Effectiveness of Value-Added Input-Output Method in Upstream and Midstream Supply Chain Network of Sunflower Agro-industry

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IOP Conf. Series: Earth and Environmental Science **1358** (2024) 012027 doi:10.1088/1755-1315/1358/1/012027

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Abstract. Sunflower (Helianthus annuus L) is an annual shrub that grows up to three meters high. Sunflower agro-industry has high potential economic value. Sunflower seeds produce oil that can be extracted and used as a raw material in the food, pharmaceutical, bioenergy, and cosmetic industries. The problem is the low availability of superior local seeds, so it must be imported. The impact of imports is the low value-added. Therefore, this study aims to determine and measure the value-added of sunflowers in the upstream and midstream networks. The methods are Hayami and BPS input-output, also aims to identify the effectiveness of these two methods.. The results of value-added on sunflower seeds, cooking oil, herbal oil, and animal feed by the Hayami and the BPS input-output each are IDR6,000 (40%) and IDR24,005,528 (20%), IDR4,900 (26%) and IDR41,377,013 (23%), IDR21,000 (60%) and IDR117,653,333 (38%), IDR3,500 (86%) and IDR23,996,000 (100%). it is better to calculate using the BPS method because it is more detailed and clear in all aspects of the sunflower agroindustry, while using the hayami method only focuses on sales and labor. In the future, this research will be developed by designing sustainability improvement to reduce environmental impacts; performing value-added calculations for derivative products in the downstream supply chain network; also developing a decision support system.

Keyword: Value-Added, BPS Method, Hayami Method, Sunflower agro-industry, Supply Chain Management

1. Introduction

Sunflower agro-industry refers to the processing of sunflower (Helianthus annuus L.) crops into various value-added products. This plant has the ability to adapt in its cultivation [1]. The sunflower agro-industry involves several stages, from planting and caring for the plants to processing the sunflower seeds into final products. Sunflower seeds produce oil that can be extracted and used as a raw material in the food and cosmetic industries [2–6]. In addition, sunflower seeds can also be used as animal feed [7], and other plant parts can be utilized in the bioenergy industry [8] or as raw materials in the paper[9] and as supporting material in textile industries [10].

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Sunflowers have been produced in various of their descendants in Indonesia, and it appears that this plant has the potential for development due to its high economic value [1]. Indonesia has 6689.7 thousand hectares of agricultural land[11]. FAO data, Indonesia is not yet a producer of cooking oil from Sunflower seeds[12]. World data on crude oil production from bunga matahari seeds shows an increase from 2017 to 2020 (Figure 1). Ukraine and Russia became the largest exporters of BM seed oil in 2022 with an average of 3,675 million tons [13].

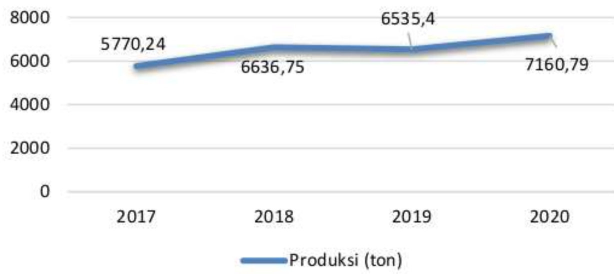

Figure 1. Sunflower seed oil production rate (2)

Sunflower oil consumption levels are likely to increase from 2013 to 2022 [13]. Figures 1 and 2 show the gap between production and consumption of BM oilseeds. World oil production can only meet the demand by 0.26%.

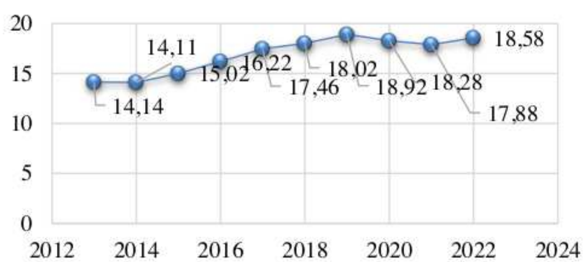

Figure 2. Sunflower seed oil consumption rate (million tons)

However, this must be proventhrough the value-added identification of sunflowers conducted in this research.

The problem is the low availability of superior local seeds, so it must be imported. The impact of imports is the low value-added. Therefore, this study aims to determine and measure the value-added of sunflowers in the upstream and midstream networks. The methods are Hayami [14–16] and BPS (Central Statistics Agency) input-output [17]. The limitations of this research for the soft system methodology method is not up to implementation. to design the sunflower agro-industry supply chain network only carries out its activities up to the midtream network, and on the value-added for the unit of measure for 1 hectare per land. Implementing situational improvements that have been analyzed usingsoft system methodology. Designing sustainability improvement of the sunflower agro-industry supply chain network to reduce environmental impact, waste management, efficient energy use, and sustainableuse of raw materials. Calculating the value-added for derivative products downstream of the supply chain network. Design and create a decision support system for added value to make it easier for users to find out the results of the added value produced.

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2. Method

The research began with the lack of a supply chain network model and value-added information for the sunflower agro-industry supply chain. Based on this, a supply chain network model for the sunflower agro-industry was designed, including mechanisms and mapping for source, make, and deliver in each supply chain network. The design of the sunflower agro-industry supply chain network model was carried out based on previous research conducted on the development of the kenaf fiber agro-industry supply chain network model [18].

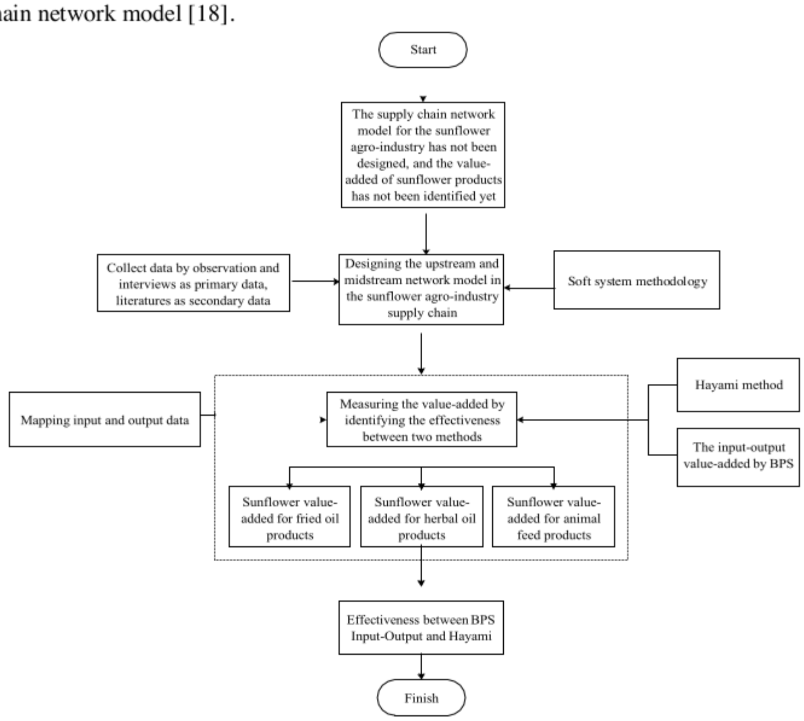

Figure 3. Research methodology

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The agro-industry supply chain model was successfully developed by conducting a situational analysis of the supply chains network. This approach is based on the development of research that has been done previously, even on different types of agro-industries [19].

The measurement of value-added in the sunflower agro-industry supply chain is conducted after the supply chain network has been identified through mapping the upstream, intermediate, and downstream segments of the supply chain. The value-added calculation used includes Hayami's value-added and the input-output value-added by BPS [20].

An input-output table is basically a statistical description in matrix form that represents information about transactions and interdependencies of goods and services between economic entities (sectors) within a region over a period of time. The entries along the rows of the matrix show how the output of a sector is allocated to other sectors to meet intermediate and final demand, while the column entries represent the sector's intermediate and primary inputs in the production process. As a quantitative model, the input-output table is meant to provide a big picture [20]. Table 1 is based on Indonesia's manufacturing industry statistics 2022 [21].

Table 1. Input Cost and Output Value BPS

No	Input Cost	No	Output Value
1	Raw and auxiliary materials	1	Goods produced
2	Fuel, electricity and gasoline	2	Electricity sold
3	Rent of building, machinery and tools	3	Industrial services received from other parties
4	Services provided by other parties	4	Difference in stock value of semi-finished goods
5	Representation fees and royalties	5	Other recipients of non-industrial services
6	Other expenses		

The mathematical equations for the BPS input-output method [21] are presented in Table 2. The output value is the value that represents the value of sales or profits. The input cost is the entire expenditure generated during the production and distribution process until the product is received by the consumer.

Table 2. Value-Added of BPS input-output

Description	Variable/equation
Output value	A
Input cost	B
Value-added (Market price)	C = A-B … (1)
Indirect tax	D
Value-added (Production factor costs)	E = C-D ... (2)

The Hayami method uses quite a lot of variables in the calculation of value added. The variables used are, among other things, the quantity of products produced, the amount of raw materials used, the cost of labour, the price of the product, the prices of the raw materials, and the contribution from other inputs. Table 3 is described the value-added mathematical equations by Hayami method.

Table 3. Hayami Method

No.	Variabel	Variable/Equation
Inputs, Outputs, and Prices		
1	Output produced (kg/ production process)	A
2	Raw materials used (kg/production process)	B
3	Labor (HOK/ production process)	C
4	Conversion factor (kg output/kg raw material)	D = A/B … (3)
5	Labor coefficient (HOK/kg raw material)	E = C/B … (4)
6	Output price (IDR/kg)	F
7	Average labor wage (Rp/production process)	G
Revenue and Profit		
8	Raw material price (IDR/kg)	H
9	Contribution of other inputs (Rp/kg output)	I
10	Value of output (Rp/kg	J = D x F … (5)
11	Value added (IDR/kg)	K = J – H – I … (6)
	Value added ratio (%)	L% = K/J x 100% … (7)
12	Labor income (IDR/kg)	M = E x G … (8)
	Labor portion (%)	N% = M/K x 100%... (9)
13	Profit (IDR/kg)	O = K – M … (10)
	Profit part (%)	P% = O/K x 100% … (11)
14	Margin (IDR/kg)	Q = J – H … (12)
	a. Labor income (%)	R% = M/Q x 100% … (13)
	b. Contribution of other inputs (%)	S% = I/Q x 100% … (14)
	c. Profit (%)	T% = O/Q x 100% … (15)

3. Result & discussion

3.1 Model of Agro-Industry Sunflower Supply Chain Networks

The distribution of supply lines, both on the input side of the company and on its output deliveries, is an unbreakable part of business organization, as is the supply chain management (SCM) of its entire throughput [22]. The designed sunflower supply chain model consists of three networks, namely, the upstream, the midstream, and the downstream. The upstream network is the chain of suppliers of seeds, fertilizers, and sunflowers to harvest seeds. The midstream supply chains are supplier of harvest seeds, and manufacturer that produced the second-generation of sunflower. The downstream supply chain network is a supplier of crude sunflower oil that is ready to be processed into the third generation of sunflower. A designed model of the supply chain network is presented in Figure 2.

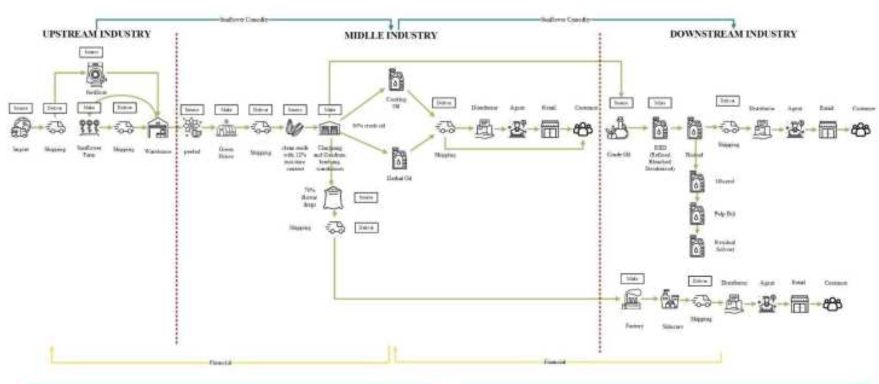

Figure 4. Model of Sunflower Agro-industry Supply Chain Network

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3.2 Value-added by BPS Input-Output

Value-added determination using the BPS input-output method was conducted on the upstream and intermediate supply chain networks. Value-added calculations were conducted to determine the value-added of sunflower seeds, cooking oil, herbal oil, and animal feed. Table 4 presents the results of the calculation of added value using the BPS input-output method.

Table 4. Value Added by BPS Input-Output (in IDR)

Item	Sunflower Seed	Cooking Oil	Herbal Oil	Animal Feed
Output Value	120.000.000	179.200.000	308.000.000	28.000.000
Input Cost	39.546.472	106.430.987	83.966.667	224.000
Value Added (Market Price)	80.453.528	72.769.013	224.033.333	27.776.000
tax	13.200.000	19.712.000	33.880.000	3.080.000
Infaq	3.000.000	4.480.000	7.700.000	700.000
Value Added (Cost of Factors of Production)	72.358	22.489	760.222	4.285

3.2.1 Upstream Network

If the sunflower seeds are not processed into oil and animal feed, the company will sell them at a price of IDR15,000/Kg. the tax taken is from the proceeds of the seller for sunflower seeds and is taken at 11% of sales and the cost for tax costs is IDR13,200,000 and *infaq* is also obtained from the sale of sunflower seeds at 2.5% of the cost for *infaq* to be distributed, which is worth IDR3,000,000. Value-added (market price) to show how much value is added to the product, from the reduction between output costs minus input costs on sunflower seed products, which is worth IDR39,546,472. Value-added(factor cost of production) is to measure efficiency and productivity in the production process of a company, value-added (factor cost of production) is obtained from reducing value-added (market price)with taxes, and *infaq* and then divided by the number of seeds sold, obtained at IDR72,358.

3.2.2 Midstream Network

The value-added of the midstream network explains the added value generated with indirect taxes worth 11% and *infaq* of 2.5% of the output value results, namely getting value-added in cooking oil of IDR22,489 from the number of products produced as much as 2,160 Liters, in herbal oil of IDR760,222 from the number of products of 240 litres and finally in animal feed of IDR4,285 from the number of products of 5600 kg.

3.3. Value Added by Hayami Method

The next method is the Hayami method to find out how much the difference in network prices between production and product sellers. The following is an explanation of each product The calculation is carried out in the following Table 5.

Table 5. Value-Added by Hayami Method

No.	Variable	Sunflower Seed	Cooking Oil	Herbal Oil	Animal Feed
Inputs, Outputs, and Prices					
1	Output produced (kg/ production process)	8.000	2.160	240	5.600
2	Raw materials used (kg/production process)	888	7.200	800	5.600
3	Labor (HOK/ production process) in IDR	3.333	3.333	3.333	3.333
4	Conversion factor (kg output/kg raw material)	9,01	0,30	0,30	1,00

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No.	Variable	Sunflower Seed	Cooking Oil	Herbal Oil	Animal Feed
5	Labor coefficient (HOK/kg raw material)	3,75	0,46	4,17	0,60
6	Output price (IDR/kg)	15.000	70.000	1.165.500	5.000
7	Average labour wage (IDR/production process)	3.333	3.333	3.333	3.333
Revenue and Profit					
8	Raw material price (IDR/kg)	9.000	9.000	9.000	-
9	Contribution of other inputs (IDR/kg output)	-	5.000	5.000	-
10	Value of output (IDR/kg)	135.135	21.000	349.650	5.000
11	Value added (IDR/kg)	126.135	7.000	335.650	5.000
	Value added ratio (%)	93	33	96	100
12	Labor income (IDR/kg)	12.510	1.543	13.889	1.984
	Labor portion (%)	10	22	4	40
13	Profit (IDR/kg)	113.625	5.457	321.761	3.016
	Profit part (%)	84%	26%	92%	60%
14	Margin (IDR/kg)	126.135	12.000	340.650	5.000
	a. Labor income (%)	10	13	4	40
	b. Contribution of other inputs (%)	0	42	1	0
	c. Profit (%)	90	45	94	60

The following is an explanation of the value-added by the Hayami method of each product in upstream network and midstream network.

Sunflower Seeds

In sunflower seeds, the results of the Hayami calculation are in the input, output and price of the conversion factor worth 9.01, the labor coefficient of 3.75. In the revenue and profit section, the output value of seeds is IDR15,000, the added value is IDR216,135 with a value-added ratio of 93%. Seed labor income worth IDR12,510, labor share with 10%. Seed profit is ID 113,625, profit share by 84%. Animal feed margin is IDR126,135, labor income worth 10%, other input contribution 0% and profit 90%.

Cooking Oil

In cooking oil, the result of the conversion factor is the result of dividing the network between the output produced divided by the raw material worth 0.30. The labor efficiency in cooking oil is from labor divided by raw materials worth 0.46. In the profit income section, the output value obtained is IDR 21,000 from the coefficient factor multiplied by the output. The added value of cooking oil in the Hayami method is IDR 7,000 with a value-added ratio of 33%. Labor income on cooking oil products is Rp1,543 and the profit on the cooking oil is IDR5,457, the profit rate is 26%. The margin of cooking oil product is IDR12,000, labor income is 13%, other input contribution is 42% and profit is 45%.

Herbal Oil

In herbal oil, the results of Hayami's calculation are in the input, output and price conversion factor of 0.30, labor coefficient of 4.17. In the revenue and profit section, the output value of herbal oil is IDR 349,650, the added value is IDR 335,650 with a value-added ratio of 96%. Herbal oil labor income worth IDR13,889, labor share with 4%. Herbal oil profit is IDR321,761, a profit share of 92%. Herbal oil margin IDR340,650, labor income worth 4%, other inputs 1% and profit 94%.

Animal feed
In animal feed, the results of Hayami's calculations, namely in the input, output and price sections, the conversion factor is 1.00 the labor coefficient is 0.60. In the revenue and profit section, the output value of animal feed is IDR 5,000, the added value is IDR 5,000 with a value-added ratio of 100%. Animal feed labor income worth IDR1,984, labor share with 40%. Animal feed profit is IDR3,016, a profit share of 60%. Animal feed margin is IDR35,000, labor income is 40%, other input contribution is 0% and profit is 60%.

3.4 Comparison between Hayami method and BPS input output method in sunflower agro-industry
Based on the identification and calculation of value-added using the two methods, this study seeks to reveal the differences that occur between the two methods when applied to the sunflower agro-industry supply chain. The comparison of value-added with the two methods is presented in Table 6.

Table 6. Comparison of Hayami method and BPS input output method

No	Criteria	Hayami Method	Input-Output BPS method
1	Formulation	Already established	Customized with industry cases (flexible)
2	Data	Detailed and specific	Comprehensive
3	Scope	Production	• Production • Investment • Industrial services received (*makloon*) and rendered
4	Variable	Detailed and specific	Flexible
5	Tax	Not accounted for	Accounted for

This research has successfully identified the effectiveness of the calculation of value-added between the Hayami method and BPS Input-Output in the sunflower agro-industry supply chain. In the upstream and midstream networks, it is known that the BPS Input-Output method is easier to implemented for this sunflower agro-industry supply chain, because it is in accordance with the data owned by this research.

Another point that was successfully revealed was that the input-output method can include several additions according to the conditions of the sunflower agro-industry such as transportation, taxes, and i that can enable the description of value-added results for the sunflower agro-industry. The most obvious difference is the conversion factor in the Hayami method, which measures technical efficiency in the use of production inputs.

4. Conclusion
From the research that has been done it can be concluded Designing a supply chain network in the sunflower agroindustry to optimize material flow, reduce waiting time, reduce transportation costs, and optimize resource use. The comparison of these two value-added methods is that the BPS input-output method is easier to apply or use for this sunflower agro-industry, because it is in accordance with the data owned by this research or the input-output method can include several additions such as transportation, taxes and many more that can allow the depiction of value-added results for this sunflower agro-industry and the capacity to use BPS input-output for the entire number of products produced.

5. Acknowledgement
Thanks to the Institute for Research, Innovation, and Community Service of Al-Azhar University Indonesia (LPIPM UAI) for funding the research and publication of this article.

6. References
[1] Obel Rosadi F N Jamsari Rahmat A and Seswita, 2022 Pertumbuhan dan Hasil Bunga Matahari Pada Lahan Pantai Kabupaten Pesisir Selatan *J. Galung* Trop. 11, April p. 23–30.
[2] Pilorge E, 2020 Sun flower in the global vegetable oil system: situation, speci fi cities and perspectives.

[3] Kuts T and Makarchuk O, 2022 Supply chain in the crop production industry of Ukraine: Main participants and peculiarities of integration *J. Eur. Econ.* 21, December p. 0–2.

[4] de Sousa L O Ferreira M D P and Mergenthaler M, 2018 Agri-food chain establishment as a means to increase sustainability in food systems: Lessons from sunflower in Brazil *Sustain.* 10, 7.

[5] Jagtap S *et al*., 2022 The Russia-Ukraine Conflict: Its Implications for the Global Food Supply Chains Foods 11, 14 p. 1–23.

[6] Mwita T, 2013, Analysis of Supply Chain of Sunflower in Singida, Mzumbe University.

[7] Rosdiani A Darmawan R F and Al-Mundzir H A, 2022 Pengukuran kinerja manajemen rantai pasokan dengan model supply chain operations reference (scor) terhadap produktivitas kerja Naut. *J. Ilm. Multidisplin* 1, 4 p. 235–240.

[8] Leiva-Candia D E et al., 2015 Biorefining of By-product Streams from Sunflower-based Biodiesel Production Plants for Integrated Synthesis of Microbial Oil and Value-added Co-products Bioresour. *Technol*. 190 p. 57–65.

[9] Rudi H Resalati H Eshkiki R B and Kermanian H, 2016 Sunflower stalk neutral sulfite semi-chemical pulp: an alternative fiber source for production of fluting paper *J. Clean. Prod*. 127 p. 562–566.

[10] Natarjan N and Nadanam K, 2015 Rhizofiltration of Textile Dye Sludge Using Sunflower Plant IOSR *J. Environ. Sci. Toxicol. Food Technol*. 9, May p. 16–19.

[11] BPS, 2023 [BPS] Badan Pusat Statistik. Badan Pusat Statistik [Internet]. https://www.bps.go.id/statictable/2020/02/17/2084/luas-penutupan-lahan-indonesia-di-dalam-dan-di-luar-kawasan-hutan-tahun-2014-2018-menurut-kelas-ribu-ha-.html

[12] FAO, [FAO] Food and Agriculture Organization. FAO Statistics [Internet] 2023. https://www.fao.org/faostat

[13] 2023 Statista. Export volume of sunflowerseed oil worldwide from 2016/17 to 2022/23 [Internet]. https://www.statista.com/statistics/620317/sunflowerseed-oil-export-volume-worldwide-by-country/

[14] Hasni D Yusriana and Auliaddin, 2022 Analisis Nilai Tambah Pada Rantai Pasok Produk Kopi Arabika Dengan Metode Hayami (Studi Kasus di Kabupaten Aceh Tengah) *Agrointek J. Teknol. Ind. Pertan*. 16, 4 p. 560–572.

[15] Usman U Likdanawati L Putri Mellita Sari C and Ichsan I, 2021 Increasing the Added Value of Broilers in Lhokseumawe City By Developing Supply Chain and Food Balance Models *Morfai J*. 1, 2 p. 267–274.

[16] Febrianto N Hartono B and Yulinarsari A P, 2021 Value-Added Analysis of Duck Meat Supply Chain in Malang , Indonesia *Am. J. Anim. Vet. Sci*. 16, 3 p. 112–120.

[17] Nurhasanah N Machfud M Mangunwidjaja D and Romli M, 2019 Value Added of Kenaf Fibre in Natural Fibre Agroindustry Supply Chain Network in *International conference on innovation in technology and management for sustainable agroindustry* p. 10.

[18] Nurhasanah N Machfud M Mangunwidjaja D and Romli M, 2020 A conceptual framework on The design of intelligent supply chain for natural fibre agroindustry in *AIP Conference Proceedings 2217 (International Conference on Industrial, Mechanical, Electrical and Chemical Engineering* 2019) p. 030050-1–8.

[19] Nurhasanah N Machfud M Mangunwidjaja D and Romli M, 2020 The Application of soft system methodology to design the conceptual model for intelligent supply chain model of natural fibre agroindustry in *IOP Conference Series: Materials Science and Engineering* p. 1–10.

[20] [BPS] Badan Pusat Statistik, 2022 *Direktori industri manufaktur Indonesia* 4, 1 Jakarta.

[21] Badan Pusat Statistik, 2016 Tabel input-output indonesia 2016 Badan Pus. Stat.

[22] Petridis K Chattopadhyay A K and Dey P K, 2015 A model for the optimal design of a supply chain network driven by stochastic fluctuations p. 1–25.

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