showed an upward trend, from 450 kg in 2018 to 6,685 kg in 2020, indicating great potential in oyster mushroom cultivation.

Mushrooms are a horticultural commodity with great prospects in Indonesia because they are rich in nutrients and beneficial to health. In addition to being a food ingredient, mushrooms also have potential as a medicinal ingredient (Berbasis et al., n.d.). According to the Directorate General of Horticulture, mushrooms contain 10.5–30.4% protein (dry weight), 72% unsaturated fatty acids, nine types of amino acids, and various vitamins, making them safe for consumption, even for people with high cholesterol.

PT. Mushiro Jaya Group, located in Medan Tembung District, Medan Central City, has become a leader in the organic mushroom industry. It is committed to providing high-quality products and services that meet customer needs. The company's oyster mushroom production shows a steady upward trend, from 648,000 kg in 2022 to 658,000 kg in 2024. Although this sector is promising, there are obstacles such as limited production technology, lack of farmer knowledge, and supply chain issues, making it difficult for the company to meet the ever-increasing market demand.

PT. Mushiro Jaya Group is a company that produces and distributes baglog and oyster mushrooms in Medan. The company implements a supply chain model that includes cooperation with distribution partners for baglog cultivation until harvest. Fresh oyster mushrooms are then distributed by PT. Mushiro Jaya Group to business consumers with a focus on product quality and freshness. The supply chain involves all parts, both directly and indirectly, to meet consumer demand. The supply chain is not only related to manufacturing and suppliers, but also involves transportation, warehouses, retailers, and customers themselves. The goal of the supply chain is to maximize overall value.

PT. Mushiro Jaya Group's distribution partners are responsible for maintaining product quality during shipping and helping to market oyster mushrooms to various consumers such as households, restaurants, and grocery stores. Products received by consumers go through several stages of distribution. Although this sector is promising, there are obstacles such as limited production technology, lack of farmer knowledge, and supply chain issues, making it difficult for companies to meet growing market demand. This study aims to describe and analyze the supply chain of PT. Mushiro Jaya Group.

METHODS

This research was conducted at PT. Mushiro Jaya Group, located in Gg.orba, Bantan, Kec. Medan Tembung, Medan City. The location was selected using purposive sampling. The reason for choosing this location is that PT. Mushiro Jaya Group is one of the centers for oyster mushroom production and distribution in Medan, making it suitable for research related to the oyster mushroom supply chain in the Medan area. Data collection was carried out from April 21 to May 20, 2025.

This study used purposive sampling to determine respondents. Purposive sampling is a method of determining respondents where respondents are selected based on certain criteria relevant to the study (Sugiyono, 2019). This method was used to select producers with the criterion of being owners of PT. Mushiro Jaya Group. The snowball sampling method was used to select supply chain actors involved in PT. Mushiro Jaya Group. Snowball sampling is a sampling technique that starts with a small number of respondents and then expands. (Sugiyono 2019)

The characteristics used to determine respondents include:

1. Partners who work with PT. Mushiro Jaya Group and purchase a minimum of 1,000 baglogs.
2. Consumers who purchase oyster mushroom products from PT. Mushiro Jaya Group with a minimum purchase of 3 kg of oyster mushrooms.

Table 2. Number of Research Respondents

Responden	Number
Owner of PT. Mushiro Jaya Group	1
Partners of PT. Mushiro Jaya Group	10
Business Consumers	10

Source: Primary Data 2025

The data collection methods used in this study were primary data in the form of direct interviews with respondents and secondary data from various supporting sources, such as previous research journals, publications from the Central Statistics Agency (BPS), and books related to the topic and scope of this study. Data analysis in this study used two main approaches. To answer the first question, a qualitative descriptive method was applied using the Food Supply Chain Network (FSCN) approach, which highlights the importance of integration and coordination between elements in the supply chain system (Van Der Vorst, 2006).

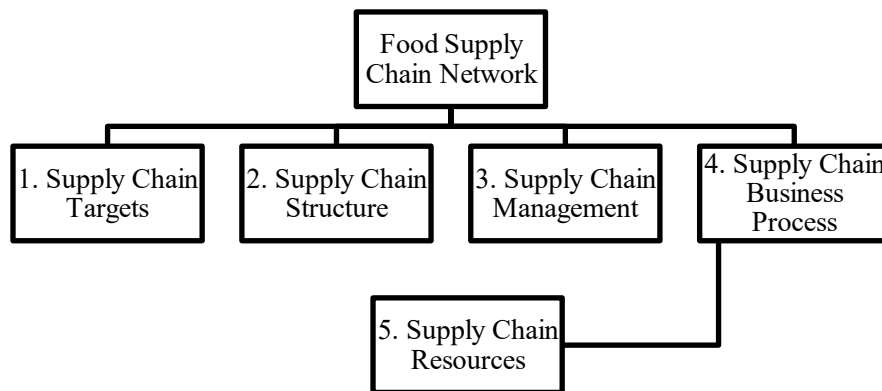


Figure 1. Descriptive Analysis Framework (FSCN)

For the second issue, a quantitative approach was used with the Supply Chain Operation Reference (SCOR) method developed by the Supply Chain Council (SCC). This method aims to measure and improve supply chain performance based on four key attributes: reliability, responsiveness, flexibility, and asset management.

1. Reliability

a. Delivery performance

$$\text{Delivery performance} = \frac{\text{Total products delivered on time}}{\text{Total product shipments}} \times 100\%$$

b. Compliance with standards

$$\text{Compliance with standards} = \frac{\text{Total standard delivery}}{\text{Total shipments of products}} \times 100\%$$

c. Order fulfillment

$$\text{Order fulfillment} = \frac{\text{Demand met without waiting}}{\text{Total consumer demand}} \times 100\%$$

2. Responsiveness

a. Standard fulfillment lead time is the length of time required to fulfill a customer order, expressed in days.

b. Standard Fulfillment Cycle

Standard fulfillment cycle = Planning time + Sorting time + Packaging time + Shipping time.

3. Fleksibilitas

Flexibility = Searching for goods cycle + packing goods cycle + shipping goods cycle.

4. Manajemen Aset

a. Cash to Cash Cycle Time

Cash to Cash Cycle Time = daily inventory + time required for consumers to pay merchants
– time required for merchants to pay suppliers

b. Daily supplies

$$\text{Daily supplies} = \frac{\text{Average Inventory}}{\text{Average Demand}}$$
Table 3. Supply Chain Performance Criteria

Attribute	Performance Indicator	Benchmark		
		Parity	Advantage	Superior
Realibility	Delivery Performance	85-89	90-94	≥ 95%
	Standard Compliance	80-84	85-89	≥ 90%
	Order Fulfillment	94-95	96-97	≥ 98%
Responsiveness	Order Fulfillment Lead Time	7-6	5-4	≤ 3 hari
	Order Fulfillment Cycle	8-7	6-5	≤ 4 hari
Fleksibility	Supply Chain Flexibility	42-27	26-11	≤ 10 hari
Aset Manajemen	Cash to Cash Cycle Time	45-34	33-21	≤ 20 hari
	Daily Inventory	27-14	13-0,01	0 hari

Source: Francis (2008), Harrison and V. Hoek (2008), Boistorff and Rosenbaum (2011)

RESULTS AND DISCUSSION**1. Overview of the Supply Chain**

According to Vorst (2006), the condition of the oyster mushroom supply chain can be analyzed descriptively through several aspects consisting of supply chain objectives, supply chain structure, supply chain business processes, supply chain resources, and supply chain management.

a. Supply Chain Objectives

Supply chain objectives are the direction or ultimate goals to be achieved in the entire supply chain process. At PT. Mushiro Jaya Group, these objectives describe the main goals of the oyster mushroom supply chain activities carried out. Supply chain objectives can be viewed from two perspectives, namely market objectives and development objectives.

PT. Mushiro Jaya Group markets baglog products to various partners and oyster mushroom products to several business consumers, such as food companies, as part of its target market. Food companies are targets that may have large daily consumption needs and the potential for long-term community-based cooperation.

Development goals are long-term targets for the supply chain. Development goals focus on improving product quality through improved cultivation methods and proper harvesting practices. PT. Mushiro Jaya Group pursues its development goals by conducting outreach to partners, consumers, and members of the community who are interested in learning how to cultivate oyster mushrooms.

b. Supply Chain Structure

The supply chain structure consists of actors who play a role in the supply chain. The supply chain of PT. Mushiro Jaya Group consists of partner farmers and business consumers who purchase oyster mushroom products from PT. Mushiro Jaya Group.

- PT. Mushiro Jaya Group

PT. Mushiro Jaya Group is a supply chain that acts as a producer of baglog and oyster mushrooms. This company is responsible for providing the main raw material, baglog, to cultivation partners and supplying fresh oyster mushrooms to business consumers.

- Partners

Partners are supply chain actors who manage baglog from the cultivation stage on land they own or manage to the harvesting process, then produce fresh oyster mushrooms that are ready for distribution to business consumers through PT. Mushiro Jaya Group.

- Business Consumers

Business consumers are part of the supply chain, specifically PT. Pangan Lestari Indonesia, which acts as a buyer of fresh oyster mushroom products from the producer (PT. Mushiro Jaya Group). The products are then processed into items such as mushroom powder and frozen food.

c. Supply Chain Management

According to Chopra and Meindl (2016), supply chain management is the management of a network of organizations involved, through interrelated and interdependent relationships, in various processes and activities that generate value in the form of products and services delivered to end consumers.

The contractual agreement between oyster mushroom owners and business partners and consumers includes product details, prices, and delivery schedules. The product ordered by the partner is baglog, which is delivered to the partner ready for cultivation and guaranteed to produce results. In addition, the contractual agreement covers payment and quality in accordance with the order. Payment is made directly upon delivery of the baglog to the partner who placed the order, with a minimum order of 1,000 baglog. Meanwhile, business consumers have a system of advance orders with a minimum order of 3kg per consumer and a payment system once a week on Fridays.

The transaction system implemented in the supply chain of PT. Mushiro Jaya Group can be done in the same way, either through transfer or cash, depending on the request of partners and business consumers who conduct transactions at PT. Mushiro Jaya Group.

d. Supply Chain Resources

The physical resources of Central Jamur Tiram Medan include a 20x20 meter cultivation area on Jalan Mawar, Medan, which is used for mushroom incubation and fertilization. Production uses raw materials such as rubber wood powder, bran, corn or tapioca flour, and approximately 60% water. Other supporting facilities include a shed for baglog maintenance and mushroom growth, equipped with bamboo or wooden racks.

Human resources (HR) at PT. Mushiro Jaya Group play an important role in the entire white oyster mushroom cultivation process, from production to distribution. The workforce involved includes various activities such as seed production, watering, harvesting, and packaging. This white oyster mushroom business generally does not require workers with high formal education, but rather prioritizes skills and perseverance.

PT. Mushiro Jaya Group relies on independent funding or its own capital to run its oyster mushroom cultivation business. This capital is used to support all aspects of business operations, from the procurement of raw materials and production equipment, the purchase of nutrients for the growing medium, to the financing of routine maintenance and the distribution of oyster mushroom harvests to consumers.

e. Supply Chain Business Process

The distribution pattern in the oyster mushroom supply chain includes three main components, namely product flow, cash flow, and information flow. Understanding how these three components are channeled is very important for analyzing whether the distribution process in the supply chain is running smoothly or still facing obstacles. At PT. Mushiro Jaya Group, the oyster mushroom supply chain has two channels, namely from producers to partners, then from producers to business consumers.

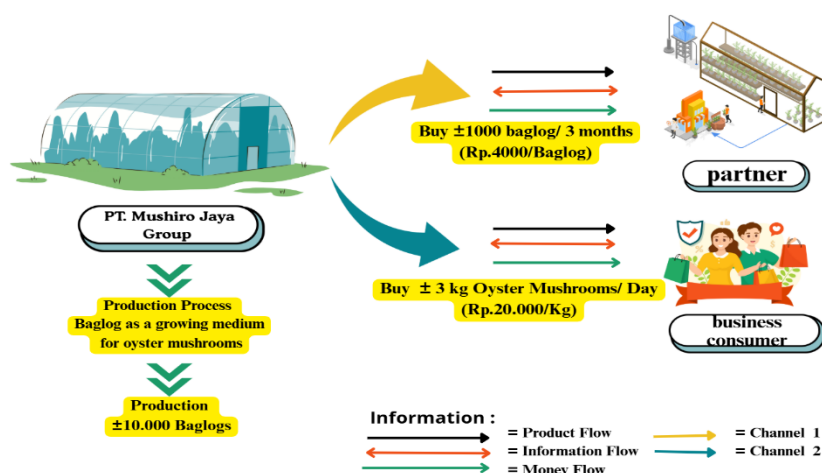


Figure 2. Distribution Channels

Product flow refers to the movement of baglogs and oyster mushrooms from the producer to business partners and end consumers. At PT Mushiro Jaya Group, the product flow begins with the producer manufacturing baglogs for its partners, who subsequently cultivate oyster mushrooms at their respective production sites. Once the mushrooms reach harvest age, they are picked, sorted according to quality and size, and then packaged to maintain freshness during delivery. After packaging, the oyster mushrooms are distributed to consumers through PT Mushiro Jaya Group. These consumers are business customers, such as food companies, that maintain partnership networks with PT Mushiro Jaya Group. This pattern reflects the existence of flows of products, information, and inter-actor relationships, which constitute the principal elements of supply chain management (Mentzer et al., 2001; Chopra, 2019).

In Channel 1, the producer purchases baglogs from partners in quantities of approximately $\pm 1,000$ baglogs every three months at a price of IDR 4,000 per baglog. Furthermore, in Channel 2, the producer sells oyster mushrooms to business consumers in quantities of approximately ± 3 kg per day at a price of IDR 20,000 per kilogram. Transactions between PT Mushiro Jaya Group (the producer) and business consumers are conducted using a pre-order (PO) system. Consumers first place orders for oyster mushrooms with PT Mushiro Jaya Group, after which the products are delivered according to the requested quantity. Regarding the payment method, consumers make payments once a week, specifically every Friday. Payment may be made either through bank transfer or in cash, depending on each consumer's preference. This system reflects the importance of synchronizing demand and supply in maintaining supply chain performance, particularly for fresh commodities (Chopra, 2019; van der Vorst & Beulens, 2002).

The flow of information within the baglog and oyster mushroom supply chain at PT Mushiro Jaya Group includes market information, inventory information on baglogs and oyster mushrooms, and price agreements. The communication system among members of the supply chain has been relatively well integrated. The information communicated by the company to each supply chain network concerns company capacity, shipment status, and the number of orders that must be fulfilled for both partners and business consumers. Meanwhile, communication between partners, business consumers, and PT Mushiro Jaya Group is conducted via telephone or WhatsApp. From a supply chain management perspective, accurate and timely information sharing plays a crucial role in enhancing coordination, visibility, and operational performance among supply chain members (Mentzer et al., 2001; Baah et al., 2022).

Although the product and information flows within the supply chain of PT Mushiro Jaya Group have generally functioned quite well, the analysis indicates that order fulfillment performance in the producer–business consumer channel remains relatively low compared with other performance indicators. This condition suggests that the company has not yet been fully capable of meeting business consumer demand in the right quantity, at the right time, and according to the expected specifications. In other words, this channel continues to face challenges in maintaining service consistency, despite the fact that a communication system among supply

chain actors has already been established. Conceptually, order fulfillment constitutes an important supply chain performance indicator because it is directly related to service reliability for customers (Chopra, 2019).

The low level of order fulfillment performance may be analyzed as the consequence of several structural causes. First, the perishable nature of oyster mushrooms means that handling, storage, and distribution time are extremely limited. Even minor delays in harvesting, sorting, packaging, or delivery may immediately reduce product quality and disrupt the company's ability to fulfill orders optimally. The literature indicates that fresh food products are characterized by high levels of uncertainty due to their short shelf life and strong sensitivity to distribution time and postharvest handling (van der Vorst & Beulens, 2002; Shukla & Jharkharia, 2018).

Second, production capacity, which depends on the biological cycle of mushroom cultivation, reduces supply flexibility. Although ordering is carried out through a pre-order system, the ability to adjust production volume in the short term remains limited because harvest outcomes are strongly influenced by the age of the baglogs, mushroom house conditions, temperature, humidity, and the success of the cultivation process. This condition is consistent with the general characteristics of fresh product supply chains, in which supply capacity tends to fluctuate and cannot respond rapidly to changes in demand (van der Vorst & Beulens, 2002; Fatemi Ghomi et al., 2024).

Third, dependence on partners as part of the supply network also affects supply stability. In this system, the producer does not fully control the entire cultivation process at the partner level. Differences in technical capability, quality of maintenance, and operational discipline among partners may lead to output variation in both quantity and quality. Such variation ultimately has a direct impact on PT Mushiro Jaya Group's ability to consistently meet business consumer demand. In supply chain studies, this condition indicates that inter-actor coordination and process standardization are critical determinants of supply reliability (Mentzer et al., 2001; Chopra, 2019).

Fourth, the demand pattern of business consumers tends to require stable supply certainty, whereas the upstream side of the supply chain still faces production uncertainty. This imbalance between relatively fixed demand characteristics and fluctuating supply capacity is one of the primary causes of low order fulfillment performance. The misalignment between supply and demand represents one of the major forms of uncertainty in fresh food supply chains and may lead to declining service performance (van der Vorst & Beulens, 2002).

In addition, the communication system, which still relies mainly on telephone and WhatsApp, does facilitate practical coordination, but it may not be sufficiently robust to support rapid and accurate operational decision-making. Such a system tends to be informal and may create risks of information delays, order recording errors, or suboptimal monitoring of stock and harvest schedules in real time. Thus, although communication integration may be considered relationally effective, weaknesses remain in the operational information system that may affect order fulfillment performance. Research shows that information quality and information sharing influence supply chain visibility, collaboration, agility, and ultimately overall supply chain performance (Baah et al., 2022; Shukla & Jharkharia, 2018).

These findings indicate that the low order fulfillment performance in the producer–business consumer channel is not merely caused by technical distribution problems, but also by a supply chain structure that has not yet been fully adaptive to the characteristics of fresh products and the dynamics of business market demand. In other words, the order fulfillment issue at PT Mushiro Jaya Group should be understood as a problem of supply chain coordination, production capacity, and information synchronization among actors, rather than merely as a matter of delivery delay (Mentzer et al., 2001; van der Vorst & Beulens, 2002).

From a managerial perspective, the company needs to strengthen production planning and supply control by developing planting and harvesting schedules that are more closely integrated with consumer demand data. PT Mushiro Jaya Group also needs to improve the standardization of cultivation operations at the partner level so that the quality and quantity of output become more uniform. This may be achieved through technical training, cultivation supervision, and the implementation of stricter quality standards. In addition, the company needs to establish a more structured order and inventory recording system, for example by using a simple digital system to monitor stock, harvest schedules, order quantities, and delivery status on a regular basis. These recommendations are in line with the principles of improving coordination, information visibility, and supply–demand alignment in supply chain management (Chopra, 2019; Baah et al., 2022).

The company is also advised to prepare supply risk mitigation strategies, such as production reserves, partner diversification, or more flexible supply contract scheduling with business consumers. Such strategies are important for reducing dependence on a single source of supply and enhancing the company's ability to respond to surges or changes in demand. Thus, improving order fulfillment performance depends not only on increasing production volume, but also on management's capacity to build a supply chain that is more responsive, coordinated, and resilient to disruptions (van der Vorst & Beulens, 2002; Chopra, 2019).

2. Supply Chain Performance PT. Mushiro Jaya Group

Table 4. Calculation Results of Baglog and Oyster Mushroom Supply Chain Performance at PT. Mushiro Jaya Group

Performance indicators	Calculation Results		Supply Chain Performance Category	
	Producer to partner (Baglog)	Producer to business consumer (Jamur Tiram)	Producer to partner (Baglog)	Producer to business consumer (Jamur Tiram)
Performance Delivery	100%	100%	Superior	Superior
Standard compliance	100%	100%	Superior	Superior
Order fulfillment	100%	83%	Superior	Parity
Lead time order fulfillment	1 hari	2 hari	Superior	Superior
Order fulfillment cycle	1 hari	2 hari	Superior	Superior
Supply chain flexibility	1 hari	2 hari	Superior	Superior
Cash to Cash Cycle Time	0 hari	10 hari	Superior	Superior
Daily inventory	10 hari	3 hari	Adventage	Adventage

Source: Primary Data 2025

Delivery Performance

Based on Table 4, delivery performance from producers to partners and business consumers reached 100%. This places both distribution channels in the superior category. Partners usually pick up a minimum of 1,000 baglogs every three months, while business consumers order oyster mushrooms daily through a pre-order (PO) system that is delivered using pickup trucks. This finding is in line with the opinion of Heizer and Render (2017) in the book Operations

Management, which emphasizes that delivery timeliness is a key indicator of superior supply chain performance, as it impacts customer satisfaction and distribution efficiency.

Standard compliance

Based on Table 4, the standard conformity value from producers to partners reached 100%, as did that from producers to business consumers, which was also 100%. These results indicate that all oyster mushroom products distributed through both channels have met the agreed quality standards, without any deviations or deterioration in quality. This is in line with research by Sari (2015), which found that the closer the average standard compliance value is to 100%, the better the supply chain performance.

Order Fulfillment

Based on Table 4, the order fulfillment rate from producers to partners reached 100% and was classified as superior, with 1,000 baglogs that could be fulfilled immediately without any waiting time. Meanwhile, the order fulfillment rate from producers to business consumers is 83% and falls into the parity category, where producers are only able to fulfill 2.5 kilograms of the total 3 kilograms of oyster mushroom orders. This condition indicates the need for performance improvement in order to achieve an optimal or excellent level. These findings are in line with the research by Chopra & Meindl (2016) in Supply Chain Management, Strategy, Planning, and Operation, where they explain that the ability to fulfill orders completely and on time is key in assessing the effectiveness of a supply chain.

Lead Time

Based on Table 4, supply chain performance in terms of lead time indicates that it takes only one day from the manufacturer to partners, while it takes two days from the manufacturer to business consumers. Both distribution channels are classified as superior. This condition reflects that PT. Mushiro Jaya Group has an efficient and responsive distribution system, enabling it to quickly fulfill customer demand, whether it be baglog for partners or oyster mushrooms for business consumers, as soon as the order process is completed. This finding is in line with Christopher's (2016) opinion, which states that a short lead time is a key indicator of operational efficiency in the supply chain and is directly related to a company's ability to respond quickly to changes in demand.

Order Fulfillment Cycle

Based on Table 4, the order fulfillment cycle from the producer to partners takes 1 day, while to business consumers it takes 2 days, both of which are classified as superior. The 1-day cycle reflects the efficiency of the producer's internal processes from order receipt to baglog delivery, while the 2-day cycle demonstrates the effectiveness of distribution management in supplying oyster mushroom stock and product delivery. In line with Heizer, Render, and Munson (2017), a short order fulfillment cycle increases customer satisfaction and strengthens company loyalty and competitiveness.

Flexibility

Based on Table 4, flexibility from producers to partners is recorded at 1 day and from producers to business consumers at 2 days, both of which are classified as superior. This shows that the PT. Mushiro Jaya Group supply chain is able to respond to changes, such as spikes in demand or delays in supply, in a relatively short time. In line with Liao (2020), who explains that network flexibility and market-oriented flexibility are interrelated, flexibility in supply chain configuration enables superior performance in dealing with industry complexity.

Cash to Cash Cycle Time

Based on Table 4, the Cash to Cash Cycle Time value for manufacturers to partners is 0 days, while for manufacturers to business consumers it is 10 days, both of which are classified as

superior. This shows that the company is able to manage working capital effectively, with a short cash cycle so that investments in the production and distribution processes can immediately return to PT. Mushiro Jaya Group's cash income.

Daily Inventory

Based on Table 4, daily inventory from the manufacturer to the partner is recorded at 10 days, while from the manufacturer to the business consumer is only 3 days. Both values are in the Advantage category, so they still need to be improved to reach the optimal or excellent level.

CONCLUSION

From the results of the research conducted, the following conclusions can be drawn:

1. PT. Mushiro Jaya Group produces baglogs which are then distributed to partners for cultivation. After the mushrooms are harvested, the harvest is sorted, packaged, and sent back to PT. Mushiro Jaya Group to be distributed to business consumers. Transactions with partners use a cash on delivery payment system when baglogs are shipped. Meanwhile, transactions with business consumers are carried out through a pre-order system, with payments made every Friday. The flow of information in the oyster mushroom supply chain at PT. Mushiro Jaya Group includes market information, information on baglog and oyster mushroom product supplies, and price agreements.
2. Overall, the performance of PT. Mushiro Jaya Group's supply chain to producers and business consumers has shown excellent results. However, in channel 2, from producers to business consumers ordering oyster mushrooms, there are still attributes that need to be improved in order to achieve a superior level, namely order fulfillment.

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