SUPPLY CHAIN PERFORMANCE OF ORGANIC VEGETABLES (EVIDENCE ON SMES IN MALANG CITY)

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ABSTRAK

Peran strategi manajemen rantai pasok dalam bisnis sayuran organik adalah menciptakan daya saing dengan mengedepankan pemenuhan permintaan konsumen secara tepat. Salah satu perusahaan yang bergerak di bisnis sayuran organik di Kota Malang adalah UMKM Abang Sayur Organik (ABS). Komoditas brokoli organik merupakan produk unggulan dari UMKM ABS yang secara kontinyu dipasok kepada ritel dan manufaktur. Permasalahan umum terjadi pada rantai pasok brokoli organik yaitu permintaan yang fluktuatif dan ketidaksesuaian kualitas produk yang dikirim. Pengukuran kinerja rantai pasok diperlukan untuk menjawab permasalahan yang dihadapi. Penelitian ini bertujuan untuk mendeskripsikan kondisi manajemen rantai pasok dan mengukur kinerja rantai pasok sayuran organik di UMKM ABS. Data yang digunakan merupakan data primer yang diperoleh dari kuesioner yang disebarkan ke semua pelaku rantai pasok brokoli organik ABS. Pengukuran kinerja rantai pasok menggunakan metode skor *benchmark* indikator kinerja *Supply Chain Operation Reference* (SCOR) yang meliputi *realibilty*, *responsiveness*, *agility*, *costs*, dan *assets* dengan klasifikasi nilai *parity*, *advantage*, dan *superior*. Hasil penelitian menunjukkan bahwa pelaku rantai pasok yang terlibat yaitu pemasok, distributor, manufaktur, ritel, dan konsumen. Pengukuran indikator kinerja *Perfect Order Fulfillment* pada posisi *advantage* di tingkat pemasok dan *superior* di tingkat distributor hingga ritel. Nilai *Order Fulfillment Cycle Time* dan *flexibility* di posisi *superior* pada setiap pelaku, sedangkan pada nilai *inventory days of supply* di tingkat pemasok, distributor, dan manufaktur berada pada posisi *advantage* namun di tingkat ritel di posisi *superior*. Nilai *Cash To Cash Cycle Time* posisi *superior* pada setiap pelaku rantai pasok, namun untuk nilai *Total Supply Chain Management Cost* pada setiap pelaku rantai pasok brokoli organik berada di posisi *gap-parity*.

Kata kunci: kinerja rantai pasok, sayuran organik, SCOR

ABSTRACT

The role of supply chain management strategies in the organic vegetable business is to create competitiveness by prioritizing fulfillment of consumer demand appropriately. One of the companies engaged in the organic vegetable business in Malang City is Abang Sayur Organik (ABS) SMEs. The organic broccoli commodity is a superior product from ABS SMEs which continues supplied to retail and manufacture. Common problems that occur in the organic broccoli supply chain are fluctuations in demand and mismatches in the quality of products shipped. Measurement of supply chain performance is needed to answer the existing problem. This study aims to describe the condition of supply chain management and measure the performance of organic vegetable supply chains in ABS SMEs. The data used are primary data obtained from questionnaires distributed to all ABS organic broccoli supply chain actors. Supply chain performance measurement uses the benchmark score method of Supply Chain Operation Reference (SCOR) performance indicators that include reliability, responsiveness, agility, costs, and assets with a value classification of parity, advantage, and superior. The results showed that supply chain actors involved were suppliers, distributors, manufacturers, retailers, and consumers. Measurement of Perfect Order Fulfillment performance indicators at the position of advantage at the

supplier level and superior at the distributor level to retail. The value of Order Fulfillment Cycle Time and flexibility are superior at each actor, while the value of inventory days of supply at the supplier, distributor and manufacturing level is at a position of advantage but at the retail level at a superior position. Cash To Cash Cycle Time value is superior position in each supply chain actor, but for the Total Supply Chain Management Cost value in each organic broccoli supply chain actor is in a gap-parity position.
Keywords: *supply chain performance, organic vegetables, SCOR*

INTRODUCTION

The development of the organic vegetable business currently requires companies engaged in similar businesses to compete with each other to design business strategies to win the competition. This can be conducted by applying a supply chain management strategy. Based on Ramadhan, *et al.* (2014) Supply chain management strategies can play a role in creating business strength. With good supply chain management, the company can have high competitiveness compared to its competitors because it can meet consumer demand appropriately and provide benefits to each supply chain actor. Supply chain management activities for organic vegetable commodities need to be conducted because considering that vegetable products are agricultural products that are easily damaged, the packaging, storage and distribution processes of the product need to be applied special treatment.(Tsao, 2013). According to (Apriyani, *et al.*, 2018) These conditions require proper handling of organic vegetables and the need for good cooperation between members of the organic vegetable supply chain from upstream to downstream to maintain the freshness and quality of organic vegetables in the hands of end consumers. The organic vegetable supply chain involves coordination and integration of every supply chain involved. The existence of harmony between planning, coordination, and control of all supply chain business processes and activities aims to meet consumer needs at the lowest cost (Chopra & Meindl, 2007).

Organic vegetables is an organic product that is in demand Indonesians. People as consumers of organic agricultural products, especially vegetable commodities in Indonesia, have started to be selective and realizes the importance of health from something they consume. Based on the research conducted by Andari, *et al.* (2016), it showed that consumers have negative feelings when they do not eat organic vegetables. In line with Huber, *et al.* (2011), The main motivation of consumers in choosing organic products is the positive impact of these products on health, in addition to the need for environmentally friendly food ingredients, and consumers also admit that the nutritional content of organic vegetables is better than non-organic ones. There is a fear of the dangers of chemical substances from the conventional vegetables product. A healthy lifestyle by consuming organic vegetables makes people aware of the advantages of organic agricultural products, especially organic vegetables.

Along with the increasing level of consumer awareness of the consumption of organic products, this creates a promising business opportunity for entrepreneurs engaged in the organic vegetable vegetable industry. One of the companies engaged in the organic vegetable industry is Organic Vegetable Abang Malang MSME. Abang Sayur Organik (ABS) is a business unit of the company Natural Organic Indonesia (NOI). ABS is engaged in the distribution of organic vegetables which is growing in the Kedungkandang District, Malang City. Activities conducted by ABS include the process of procuring organic vegetable supplies, post-harvest handling, and distribution of organic vegetables. The procurement of organic vegetables at ABS always adjusts to the needs of consumers, retailers and manufacturers per day. Meanwhile, the distributor orders the supplier on a regular basis. The ability to fulfill needs

at the supplier level and the number of orders from the distributor will determine the number of goods that can be sent to consumers, retail and manufacturers. A common problem is caused by the fluctuation of the number of shipments of vegetables per month to consumers and partners. ABS always tries to prioritize meeting the needs of consumers, retail and manufacturing, sometimes there are organic vegetables from suppliers that do not comply with quality standards. Thus, they can't be resold. The suitability of the quality of the supply will determine the quantity of vegetables that will be distributed.

It is important to measure the performance of supply chain management to determine the position of a company against competitors and to the company's goals to be achieved, as well as to determine the direction of improvement to create competitive advantage. In line with Theeranuphattana and Tang (2008), It is important to measure supply chain performance in a company in order to evaluate the rate of return on inputs and their utilization to improve supply chain conditions that still have problems. A research on supply chain performance has been carried out on agricultural commodities, for example on horticultural commodities (Sari, 2017) and several processed agricultural products in the company (Ramadhan, *et al*., 2014). This research is different from previous research, such as by using all the attributes of performance, commodities, and research sites. The aim of conducting supply chain performance research in ABS is to describe the supply chain management mechanism of organic vegetables in ABS and to analyze the supply chain performance of organic vegetables in ABS based on performance indicators of the Supply Chain Operation Reference (SCOR).

RESEARCH METHODS

The research approach used in this research was a quantitative approach. Quantitative analysis was to measure supply chain performance by considering the benchmark score of performance attributes according to the sample matrix/performance indicator of the Supply Chain Operation Reference (SCOR) used. The research location was determined by purposive method. The location selection took into account that ABS was an agribusiness company engaged in post-harvest organic vegetables and a growing organic vegetable distributor with an average organic broccoli production capacity of ≤ 500 kg/year and the distribution covered area including Malang City, Surabaya, Kediri, Sidoarjo, and Batu. The samples were determined by non-probability sampling using judgment sampling techniques resulted in the sample of this study including suppliers (Agrotechno Park ATP Universitas Brawijaya), distributors (UMKM ABS) manufacturing (Baby Porridge Industry), and retail (Organic Vegetable Stores in Sidoarjo). Thus, the respondents of this research were seven people including the Head of the Cangar Garden Division, ATP Marketing Employees, ABS Owners, Financial or Production Employees, Baby Porridge Industry Owner, and Sidoarjo Organic Vegetable Store Owner. The data collection technique in this research was to use interview activities assisted by a questionnaire. From the data obtained, it could be known descriptively about the supply chain management mechanism carried out including the supply chain actors involved and the activities carried out, the flow of goods, the flow of money, and the flow of information.

Supply chain performance measurement used benchmark scores from supply chain performance indicators that had been adjusted with several previous studies on vegetable commodities (Yolanda, 2016; Sari, *et al*., 2017). The five measured performance attributes can be calculated using several performance indicators, as follow;
1. Perfect Order Fulfillment (POF)
   POF is the percentage of order deliveries that meet the quantity accuracy on time

and there is no damage to the goods desired by the consumer.

$$POF = \frac{total\ order - number\ of\ order\ with\ problem}{total\ order} \times 100\%$$

2. Order Fulfillment Cycle Time (OCFT)
OCFT is the amount of time in days. It takes from the time the request is received until the product is received by the consumer.

$$OFCT = \frac{total\ cycle\ time\ (source + make + deliver)\ all\ order}{orders\ sent}$$

3. Flexibility
It is ability to respond to external changes in order to remain in a competitive position in the market. Changes that occur can be in the form of additional orders or reducing the amount without any penalty fees.
Flexibility = time (source + make + deliver) to meet an increase or decrease in shipments

4. Inventory Days of Supply
The length of time the supply can meet demand without further supply.

$$Daily\ stock = \frac{amount\ of\ stock}{number\ of\ requests}$$

5. Cash to Cash Cycle Time (CTCCT)
CTCCT is the time required for the return of capital to the company after the expenditure for raw material needs.
CTCCT = number of days of inventory supply + the number of u8npaid sales days – the number of days of procurement has not been paid

6. Total Supply Chain Management Cost (TSCMC)
TSCMC is all costs incurred to run supply chain processes that include labor costs, material costs, transportation costs, and storage costs.

$$TSCMC = \frac{All\ supply\ chain\ process\ costs}{supply\ chain\ revenue} \times 100\%$$

The results of the calculation of supply chain performance attribute indicators above would be compared with the table of benchmark results that were used as a reference in measuring supply chain performance. The performance matrix of the SCOR method according to Bolstorff & Rosenbaum (2011); Heizer & Render (2015); Sari, *et al*. (2017) is explained in Table 1.

Table 1. Performance Attribute Matrix

SCOR Performance Attributes	Sample Matrix / Performance Indicators	Benchmark		
External Performance		Parity	Advantage	Superior
Reliability	Perfect Order Fulfillment (%)	92,00-94,00	95,00-97,00	≥98,00
Responsiveness	Order Fulfillment Cycle Time (OFCT) (days)	8,00-7,00	6,00-5,00	≤4,00
Agility	Flexibility (days)	42,00-27,00	26,00-11,00	≤10,00
Internal Performance		Parity	Advantage	Superior
Asset	Cash to Cash Cycle (days)	45,00-34,00	33,00-21,00	≤20,00
	Inventory days of supply (days)	27,00-14,00	13,00-0,01	=0,00
Cost	Total Supply Chain Management Cost (%)	13,00-9,00	8,00-4,00	≤3,00

Source: Adapted from Apriyani, et al. (2018); Bolstorff & Rosenbaum (2011); Sari, et al. (2017)

Based on Bolstorff & Rosenbaum (2011), Benchmarks are divided into three value classifications, there are parity, advantage, superior. Parity is the lowest value classification of supply chain performance targets. Advantages is a medium or average classification, while superior is the highest value of the supply chain performance effectiveness target. The results of the calculation of all indicators will produce a classification of performance values that will be compared to all supply chain actors, namely suppliers, distributors, manufacturers, and retailers.

RESULT AND DISCUSSION

According to the results of the research conducted, the supply chain flow formed from the organic broccoli industry was composed of several supply chain actors, namely:

1. Suppliers were responsible for providing fresh organic broccoli stocks to meet the demands of retail and consumer ABS. A supplier that collaborates with ABS for organic broccoli is Agrotechno Park (ATP) Universitas Brawijaya.

2. Distributors played a role in distributing organic broccoli products produced by ATP suppliers. The supply of organic broccoli was treated such as weighing, storage, packaging before distribution to retail, manufacturers and consumers.

3. Manufacturers handled processing organic broccoli into baby porridge by combining several raw materials, such as carrots, corn, rice, etc. The baby porridge industry that is running includes small-scale businesses based on home businesses.

4. Retail played role as an intermediary for organic ABS broccoli products to the end consumers. In addition, retail was useful for expanding the market reach of organic products marketed by ABS. The organic broccoli retailer in collaboration with ABS was Toko Sayur Organik Sidoarjo.

5. Consumers played a role in making purchases by ordering through social media in the form of Instagram that is connected to Whatsapp. Besides, they can also come directly to ABS physical stores, retail and manufacturing to get their products.

Organic Broccoli Supply Chain Management Mechanism

Based on Pujawan (2017), A supply chain has three types or flow patterns that are managed including the flow of goods, the flow of money or finance, and the flow of information. The flow pattern of the ABS organic broccoli supply chain is managed by all members of the supply chain who are involved in it.

Based on Figure 1, it can be seen that there was a flow of goods, cash flow, and a flow of information that managed by all supply chain actors involved. The following is an explanation of the three flow patterns.

1. Flow of goods

   The flow of the organic broccoli supply started from the production conducted by the ATP supplier on the land they own. The harvest process was conducted every week on Monday and Thursday if there was an increase in demand. Furthermore, harvested organic broccoli was given post-harvest treatment such as sorting, grading, packaging, and weighing. After that, the broccoli supply was sent to distributor partners, ABS, who ordered supplies of organic broccoli for distribution to manufacturers, retailers and consumers. ABS did re-weighing activities, then storage was carried out in the refrigerator and immediately packed using plastic wrap and given an ABS brand sticker when there was an order and it was ready to be sent to consumers. The supply of organic broccoli that reached the manufacturer was then processed with other raw materials into baby porridge and is sold by the manufacturer to consumers, while the supply of broccoli that reaches retailers is sent directly to the final consumer.
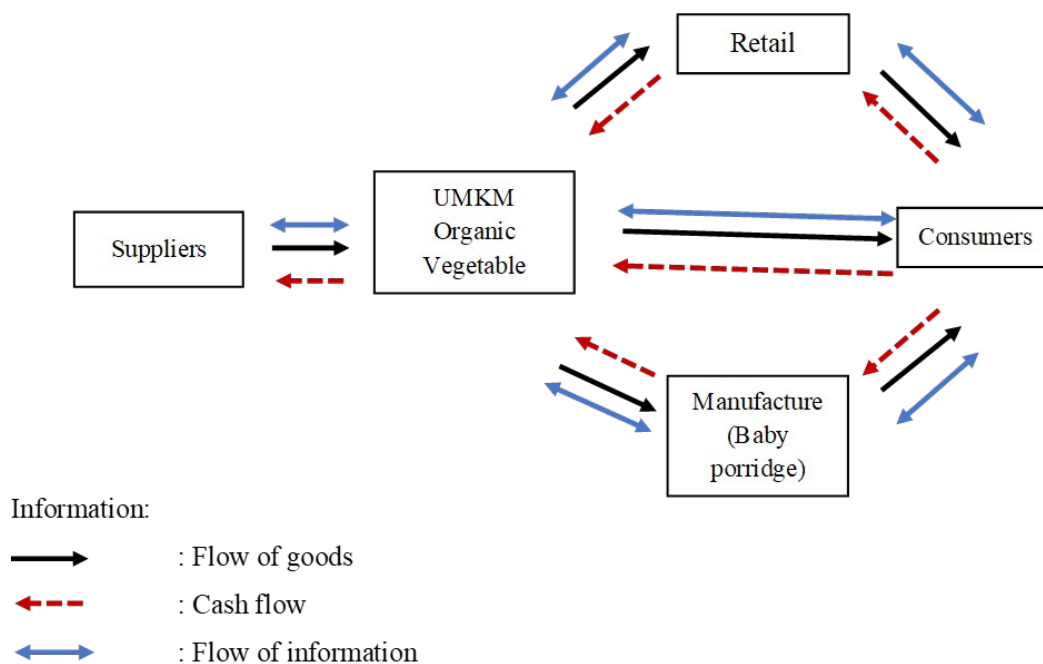
Figure 1. Organic Broccoli Supply Chain Flow Pattern
Source: Primary Data, 2020

2. Cash Flow

Cash flow was from consumers who buy organic broccoli products directly to ABS and retail distributors. In addition, consumers also made purchases from processed organic broccoli products sold by manufacturers in the form of baby porridge. Manufacturers and retailers payed for their supplies to distributors, then the last was a payment transaction made by distributors to ATP suppliers. As for all payment transactions made using the cash method (direct) and direct transfers to the accounts of each supply chain actor. The term of payment was when the last supply of organic broccoli arrived.

3. Flow of Information

Information flow occurs from upstream to downstream of the supply chain and vice versa. Information flow between suppliers and distributors of ABS occurred regarding the quantity of supply available from the weekly harvest by ATP suppliers, the quality of supply, and the purchase price of the supply. ABS distributors also exchanged information with manufacturers and retailers regarding the quantity of orders placed, the quality of the organic broccoli shipped, and the purchase price. Information exchanged also take place at the ABS distributor, retail, and manufacturing levels with the end consumer regarding selling prices, product quality, nutritional content, and the number of products available. The exchange of information carried out by all supply chain actors takes place face-to-face or through social media such as Whatsapp, Facebook and Instagram.

Organic Broccoli Supply Chain Performance

The following is an explanation of all the attributes measured in each supply chain actor based on the results of the research conducted.

Based on Table 2, it can be seen that several supply chain performance indicators from the internal and external sides at the supplier level had different benchmark positions. The following is an explanation of the results of the calculation of all performance indicators.

Table 2. Perbandingan nilai rata-rata kinerja rantai pasok pada Pemasok

Attributes and Sample Matrix / Performance Indicators	Benchmark			Average	Result
External Performance	Parity	Advantage	Superior		
Reliability					
Perfect Order Fulfillment (%)	92,00-94,00	95,00-97,00	≥98,00	97,83	Advantage
Responsiveness					
Order Fulfillment Cycle Time (OFCT) (days)	8,00-7,00	6,00-5,00	≤4,00	0,23	Superior
Agility					
Flexibility (days)	42,00-27,00	26,00-11,00	≤10,00	3,00	Superior
Internal Performance	Parity	Advantage	Superior		
Aset					
- Cash to Cash Cycle Time (days)	45,00-34,00	33,00-21,00	≤20,00	4,00	Superior
- Inventory days of supply (days)	27,00-14,00	13,00-0,01	=0,00	3,60	Advantage
Cost					
Total Supply Chain Management Cost (%)	13,00-9,00	8,00-4,00	≤3,00	36,30	Gap-Parity

Source: Primary Data, 2020

1. Perfect Order Fulfillment (POF)

Based on the calculation of the POF performance indicators at the supplier level, the average result of each month was that ATP supplies organic broccoli to consumers and distributor and retail partners was 97.83%. In which case the performance of fulfilling ATP's perfect orders was still in an advantage position or average. Based on Sari, et al. (2017), when some of the supplies received by consumers and partners experience rejection or returns up to> 2% of the total number of supplies sent, the supplier's ability to provide vegetables that meet the standards only meets the criteria of being sufficient or average. Fulfillment of perfect orders means products that are delivered on time, on quantity, and in accordance with established standards.

2. Order Fulfillment Cycle Time (OCFT)

The total cycle time required to fulfill an organic broccoli or OCFT order was 78 days. Based on the results of the average OCFT calculation, the total cycle time needed to fulfill orders compared to the number of orders in each month can be seen that ATP takes 0.23 days to fulfill the entire order or about 5 hours 52 minutes. Based on Bolstorff & Rosenbaum (2011), The order fulfillment cycle was included in the best or superior category because it could fulfill orders with ≤ 4 days.

3. Flexibility

ATP as the supplier was able to undertake the increase in demand up to three days after harvest on Thursday. ATP would harvest again to meet the remaining unfulfilled demand on Monday's harvest. However, the quantity of supply that could be guaranteed by ATP would not necessarily be able to meet the increase in demand due to some consumers and partners sometimes took the remaining supply from collectors. As for the ATP's ability to face an increase or decrease in orders without further stock, for three days or ≤ 10 days that was in accordance

with the benchmark score, it could be classified into the superior category (Sari, et al., 2017).

4. Inventory days of supply

The calculation of the average daily inventory held at the supplier level was 4.15 kg with an average daily demand of 1.15 kg. Thus, the length of inventory days of supply that ATP can do to meet its daily consumer demand without any further supply was 3.6 days or around 86 hours. This caused the position of ATP in the daily inventory performance indicator or inventory days of supply to only entered the advantage category because it was more than zero days.

5. Cash to Cash Cycle Time (CTCCT)

CTCCT is useful for measuring the fast and slow pace starting from payment of orders to suppliers, to payments for organic broccoli by consumers or distributors. The three components measured in the CTCCT calculation consist of average days of account receivable, average days of account payable, and inventory days of supply. Therefore, the length of the payment cycle in each transaction of entering and leaving goods is 4 days or ≤ 20 days and is included in the superior level. It is in line with Setiawan, et al., 2011), Good suppliers have a Cash to Cash Cycle Time value lower than the average value whose cycle reaches 21-33 days. Total Supply Chain Management Cost (TSCMC)

The calculation of the average value of the TSCMC indicator at the supplier level reaches 36.30%. Thus, it can be seen that from the average monthly sales revenue received by ATP for one year, 36.30% was the amount of costs that must be incurred. Based on Sari, *et al*., (2017), a value of 36.30% can be categorized as a gap-parity position or in a very bad position. Large costs can come from lost revenues generated by broccoli supplies that were returned or rejected by consumers or distributor partners. From the TSCMC calculation, it can be seen

that the HPP for organic broccoli at the supplier level was IDR 6,900/kg. Suppliers obtained a profit of IDR 10,100/kg with a selling price of IDR 17,000/kg.

Based on Table 3, it can be seen that several supply chain performance indicators from the internal and external sides at the distributor level had different benchmark positions. The following is an explanation of the results of the calculation of all performance indicators.

1. Perfect Order Fulfillment (POF)

The POF results at the distributor level, namely ABS, illustrated that the quantity of orders and products delivered perfectly had the same amount, in which the POF calculation reached a value of 100% or it was included in a superior position. Thus, the overall transactions carried out by ABS went very well without any imperfect (defective) products. in line with the statement of Yolandika (2016), the closer to 100% perfect order fulfillment, the better the supply chain performance. In addition, punctuality is of great concern in fulfilling orders for the supply of organic broccoli from ABS to retailers and consumers alike.

2. Order Fulfillment Cycle Time (OCFT)

The Order Fulfillment Cycle Time (OFCT) indicator is obtained from the amount of time in days it takes from the time the request received until the product is received by the consumer or retail partner (Bolstorff & Rosenbaum, 2011). The formula for OFCT is the total cycle time for source, make, and delivery divided by the total order. The calculation result of the monthly average OFCT value for a year on ABS was 0.75 days or ABS was able to fulfill the orders within 18 hours. In the benchmark table, the value was included in superior. It means that the ABS OFCT performance indicator haf reached the best position.

Table 3. Comparison of the Average Value of Supply Chain Performance on MSME ABS

Attributes and Sample Matrix / Performance Indicators	Benchmark			Average	Result
External Performance	Parity	Advantage	Superior		
Reliability					
Perfect Order Fulfillment (%)	92,00-94,00	95,00-97,00	≥98,00	100	Superior
Responsiveness					
Order Fulfillment Cycle Time (OFCT) (hari)	8,00-7,00	6,00-5,00	≤4,00	0,75	Superior
Agility					
Flexibility (hari)	42,00-27,00	26,00-11,00	≤10,00	1,00	Superior
Internal Performance	Parity	Advantage	Superior		
Aset					
- Cash to Cash Cycle Time (days)	45,00-34,00	33,00-21,00	≤20,00	2,00	Superior
- Inventory days of supply (days)	27,00-14,00	13,00-0,01	=0,00	1,00	Advantage
Cost					
Total Supply Chain Management Cost (%)	13,00-9,00	8,00-4,00	≤3,00	41,60	Gap-Parity

Source: Primary Data, 2020

In accordance with Setiawan, et al. (2011), the smaller the OFCT value, the better the supply chain performance, so that efforts need to be made to maintain this condition.

3. Flexibility

ABS as the distributor accepted maximum order changes of a day after the order process took place. Hence, ABS could coordinate with suppliers to harvest organic broccoli again in case of additional orders. However, this was very rare because usually suppliers had already arranged the supply of organic broccoli to be distributed to everyone. Therefore, it can be seen that the flexibility value of the organic broccoli ABS supply chain was 24 hours or less than ten days. So, the ABS flexibility indicator was included in the superior category. It was in accordance with Bolstorff & Rosenbaum (2011) that to achieve a superior category on indicators of supply chain flexibility, the time needed is ≤ 10 days. Therefore, the ability of ABS to respond to changes in

orders, either additions or subtractions from consumers, had reached the best performance and needed to be maintained.

4. Inventory days of supply

The calculation of the daily inventory of ABS was presented by calculating the average amount of stock available per day of1.29 kg and dividing it by the average daily demand of 1.29 kg. Thus, the ability of ABS to meet consumer needs per day through supplies of organic broccoli when no supply arrived was 24 hours or 1 day. It means that the ABS daily supply indicator was at the advantage or average level Sari, *et al*. (2017). ABS conducted inventory stock to meet consumer demand who directly purchased in stores and through social media Although broccoli is a perishable vegetable. ABS could overcome this by putting the vegetable supply in the refrigerator to keep the vegetables fresh until no later than one day after the supply of organic broccoli comes from ATP.

5. Cash to Cash Cycle Time (CTCCT)

The CTCCT calculation was carried out to measure the fast and slow pace starting from payment of orders to suppliers, to payments for organic broccoli by retailers and consumers. Based on the results of the research conducted, the daily inventory carried out by ABS was only able to accommodate the demand for a day, while for the average days of account receivable ABS was for one day. This was because every retail, manufacturer, and consumer immediately paid for the order no later than a day after placing the order or when the organic ABS broccoli supply has arrived. Average days of account payable ABS or the length of time ABS paid to suppliers was zero days, because the payment process was direct when the last supply arrives each week. Thus, the length of CTCCT ABS was two days or it was considered superior because the time that ABS needed in the payment cycle was less than twenty days Sari, et al. (2017).

6. Total Supply Chain Management Cost (TSCMC)

Based on the calculation, the TSCMC ABS value was 41.6%. It means that the TSCMC ABS performance indicator value was in a gap-parity position or a performance measure below the parity or poor position. According to Yolandika (2016) in her research, the lower the TSCMC value, the better the performance of the supply chain. This was because ABS, as the distributor, was fully responsible for the losses due to broccoli supplies that dis not meet the criteria or broccoli damaged. Thus, it couldn't be resold, even though this situation was only five percent of the total supply sent. From the TSCMC calculation carried out at the distributor level of organic broccoli, namely ABS, it can be seen that the HPP at the distributor level was IDR 18,650/kg and the profits obtained by ABS reached IDR 26,350 /kg with a selling price of IDR 45,000/kg to consumers.

Table 4. Comparison of the Average Value of Supply Chain Performance in Manufacturing

Attributes and Sample Matrix / Performance Indicators	Benchmark			Average	Result
External Performance	Parity	Advantage	Superior		
Reliability					
Perfect Order Fulfillment (%)	92,00-94,00	95,00-97,00	≥98,00	100	Superior
Responsiveness					
Order Fulfillment Cycle Time (OFCT) (days)	8,00-7,00	6,00-5,00	≤4,00	0,017	Superior
Agility					
Flexibility (days)	42,00-27,00	26,00-11,00	≤10,00	1,00	Superior
Internal Performance	Parity	Advantage	Superior		
Aset					
- Cash to Cash Cycle Time (days)	45,00-34,00	33,00-21,00	≤20,00	2,00	Superior
- Inventory days of supply (days)	27,00-14,00	13,00-0,01	=0,00	1,00	Advantage
Cost					
Total Supply Chain Management Cost (%)	13,00-9,00	8,00-4,00	≤3,00	31,90	Gap-Parity

Source: Primary Data (2020)

Based on Table 4, it can be seen that several supply chain performance indicators from the internal and external sides at the manufacturing level had different benchmark positions. The following is an explanation of the results of the calculation of all performance indicators.

1. Perfect Order Fulfillment (POF)
   Based on the results of the research, the calculation of the average POF value or orders were delivered perfectly to consumers without any non-standard quantity, on time and quantity on delivery. Thus, there were no product repercussions (returns). Manufacturers were able to meet the best or Superior criteria with a POF value equal to 100% or greater than 98%. Processed organic broccoli was produced in the form of baby porridge that was able to sell 2,000 portions per month. The total monthly consumer orders could be fulfilled perfectly without any product defects or delays in delivery time to the end customer. Based on Apriyani, et al. (2018), if a company is able to provide products that comply with standards, fulfillment of the right order quantity, and on-time delivery equal to 100% of the total order, then the POF indicator at the company level is included in the best category and it needs to be maintained.

2. Order Fulfillment Cycle Time (OCFT)
   OFCT is the average total cycle time of source, make, and deliver required by a manufacturer to fulfill orders from consumers for its products. Based on the results of research conducted at the manufacturing level regarding the calculation of the monthly average OFCT value for a year is 0.017 days or manufacturers are able to fulfill their orders within the range of 10 minutes. In the benchmark table, the OFCT indicator value was included in superior and it needed to be maintained, because it was in accordance with the performance appraisal criteria on the order fulfillment cycle indicator to achieve the best criteria

in a company of ≤4 days (Sari, et al., 2017).

3. Flexibility
   Based on the research results, the manufacturing ability to fulfill an unexpected increase in orders is for one day. It is because the baby's porridge production process was carried out every day and there was an inventory days of supply that can last for one day in accordance with the large supply and demand of consumers per day. The flexibility indicators at the manufacturing level could be categorized into the best or superior results based on the comparison of the benchmark value of these indicators for less than 10 days. (Bolstorff & Rosenbaum, 2011).

4. Inventory days of supply
   Based on the results of research conducted at the manufacturing level, it can be seen that manufacturing was only able to meet consumer demand for one day when there was no further supply of raw materials. In line with Sari, et al. (2017), the manufacturing ability of the performance indicators of inventory days of supply was in the category of advantage or average. This is because to achieve superior manufacturing, there should be no daily inventory or stock. Hence, there was no excess supply of raw materials at any time if there is a decrease in demand which results in losses in costs incurred. However, in the calculations, the daily inventory from manufacturers could run out within a day due to an increase in demand for baby porridge products from consumers.

5. Cash to Cash Cycle Time (CTCCT)
   The value of CTCCT at the manufacturing level is affected by the performance of consumer payments and the ability of manufacturers to pay for their supply of raw materials to distributors. Consumers and manufactures affect the value of this metric because cash turnover in a company depends on the company's payments to distributors and the income it

generates from consumers.(Nurmala, 2015). Therefore, from the calculation of all CTCCT components at the manufacturing level, it shows the best performance because the cash turnover time at the manufacturing level only takes two days. In line with Sari, et al. (2017), if the CTCCT value is ≤10 days, it means that the company is included in the superior or best category and the company needs to maintain the condition of its cash turnover cycle to daily inventory.

6. Total Supply Chain Management Cost (TSCMC)

The calculation of the TSCMC indicator average value at the manufacturing level reached 31.90%. Therefore, it can be seen that from the monthly manufacturing costs an average of 31.90% of the total monthly sales revenue of baby porridge products received. Based on Sari, et al. (2017), a value of 31.90% can be categorized into a gap-parity position or in a very bad position. Large costs can come from the expensive purchase price of raw materials for making baby porridge. From the TSCMC calculation, it can be seen that the HPP of baby porridge sold by manufacturers was IDR 960/portion. Thusm with the selling price of baby porridge of IDR 3,000/portion, the manufacturer would a profit of IDR 2,050/portion sold.

Based on Table 5, it can be seen that several supply chain performance indicators from the internal and external sides at the retail level had different benchmark positions. The following is an explanation of the results of the calculation of all performance indicators.

1. Perfect Order Fulfillment (POF)

The POF calculation results at the retail level explained that the quantity of organic broccoli orders delivered with the standard quantity of organic broccoli orders had the same amount. Therefore, the calculated average POF value was 100% or it was classified as superior because it reached ≥98%.

Table 5. Comparison of the Average Value of Supply Chain Performance in Retail

Attributes and Sample Matrix / Performance Indicators	Benchmark			Average	Result
External Performance	Parity	Advantage	Superior		
Reliability					
Perfect Order Fulfillment (%)	92,00-94,00	95,00-97,00	≥98,00	100	Advantage
Responsiveness					
Order Fulfillment Cycle Time (OFCT) (days)	8,00-7,00	6,00-5,00	≤4,00	0,19	Superior
Agility					
Flexibility (days)	42,00-27,00	26,00-11,00	≤10,00	0,00	Superior
Internal Performance	Parity	Advantage	Superior		
Aset					
- Cash to Cash Cycle Time (days)	45,00-34,00	33,00-21,00	≤20,00	1,00	Superior
- Inventory days of supply (days)	27,00-14,00	13,00-0,01	=0,00	0,00	Advantage
Cost					
Total Supply Chain Management Cost (%)	13,00-9,00	8,00-4,00	≤3,00	80,53	Gap-Parity

Source: Primary Data (2020)

It was because all organic broccoli order transactions conducted by retailers with end consumers go very well without any imperfect product delivery (defects).). According to Yolandika (2016), the closer to 100% perfect order fulfillment, the better the supply chain performance. Retail concerns regarding the accuracy of the quantity and quality of the organic broccoli delivered also affected the perfection of the order fulfillment.

2. Order Fulfillment Cycle Time (OCFT)
   The calculation result of the monthly average OFCT value at the retail level for a year was 0.19 days or retail was able to fulfill the orders within 4 hours 56 minutes. In the benchmark table, the value was included in superior and needs to be maintained, because it was in accordance with the performance appraisal criteria that the order fulfillment cycle indicator to achieve the best criteria in a company is ≤4 days (Bolstorff & Rosenbaum, 2011).

3. Flexibility
   Based on the results of research at the supplier level, the increase or decrease in demand has never occurred per month. Thus, retailers did not have daily supplies. In line with Yolandika (2016), when a company does not have daily inventory, it is likely that the company will not be able to meet unplanned demand. Therefore, retail has the best supply chain flexibility value according to the comparison of superior benchmark scores, herefore, the company can respond to unexpected requests for ≤10 days.

4. Inventory days of supply
   Based on the results of research at the retail level, it can be seen that retailers did not have sufficient daily supplies to meet their needs if there was no further supply of organic broccoli. Supplies coming from ABS were immediately recalculated and temporarily stored in refrigerators. Furthermore, it was distributed directly to consumers who place orders. In addition, retail did not carry out daily supplies

because organic broccoli was a perishable commodity and does not last long. Therefore, the daily retail inventory value equals zero days. Based on Bolstorff & Rosenbaum (2011), the value of the best daily inventory performance indicator or the superior position is equal to zero.

5. Cash to Cash Cycle Time (CTCCT)
   The value of CTCCT was affected by the payment performance of consumers and the ability of retailers to pay for supplies to distributors. Consumers and retailers affected the value of this metric because cash turnover in a company depends on the company's payments to distributors and the income it generates from consumers. Therefore, in terms of the calculation of all CTCCT components at the retail level, it showed the best performance because the turnover time of cash at the retail level only takes one day. In line with Sari, et al. (2017), if value CTCCT ≤10 days, it means the company is included in the superior or best category and the company needs to maintain its cash turnover cycle conditions.

6. Total Supply Chain Management Cost (TSCMC)
   The TSCMC calculation at the retail level was 80.53% or more than 13%. It means it could be classified into the gap-parity category. (Bolstorff & Rosenbaum, 2011). This happened because the purchase price of organic broccoli was quite expensive, namely IDR 35,000/kg and was sold for IDR 45,000/kg. The HPP calculation for organic broccoli at the retail level was IDR 36,100/kg. Retailers only took a profit or profit of IDR 8,900/kg of broccoli sold

CONCLUSION

Based on the research and analysis conducted with the aim to describe the supply chain management mechanism and measuring the supply chain performance of organic broccoli products at MSME Abang Sayur

Organik Malang, it can be drawn the conclusion that the results were as follows.

1. The supply chain management mechanism of organic broccoli MSME ABS products is conducted by several supply chain actors including organic broccoli suppliers, such as Agrotechno Park Universitas Brawijaya, organic broccoli distributors, namely MSME ABS, manufacturing namely the baby porridge industry, and retail, namely Toko Sayur Organik Sidoarjo, There are three supply chain patterns that are formed below:
   a. 1-2-3 Chain: ATP Suppliers - ABS Distributors - Consumers
   b. 1-2-3-4 Chain: ATP Suppliers - ABS Distributors - Baby Porridge Industry - Consumers
   c. 1-2-3-4 Chain: ATP Suppliers - ABS Distributors - Sidoarjo Organic Vegetable Stores - Consumers.

2. The reliability performance attribute measured through the Perfect Order Fulfillment (POF) performance matrix/indicator describes the advantage position at the supplier level and the superior position at the distributor, manufacture and retail level.

3. The responsiveness performance attribute measured through the Order Fulfillment Cycle Time (OFCT) performance matrix/indicator illustrates the superior position of all supply chain actors.

4. Agility performance attributes measured through the flexibility performance matrix/indicators describe the superior position of all supply chain actors.

5. Asset performance attributes are measured through the inventory days of supply and Cash to Cash Cycle Time (CTCCT) matrix/indicators. The inventory days of supply indicator describes a superior position at the retail level. However, at the supplier, distributor, and manufacturing level describe the advantage or average position at. The Cash to Cash Cycle Time (CTCCT) indicator describes the superior position of all supply chain actors.

6. The cost performance attribute measured through the Total Supply Chain Management Cost performance matrix/indicator describes the gap-parity position or the worst position in all supply chain actors.

Based on the results of the research, it is expected that the supplier will be able to do more follow-up regarding the treatment of organic broccoli supply carried out by consumers and distributors with the aim of reducing the number of product repulsion (returns). Suppliers, distributors and manufacturers need to further consider eliminating daily inventory activities. Besides, all organic broccoli supply chain players need to follow up on the costs incurred from each process so that there is no waste. In the future, there will be supply chain management that supports the business in a sustainable manner. Future research is expected to develop research that has been conducted and to consider performance indicators that are not measured such as Upside Flexibility (UF), Upside Adaptability (UA), Downside Adaptability (DA), and Overall Value at Risk (OVR).

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