

Analysis of Performance and Efficiency of Supply Chain of Harum Maluku 52 Oil

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ABSTRACT

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Maluku is an archipelagic province that is rich and famous for its abundant natural wealth. This abundant natural wealth is in the form of spices such as cloves (*Syzygium aromaticum* L), nutmeg (*Myristica fragrance*), eucalyptus (*Melaleuca leucadendra*), lemongrass (*Cymbopogon citratus*), and ginger (*Zingiber officinale*). CV. Alfa Blessing is a business actor for processed agricultural commodity products in West Seram Regency, Maluku Province. This company produces fragrant oils that are beneficial for health. The results of SCOR analysis, the performance of the Harum Maluku 52 oil supply chain is included in the good criteria with a performance value of 70.29 with the highest weight on the delivery criteria of 0.469 and the lowest on the source criteria with a weight of 0.049. To improve the supply chain performance of Maluku fragrant oil, CV. Alfa Blessing needs to pay attention to the plan criteria because it is the ideal culmination of the core process in SCOR. Companies must also consider the source criteria because it has the lowest weight. What needs to be done is to pay attention to the procurement of raw materials to meet demand and ensure that raw materials are not wasted due to a lack of demand at one time. CV. Alfa Blessing also needs to increase the working value of assets or capital to increase the ability to use assets productively. The analysis of the margin share, farmer's share, and cost-benefit ratio shows that both supply chain channels are efficient. If the two chains are compared, it can be seen that supply chain channel II is more efficient than supply chain channel I. This means that a short supply chain channel is more efficient than a long supply chain channel. Companies must continue to strive to improve company and employee performance so that the fragrant oil products are of higher quality.

1. INTRODUCTION

Essential oil is a processed product with raw materials from agricultural products. Essential oils began to be developed in the 1960s and are used as raw materials for medicine, cosmetics, fragrances, soaps, detergents, and many more.

International Trade Center data (2018) shows that Indonesia is one of the world's largest producers of essential oils for several commodities. Seventy essential oils have been traded globally; 40 were produced in Indonesia [1, 2]. Based on this amount, 13 types have entered the essential world market, namely patchouli (*Pogostemon cablin*), citronella (*Cymbopogon nardus*), cloves (*Syzygium aromaticum*), ginger (*Zingiber officinale*), nutmeg (*Myristica fragrance*), pepper (*Piper nigrum*), cinnamon (*Cinnamomum verum*), sandalwood (*Santalum album*), vetiver (*Vetivera zizonioides*), ylang (*Cananga odorata*) and eucalyptus (*Melaleuca leucadendra*).

The processing industry sector has an important role, not only as a sector that provides added value but also as an opening of marketing channels for refined products (essential oils). Currently, the price of essential oils reaches Rp. 4,000,000. - per kg. The price increase was due to high global market demand and lacking essential oil supplies [3].

The volume of market demand for essential oils is increasing along with the development of essential oils in various industrial fields. According to data from the International Trade Center, Indonesia is one of the largest essential oil producers in the world for several commodities.

From 70 types of essential oils that have been traded on the world market, it turns out that 40 types of them are produced in Indonesia [2]. During 2020, the value and volume of Indonesia's essential oil exports increased by 16.45% year over year (yoy) and 16.69 yoy to reach US\$ 215.81 million with a volume of 7.54 million tons.

In the last five years (2016-2020), the value of Indonesia's essential oil exports has tended to increase, and the Compound Annual Growth Rate (CAGR) of Indonesia's essential oil exports to the five central destination countries has been on a positive trend, except for Singapore [4].

According to the Indonesian Essential Oil Council (2018), world demand for essential oils continues to increase along with the development of industrial technology that uses essential oil raw materials such as medicines, perfumes, fragrances for soap products, shampoos, toothpaste, and many more. Indonesia has not fully supplied the high world market demand for essential oils. Indonesia's essential oils are still lacking in terms of quality and quantity to be able to meet world demand. Therefore, to increase the quality and quantity of Indonesian essential oils, an effective strategy and performance are needed from the flow of the industrial supply chain.

The supply of essential oils is necessary to meet customer needs. Fulfilling customer needs through the supply chain, starting from suppliers, manufacturers, distributors, retailers, and customers. The supply chain is a network of companies that work together to create and deliver a product to the hands

of the final consumer [5]. Research on supply chains should be a company's focus because the supply chain is one of the keys to the smooth running of the company's business. The concept of Supply Chain Management (SCM) combines the forward flow of materials and backward flow of information [6] and is typified by such activities as the flow of materials, information, products, and funds from supplier to manufacturer, to distributor, to the retailer and ultimately to the end users [7, 8]. Good SCM is required to ensure that the production process is effective, and this has provided the impetus for organizations to invest more in their Supply Chain (SC) [9, 10]. The many benefits of SCM include reduced inventory, improved information sharing, increased mutual trust among supply chain partners, decreased life cycle, and increased customer satisfaction [11, 12]. Ferguson describes SCM as the connected network of individuals or parties using different approaches to implement, design, and manage a value-added process to fulfil customer demands. It is a collaborative effort from the initial creation of the product to the final sale. It oversees various touch points from supplier to manufacturer, distributor to retailer, and customer. The development of faster communications via advanced communication technology and transport, such as the internet and overnight delivery, has positively impacted supply chain management and development [13].

Essential oil supplies are found in several centers in Indonesia, such as Sumatra (Aceh, North Sumatra, West Sumatra,) Sulawesi (South Sulawesi, Southeast Sulawesi, Gorontalo), Java, and Maluku. Maluku is an archipelagic province that is rich and famous for its abundant natural wealth. This abundant natural wealth is in the form of spices such as cloves (*Syzygium aromaticum*), nutmeg (*Myristica fragrans*), eucalyptus (*Melaleuca leucadendra*), lemongrass (*Cymbopogon citratus*), and ginger (*Zingiber officinale*). These commodities are essential oil-producing commodities. The development of essential oil processing in Maluku is quite good and continuous. The production of essential oils varies depending on the raw materials used.

CV. Alfa Blessing is one of the business actors for processed agricultural commodity products in West Seram District, Maluku Province. This company produces processed agricultural products using fragrant oils beneficial as medicine to cure diseases such as diabetes mellitus, ulcers, burns, and many more. Product CV. Alfa Blessing, known as Maluku 52 fragrant oil, is a processed product of agricultural commodities such as nutmeg, cloves, eucalyptus, and ginger.

CV. Alfa Blessing is one of the business actors of processed agricultural commodity products, which is quite significant in the West Seram Regency. This company produces processed agricultural products in the form of fragrant oils made from nutmeg, cloves, eucalyptus, and ginger, which are useful as drugs to cure various diseases such as diabetes mellitus, ulcers, burns, and other conditions.

The business of Harum Maluku 52 oil products belongs to CV. Alfa Blessing was initiated in 2008 and continues to grow. According to research [14], in 2017, Harum Maluku 52 oil sales volume was 26 percent. In 2018 it was 27.3 percent, and in 2019 it was 29.4. In 2020 the average receipt of Harum Maluku 52 oil products in 1 year reached IDR. 584.400.000 with an average production of 200 liters per year. In 2019, CV. Alfa Blessing has officially started exporting Harum Maluku oil to Papua and Surabaya. CV. Alfa Blessing still has infrastructure problems in the distribution process because the production site is outside Ambon. In contrast, most of the

buying and selling process occurs in Ambon. This will result in more competition between CV. Alfa Blessing and other companies engaged in the same field within and outside the province. Business actors must be able to prepare products that are to the wishes of their consumers from various aspects so that these products have high competitiveness.

This research is a case study on the performance and efficiency of the Harum Maluku 52 oil supply chain at CV. Alfa Blessing. This research is important considering that an efficient supply chain and good performance can increase competitiveness, especially in the Agribusiness sector, in addition to analyzing the efficiency and performance of the Harum Maluku 52 Oil supply chain in CV. Alfa Blessing has never been done before, and analyzing the efficiency and performance of the proper supply chain can provide input in increasing the distribution efficiency of processed agricultural products.

2. RESEARCH METHODS

This research was conducted at CV. Alfa Blessing is located in Eti Village, West Seram District, West Seram Regency, Piru City, Maluku. The location selection was made purposively with the consideration that CV is one of the essential oil producers in Maluku province. The research was conducted for one month, in June 2022.

The research was analyzed using marketing margin analysis, farmer's share, profit-to-cost ratio, and Supply-Chain Operations Reference (SCOR) analysis.

The formula for determining marketing margin analysis, farmer's share, profit to cost ratio is as follows:

$$Mi = P_{ri} - P_{ri-1} \quad (1)$$

$$MT = Mi, i = 1,2,3, \dots, n \quad (2)$$

where, Mi =marketing margin based on level- i (Rp/Kg); MT =total marketing margin (Rp/Kg); P_{ri} =price at the marketing agency level (Rp/Kg).

The level of marketing margins and the share received by farmers (farmer share) are indicators of marketing efficiency. Farmer share, or the percentage of the price received by farmers, compares the selling price at the farmer level and the purchase price at the consumer level. The price will vary because each marketing agency carries out different marketing functions so that each channel may have another farmer share. The marketing channel is considered efficient if the marketing channel has a relatively low marketing margin percentage and the share received by farmers is high.

A farmer's share is carried out to see the profit or share received by farmers as a percentage.

Mathematically, the farmer's share is formulated as follows:

$$f_{si} = \frac{Pf}{Pr} \times 100\% \quad (3)$$

where, f_{si} =Farmer's share (%); Pf =price received by farmers (Rp); Pr =price paid by consumers (Rp).

The farmer's share of $\geq 40\%$ is efficient, while the farmer's share $\leq 40\%$ is inefficient [15]. The profit-to-cost ratio is the percentage of marketing profits to marketing costs. Marketing is declared efficient if the proportion of profits earned to costs sacrificed is more than one [16, 17].

Mathematically formulated as follows:

$$Profit\ to\ cost\ ratio = \frac{i}{ci} \quad (4)$$

where, i =Marketing profit; Ci =Marketing costs.

The supply chain part depicts a company's internal supply chain and features the most important logistic objectives. The supply chain part's structuring is based on SCOR Model [18, 19]. The analysis used to analyze supply chain performance uses the Supply-Chain Operations Reference (SCOR) approach. The SCOR method is used to determine the variables to be studied along with the attributes of each variable to produce key performance indicators that will be used to assess supply chain management performance. The formula for determining the value of supply chain performance is as follows.

- (1) Normalization=Score value / total score score
- (2) Weight=Average of total normalization
- (3) Multiplication Matrix=Score value×weight
- (4) Eigen Value=Average of the total multiplication matrix divided by weight
- (5) CI (Consistency Index)=(Eigen Value–n)/(n–1)
- (6) CR (Consistency Ratio)=CI/RI, with the value of RI, can be seen in Table 2.
- (7) Global Weight=Criteria weight×attribute weight×sub-criteria weight
- (8) Performance Assessment=Global weight×work value [20]

The value indicator used in the SCOR approach is displayed in Table 1 and Table 2.

Table 1. Performance indicator monitoring system

Monitoring System	Performance Indicator
< 40	<i>Poor</i>
40 – 50	<i>Marginal</i>
50 – 70	<i>Average</i>
70 – 90	<i>Good</i>
> 90	<i>Excellent</i>

Source: [20]

Table 2. Random consistency index (RI)

Random Consistency Index (RI)									
N	2	3	4	5	6	7	8	9	10
RI	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.51

Prof. Saaty compiled the RI table obtained from the average consistency index of 500 matrices. The Random Index (RI) is compared with the Consistency Index (CI) to get the Consistency Ratio (CR) value.

3. RESULTS AND DISCUSSION

Maluku Fragrant Oil 52 is an essential oil product produced with raw materials of spices such as nutmeg, cloves, eucalyptus, and a mixture of other spices. This product is free from chemicals, so it is beneficial for health. Maluku Fragrant Oil 52 is one of the leading local products of West Seram Regency, which has represented the district in regional innovation competitions and won in the category of the modern market sector. Currently CV. Alfa Blessing has successfully marketed Harum Maluku 52 oil products to

Ambon, Papua, and Surabaya. In addition, this product has also been sold in modern shops such as several Indomaret, Ambon souvenir centers, and several pharmacies in Ambon City. CV. Alfa Blessing also often participates in several exhibitions held by the government to promote its products, such as the One Million MSMEs Bazaar in Surabaya.

Making and distributing products to customers is the most effective and efficient way for companies to remain successful and is central to SCM development [21]. The Maluku fragrant oil supply chain 52 is a series of productive activities connected between one activity and another. The supply chain is also a chain of links in business activity, from procuring raw materials for Maluku fragrant oil until the product is in the hands of the final consumer. The Harum Maluku 52 oil supply chain's main members consist of suppliers (raw and packaging material suppliers), manufacturers, distributors, and consumers. These results are supported by research [22] that the cassava agro-industry supply chain mechanism creates cooperation and coordination between supply chain actors starting from farmers, processors, distributors, and consumers.

Each agro-industry will experience several changes in managing the supply chain network: supplier selection, information notification, relationship management, product management, integration, and inventory management. In a competitive environment, it is important to devote limited resources to adding value and increasing productivity and efficiency [23]. The agro-industrial supply chain's mechanism is the creation of collaboration and coordination among supply chain actors from upstream to downstream. The supply chain pattern of raw material, product, financial, and information flow is going smoothly [24].

3.1 Supply chain performance

Supply chain management is one of the efforts to meet customer needs because supply chain management pays attention to how the goods process until they reach consumers by paying attention to the quality of goods, such as durability, the integrity of goods, and order response time [25]. Supply chain management also emphasizes the quality of services that customers facilitate, such as time and labor efficiency, to meet customer needs. For supply chain activities to run appropriately in realizing company goals, clear and measurable measurements are needed for each element involved in the supply chain. Key Performance Indicators (KPIs) need to exist in specific supply chain activities, starting from supplier performance, purchasing department performance, supply part performance, material warehouse performance, and delivery performance. This performance indicator will later get an apparent reference in seeing the strength of the supply chain [26]. Supply chain performance in this study assesses the process of planning, sourcing, making, delivering, and returning on the CV. Alfa Blessing. The 16 Key Performance Indicators (KPI) used in this study are shown in Table 3.

There are 3 KPIs for the plan-reliability attribute. Based on the observations and interviews, it can be seen that the conditions in the field where the use of raw materials goes according to plan. For example, the company orders 500 kg of raw materials for one production, and what is used is according to what was ordered, so it is unnecessary to store leftover raw materials, which can result in reduced quality and quality of raw materials. For product delivery, the company plans to market around 1,000 kg of products, but based on reality, only

50% of what is designed can be marketed. Product level planning of 500 kg of raw materials can only produce 350 kg. The plan-asset attribute has 1 KPI: the rate of return on production capital. Based on the situation in the field, the company plans to return production capital within one day, but production capital returns within ± 10 days. This is because most products produced are distributed to distributors with the type of credit payment, so production capital cannot be returned immediately in a day.

There is 1 KPI for the source-reliability attribute: the quality of raw materials. Based on the conditions in the field, before purchasing raw materials, the company first checks the quality of the raw materials to be bought so that the raw materials purchased are of high quality and can produce quality products. There is 1 KPI for the source-responsiveness attribute, namely, the period for procurement of raw materials. Based on the conditions in the field, the period for procuring raw materials by raw material suppliers is ± 15 days and according to what the company has planned. There is 1 KPI for the source-agility attribute, namely, the leniency in procuring raw materials was based on the conditions in the field, and the company provides one-day leeway for suppliers to supply raw materials according to orders. Still, so far, suppliers can supply raw materials according to predetermined days.

There are 2 KPIs for the make-reliability attribute: the use of production results and product quality. Based on the conditions in the field, the entire product in one product can be marketed because it meets the predetermined product quality. The make-responsiveness attribute has 1 KPI, and the production period was based on the conditions in the field. The company expects the production process to be carried out in a day. However, the production process can take up to 5 days due to the company's lack of technology that can support the production process. The make-agility attribute has 1 KPI: leeway in production time for repairing machines or production equipment. Based on the conditions in the field, the company has given a 1-day production time allowance due to machine repairs, but so far, there have been no machine or production tool repairs that can delay production time.

The deliver-reliability attribute has 1 KPI, namely, the level of fulfilment of the number of orders. Based on the conditions in the field, the company can fulfil the number of existing orders. The deliver-responsiveness attribute has 1 KPI, namely, the delivery period. Based on the conditions in the field, the company takes ± 5 days to deliver products to Surabaya and Papua, while for the city of Ambon, the company only needs one day of travel. The deliver-agility attribute has 1 KPI, namely, leeway in delivery time. Based on the conditions in the field, the company, distributor, and consumer agreed to provide a looseness for delivery of 1 day. If it takes more than a day, the company needs to contact the distributor or consumer to confirm again regarding the delay in product delivery.

Key Performance Indicators are very influential for companies considering that KPIs can help companies set clear targets to develop. Therefore, these 16 KPIs must be continuously reviewed by the company to help improve the company's performance conditions better and faster if something goes wrong. Proceed according to plan. Besides measuring company performance, Key Performance Indicator is also crucial for measuring employee performance. This is because one of the benefits of KPIs for employees is reducing

subjective judgments meaning that employees will find it easier to measure and evaluate their performance results.

There is 1 KPI for the return-reliability attribute, namely complaint handling. Based on the situation in the field, the public company receives all kinds of complaints about the product, but there have been no complaints from distributors or consumers. There is 1 KPI for the return-responsiveness attribute, namely, the period for complaint handling. Based on the conditions in the field, the company provides 1-2 days for consumers and distributors who wish to submit complaints about the product. However, there have been no complaints from distributors or consumers regarding the product.

Employee performance is an important component in the survival of a company. Without good performance, the company will experience failure and loss both financially and non-financially [27]. Financial losses are related to direct losses in the form of a certain amount of money due to risks that occur, namely fragrant oil products that are not in demand by consumers even though the company has produced large quantities of aromatic oil products. As a result, the company does not gain sales profits. On the other hand, there were non-financial losses related to losses that could not be calculated, the amount of money lost but consumers' loss of trust in fragrant oil products, which had no health benefits. In the sustainability of a company's performance, it the importance to have a standard unit for measuring company performance. Suppose the company does not have performance measurements. In that case, it negatively impacts the company because there is no evaluation material to improve company performance, especially in the human resources section [28]. Company CV. Alfa Blessing has a workforce of 14 freelance workers with income based on the number of working days. Most workers are 36-45 years old, with the most dominating level of education, namely SMA. Most of the workforce comes from around the factory, so a kinship system carries out the workforce recruitment system. As an evaluation material, the availability of existing human resources shows that CV. Alfa Blessing must improve employee performance through non-formal education to increase knowledge and skills to produce perfume products of higher quality and have higher selling value.

Performance measurement is important to analyze the difference between actual and expected performance (company targets). By knowing this comparison, a company can measure the deviations that occur and plan improvements [29].

The results of measuring the total value of supply chain performance CV. Alfa Blessing are shown in Table 4. The total performance value is the result of multiplying each weight and score.

There are five performance appraisal criteria used. The highest weight of 0.469 is on the deliver criteria, and the lowest weight of 0.049 is on the source criteria. This shows the company is more concerned with the delivery criteria than the other four. The order of priority criteria can be seen in Table 5.

There are four performance appraisal attributes used. The highest weight of 0.424 is on the reliability attribute (the ability to carry out the work as expected), and the lowest weight of 0.120 is on the asset attribute (the ability to use assets productively). This shows that the company is more focused on the ability to carry out the work as expected by itself, distributors, and consumers.

Table 3. Key performance indicators

No.	Key Performance Indicators	Attribute	Abbreviation
1	Raw Material Usage Planning		PR-1
2	Product Delivery Planning	Plan-Reliability	PR-2
3	Product Level Planning		PR-3
4	Rate of Return on Production Capital	Plan-Asset	PA
5	Raw Material Quality	Source-Reliability	SR
6	Period of Procurement of Raw Materials	Source-Responsiveness	SRe
7	Allowance for Procurement of Raw Materials	Source-Agility	SAg
8	Production Use	Make-Reliability	MR-1
9	Product Quality		MR-2
10	Production Period	Make-Responsiveness	MRe
11	Machine Repair Production Time Allowance	Make-Agility	MAg
12	Order Fulfillment Rate	Deliver-Reliability	DR
13	Delivery Period	Deliver- Responsiveness	DRe
14	Delivery Time Allowance	Deliver-Agility	DAg
15	Complaint Handling	Return-Reliability	RR
16	Complaint Handling Period	Return-Responsiveness	RRe

Table 4. Performance appraisal results

NO	Criteria	Sub Criteria	Weight	Global Weight	Work Value	Performance assessment
1	Plan	PR-1	0.253	0.010	100	0.98
		PR-2	0.089	0.003	50	0.17
		PR-3	0.658	0.026	70	1.79
		PAs	0.500	0.006	10	0.06
2	Source	SR	0.739	0.015	100	1.54
		SRe	0.190	0.003	100	0.28
		SAg	0.070	0.001	100	0.05
3	Make	MR-1	0.167	0.013	100	6.53
		MR-2	0.833	0.065	100	6.53
		MRe	13,000	0.718	20	14.35
		MAg	5,000	0.145	100	14.53
4	Deliver	DR	0.480	0.095	100	9.52
		DRe	0.405	0.057	100	5.68
5	Return	DAg	0.115	0.008	100	0.85
		RR	0.500	0.044	100	4.36
		RRe	0.500	0.031	100	3.07
Total Performance Rating						70.29

Table 5. Priority criteria

No	Criteria	Weight
1	Deliver	0.469
2	Return	0.206
3	Make	0.185
4	Plan	0.092
5	Source	0.049

There are 16 performance appraisal sub-criteria used, with the highest weight of 13,000 in the MRe sub-criteria (production period) and the lowest weight of 0.070 in the SAg sub-criteria (lack of time for procurement of raw materials). This shows that the company's product production period is very concerning. This can be proven by the difference between the MRe weights and the weights of the other 15 sub-criteria, so it can be said that the company is very focused on this sub-criterion. The priority order of the sub-criteria is seen in Table 6.

Based on the results of each weight on the criteria, attributes and sub-criteria, a global weight is obtained which is the product of the weights on each criterion, attribute and sub-criteria. The highest global weight of 0.718 is found in the make criteria, the reliability characteristics with the sub-criteria MRe. The lowest global weight of 0.001 is on the source criteria, the agility attribute with the SAg sub-criteria.

Table 6. Priority sub criteria

No	Sub Criteria	Weight
1	MRe	13,000
2	MAg	5,000
3	MR-2	0.833
4	SR	0.739
5	PR-3	0.658
6	PAs	0.500
7	RR	0.500
8	RRe	0.500
9	DR	0.480
10	DRe	0.405
11	PR-1	0.253
12	SRe	0.190
13	MR-1	0.167
14	DAg	0.115
15	PR-2	0.089
16	SAg	0.070

Harum Maluku 52 Oil supply chain performance value is 70.29. This performance value is included in the good category, with the value indicators in Table 7. The company's supply chain performance results are outstanding because it is included in the good category, and the resulting value is fairly reasonable considering the size of the business and the relatively small place of business.

Table 7. Performance indicator monitoring system

Monitoring System	Performance Indicator
< 40	Poor
40 – 50	Marginal
50 – 70	Average
70 – 90	Good
> 90	Excellent

3.2 Supply chain efficiency

3.2.1 Marketing margin analysis

Marketing margin analysis is one of the indicators to assess the efficiency of the supply chain. The costs of marketing functions in the supply chain can cause different prices between each marketing agency. The higher the marketing margin, the more inefficient the marketing system is. The results of the marketing margin analysis can be seen in Table 8. The research results of [30] showed that the shorter the marketing agency, the more profitable the producer. Inefficient marketing channels will occur if marketing costs are higher and the value of the products being marketed is smaller. Marketing can be efficient if it can convey results from producers to consumers at the lowest possible costs and carry out a fair distribution of the total price paid by the final consumer from all parties involved in all production and marketing activities of goods. Marketing efficiency will occur if marketing costs can be reduced so that marketing profits are higher. Furthermore, [30] stated that Farmer's share negatively affects marketing margins. The higher the marketing margin, the lower the price received by farmers (farmer share).

Based on the calculation results of Harum Maluku 52 oil with a size of 10 ml below, it can be seen that the supply chain channel II has the smallest margin value, even IDR. 0, while the channel I supply chain has a margin of IDR. 5,000, it can be said that supply chain channel II is more efficient than supply chain channel I.

Table 8. Harum Maluku 52 oil supply chain marketing margin

Channel Type	Supply Chain Channel	
	I Rp/ml	II Rp/ml
Manufacturer		
Selling price	20,000	25,000
Cost	8,323	8,323
Profit	11,677	16,677
Distributor		
Purchase price	20,000	
Selling price	25,000	
Cost	1,000	
Profit	4,000	
Marketing Margin	5,000	
Consumer		
Purchase price	25,000	25,000
Total Margin	5,000	0

3.2.2 Farmer's share

The value of the farmer's share in channels I and II is 80 percent and 100 percent (Table 9). The highest value of the farmer's share is in supply chain channel II of 100 percent, which means that the share received by the manufacturer is 100 percent of the price paid by the final consumer. The farmer's share in channel I is 80 percent, which means that the share received by the manufacturer is 80 percent of the price

paid by the final consumer. Based on these results, it can be said that supply chain channel II is more efficient than supply chain channel I.

Supply chain channel II has a higher farmer's share value than supply chain channel I. This is because channel II is the shortest supply chain channel where manufacturers directly sell products to final consumers so that marketing costs are not too high.

Table 9. Farmer's share of Harum Maluku 52 oil supply chain

Supply Chain Channel	Prices in		Farmer's Share (%)
	Manufacture (IDR/ml)	Consumer (IDR/ml)	
Channel I	20,000	25,000	80
Channel II	25,000	25,000	100

3.2.3 Profit-to-cost ratio

The results of the profit-to-cost ratio show that each unit of the cost incurred during the marketing process can provide the amount of profit. The highest profit-to-cost ratio value is found in supply chain channel II, which is 2.00 (Table 10), which means every IDR 1,000.00 cost incurred will provide a profit of IDR. 2,000.00. On channel I, every IDR. 1,000.00 cost incurred will provide a profit of IDR. 1,680.00.

Marketing is declared efficient if the ratio of profits earned to costs sacrificed is more than one [16, 17]. Thus, it can be concluded that the two supply chain channels can be considered efficient. Channel II is more efficient than the channel I because the cost-benefit ratio is greater. Because in channel II, distributors are one of the supply chain actors [31].

Table 10. Profit to cost ratio of Harum Maluku 52 oil supply chain

Channel Type	Supply Chain Channel	
	I Rp/ml	II Rp/ml
Manufacturer		
Cost	8,323	8,323
Profit	11,677	16,677
Distributor		
Cost	1,000	
Profit	4,000	
Total		
Profit	15,677	16,677
Cost	9,323	8,323
Cost profit ratio	1.68	2.00

4. CONCLUSIONS

CV. Alfa Blessing is a business actor for processed agricultural commodity products in West Seram Regency, Maluku Province. This company produces fragrant oils that are beneficial for health. Harum Maluku 52 oil business owned by CV. Alfa Blessing started in 2008 and continues to grow until now. Based on the SCOR analysis, the performance of the Harum Maluku 52 oil supply chain is included in the criteria of good with a performance value of 70.29, with the highest weight being in the deliver criteria of 0.469 and the lowest being in the source criteria with a weight of 0.049.

To improve the supply chain performance of Maluku fragrant oil, CV. Alfa Blessing needs to pay attention to the plan criteria because it is the ideal culmination of the core

process in SCOR. Companies must also consider the source criteria because it has the lowest weight. What needs to be done is to pay attention to the procurement of raw materials to meet demand and ensure that raw materials are not wasted due to a lack of demand at one time. CV. Alfa Blessing also needs to increase the working value of assets or capital to increase the ability to use assets productively. The analysis of the margin share, farmer's share, and cost-benefit ratio show that both supply chain channels are efficient. If the two chains are compared, it can be seen that supply chain channel II is more efficient than supply chain channel I. This means that a short supply chain channel is more efficient than a long supply chain channel.

REFERENCES

- [1] Zulnely, G., Kusmiati, E. (2015). Prospects of *Eucalyptus citriodora* as a potential essential oil. *Pros Sem Nas Masy Biodiv Indon*, 1(1): 120-126. <https://doi.org/10.13057/psnmbi/m010120>
- [2] Faradiva, A. (2020). Analysis of the competitiveness of Indonesian essential oil exports. Doctoral dissertation, Universitas Hasanuddin.
- [3] Rostwentiwaivi, V., Tustiyani, I. (2017). Marketing value chain of indonesia vetiver. *Journal of Agribusiness Management*, 5(2): 8. <https://doi.org/10.24843/JMA.2017.v05.i02.p08>
- [4] Supriyatna, I. (2021). Indonesia exports essential oils worth USD 215.81 million throughout 2020.
- [5] Pujawan, I.N., Er Maya, M. (2010). *Supply chain management*. 2nd ed. Guna Widya.
- [6] Monzouri, M., Ab Rahman, M.N., Arshad, H. (2011). Problematic issues in implementation of supply chain management in Iranian automotive industries. In *International Conference on Environment Science and Engineering (IPCBE)*, Singapore.
- [7] Ferguson, B.R. (2000). Implementing supply chain management. *Production and Inventory Management Journal*, 41(2): 64-67.
- [8] Ali¹, M., Habib, M.M. (2012). Supply chain management of textile industry: A case study on Bangladesh. *Int. J Sup. Chain. Mgt*, 1(2): 35. <http://excelingtech.co.uk/>
- [9] Manzouri, M., Rahman, M.N.A., Arshad, H., Ismail, A.R. (2010). Barriers of supply chain management implementation in manufacturing companies: A comparison between Iranian and Malaysian companies. *Journal of the Chinese Institute of Industrial Engineers*, 27(6): 456-472. <https://doi.org/10.1080/10170669.2010.526379>
- [10] Mentzer, J.T., Foggin, J.H., Golicic, S.L. (2000). Collaboration: The enablers, impediments, and benefits. *Supply Chain Management Review*, 4(4): 52-58. [https://doi.org/10.1016/S0022-4359\(00\)00040-3](https://doi.org/10.1016/S0022-4359(00)00040-3)
- [11] Lee, Y.C., Chu, P.Y., Tseng, H.L. (2011). Corporate performance of ICT-enabled business process re-engineering. *Industrial Management & Data Systems*, 111(5): 735-754. <https://doi.org/110.1108/02635571111137287>
- [12] Lee, K.L., Mohamed Udin, Z., Hassan, M.G. (2014). Global supply chain capabilities in Malaysian textile and apparel industry. *International Journal of Supply Chain Management (IJSCM)*, 3(2): 31-40. Available: <http://excelingtech.co.uk/>
- [13] Larson, P.D. (2001). Designing and managing the supply chain: concepts, strategies, and case studies. *Journal of Business Logistics*, 22(1): 259.
- [14] Noya, N.N. (2022). Analysis of marketing strategy in increasing oil sales volume. Thesis, Pattimura University, Ambon.
- [15] Downey, W.P.E. (1922). *Agribusiness management*. Jakarta.: Erlangga.
- [16] Asmarantaka, R.W., Atmakusuma, J., Muflikh, Y.N., Rosiana, N. (2017). The concept of agribusiness marketing: economic and management approaches. *Journal of Indonesian Agribusiness*, 5(2): 151-172. <https://doi.org/10.29244/jai.2017.5.2.151-172>
- [17] Apurwanti, E.D., Rahayu, E.S., Irianto, H. (2020). Analysis of the efficiency of the shallot supply chain in Bantul Regency. *Food Journal*, 29(1): 1-12. <https://doi.org/10.33964/jp.v29i1.463>
- [18] Council, S.C. (2008). Supply chain operations reference model. Overview of SCOR version, 1-7.
- [19] Schmidt, M., Schäfers, P. (2017). A new framework for production planning and control to support the positioning in fields of tension created by opposing logistic objectives. *Modern Economy*, 8: 910-920. <https://doi.org/10.4236/me.2017.87064>
- [20] Jati, A.W.S. (2021). Measurement of supply chain management performance. Thesis, Universitas Sanata Dharma, Yogyakarta. https://repository.usd.ac.id/39179/2/142214204_full.pdf
- [21] Agus, A. (2011). Supply chain management, product quality and business performance. In *International Conference on Sociality and Economics Development IPEDR*, 10(1); 98-102.
- [22] Timisela, N.R., Leatemala, E.D., Polnaya, F.J., Breemer, R. (2017). Supply chain management of agro industry of cassava. *Jurnal Aplikasi Manajemen*, 15(1): 135-145. <http://dx.doi.org/10.18202/jam23026332.15.1.16>
- [23] Chow, W.S., Madu, C.N., Kuei, C.H., Lu, M.H., Lin, C., Tseng, H. (2008). Supply chain management in the US and Taiwan: An empirical study. *Omega*, 36(5): 665-679. <https://doi.org/10.1016/j.omega.2006.01.001>
- [24] Timisela, N.R., Darwanto, D.H., Hartono, S. (2014). Supply chain management and performance of local food sago agroindustry in Maluku Province: A structural equation models approach. *J. Agritech*, 34: 184-93.
- [25] Diana, I.D., Tawaf, R., Paturochman, M. (2022). Analysis of supply chain management food industries sausage from producer to consumer Bandung (The case study at PT Kemfood Bandung). <http://jurnal.unpad.ac.id/ejournal/article/view/8580/3970>, accessed on Oct. 17, 2022.
- [26] Agustian, I. (2015). Design of supply chain performance measurement of passthrough goods at PT. Indonesia Nippon Seiki Using the Balanced Scorecard Approach. *MIX: Scientific Journal of Management*, 5(2): 156894. https://doi.org/10.22441/jurnal_mix
- [27] Lestira, T., Warganegara, P., Wahyuningsih, F., Narundana, V.T. (2021). Analysis of employee performance based on key performance indicators using the human resources scorecard (HRSC) method at PT PLN (Persero) UP3 Tanjung Karang. *MANEGGIO: Master of Management Scientific Journal*, 4(1): 6505. <https://doi.org/10.30596/maneggio.v4i1.6505>
- [28] Kinanti, W.A., Nurhasanah, N. (2019) . Proposed design of key performance indicators (KPI) with the concept of

- green HRM using the perspective of performance prism and the AHP method for cafe waris. *Journal of Al-Azhar Indonesia Science and Technology Series*, 5(2): 70-78. <https://doi.org/10.36722/sst.v5i2.353>
- [29] Purnomo, C.A., Hadi, Y. (2017). MSME performance measurement uses a performance prism. *Industry Spectrum*, 15(2): 121-136. <http://dx.doi.org/10.12928/si.v15i2.7550>
- [30] Januwata, I.K., Dunia, I.K., Erg, M., Indrayani, L. (2014). Analysis of marketing channels for citrus farming in Kerta Village, Payangan District, Gianyar Regency in 2013. *Undiksha Journal of Economic Education*, 4(1): 1-12. <https://doi.org/10.23887/jjpe.v4i1.4017>
- [31] Safya, M.D., Timisela, N.R., Tuhumury, M.T.F, (2022). Supply Chain of Harum Maluku 52 oil. *Gema Ekonomi*, 11(2): 435-440.